Relation between resilience and cigarette/alcohol use in adolescents with mild intellectual disability

Odnos između rezilijentnosti i upotrebe cigareta i alkohola kod adolescenata sa intelektualnom ometenošću

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Abstract

Background/Aim. Resilience is related to the substance use in adolescence. However, little is known about the nature of this relation in adolescents with intellectual disability (ID). The aim of this research was to determine the relation among three domains of resilience (sense of mastery, sense of relatedness and emotional reactivity) and the substance use (cigarettes, alcohol, and marijuana) in adolescents with ID.

Methods. The sample consisted of 100 adolescents of both genders with mild ID and aged 13-20 years. The Resilience Scales for Children and Adolescents were used to assess resilience.

Results. In the adolescents with ID, resilience was significantly related to the use of cigarettes (χ² = 13.384; df = 3; p = 0.004), but not to the use of alcohol (χ² = 6.789; df = 3; p > 0.05). Out of the three assessed domains of resilience, increased emotional reactivity was the only significant predictor of cigarette use. Conclusion. The obtained results suggest that emotional difficulties may increase the risk of cigarette use in adolescents with ID.

Key words: adolescent; alcohol drinking; intellectual disability; resilience, psychological; smoking.

Introduction

The study of resilience has a relatively long history which began by identifying the characteristics of resilient children, i.e., the characteristics which can account for individual differences in withstanding and recovering from stressful situations 1–3. The concept of resilience developed over time, and the attention of researchers was also being directed to understanding the processes which lead to the successful adaptation despite adversity and traumas 4,5. Contemporary literature provides an even broader definition of resilience: “the capacity of dynamic system to withstand or recover from significant threats to its stability, viability or development” 6. Regardless of the described changes in the conceptualization of resilience, the interest in individual characteristics which contribute to positive developmental outcomes has been sustained up to the present time. According to the authors who follow this course of research, resilience “embodies the personal qualities that enable one to thrive in the face of adversity” 7. Resilience is believed to be a multidimensional construct which includes some characteristics of temperament.
and personality, and also specific skills which enable an individual to successfully overcome life difficulties.8

The main focus of this paper are domains of resilience distinguished and described by Prince-Embury;9 a sense of mastery, sense of relatedness, and emotional reactivity. Sense of mastery includes three individual qualities: optimism as a positive attitude towards the world, one’s own life and the future, self-efficacy, i.e., confidence in one’s own abilities, and adaptability which involves openness to criticism and the ability to learn from one’s own mistakes. Individual qualities included in the sense of relatedness are: a sense of trust, perceived access to support, comfort with others and tolerance of differences. Emotional reactivity includes sensitivity, i.e., speed and intensity of an emotional response and two constructs which represent the outcomes of emotional regulation – recovery and impairment after emotional excitement.

Research on the relation between thus conceptualized resilience and the substance use (SU) in the general population of adolescents reveals that sense of mastery and sense of relatedness negatively correlate, while emotional reactivity positively correlates with the SU.10 Apart from that, literature on the role of described individual qualities of resilience in the occurrence and the development of the SU in typically developing adolescents is extensive. With regard to the sense of mastery, research results suggest that the SU is related to a lower level of self-efficacy11–13, optimism14–16 and adaptability17–19. The results of studies on the second domain of resilience, the sense of relatedness, indicate that relationship with parents negatively correlates with the SU.20–22, but that relationship with peers may have the opposite effect.23–25 Finally, numerous authors associate the SU with emotional reactivity, i.e., with difficulties in experiencing and regulating emotions26–28.

The relation between resilience and the SU in the general population of adolescents has been well researched. However, little attention was given to studying this relation in adolescents with intellectual disability (ID). On the other hand, the results of previous studies have confirmed that many adolescents with ID have experience with the use of cigarettes, alcohol and marijuana.

Some authors found that the prevalence of cigarette use in adolescents with ID is lower compared to the general population.29–32 By contrast, the results of some studies showed a higher prevalence of cigarette use in adolescent with ID 31–32 or absence of significant differences when compared to the general population 33–34. Empirical data on the proportion of adolescents with ID who tried cigarettes are not consistent: 3.4% 35; 16% of boys and 17% of girls 31; 30.1% 36; 59.5% 29. The assessments of the incidence of smoking also differ: 4.9%–26.9% are currently smoking 37, i.e., 30% 38; 15% smoked more than once, and 14% are currently smoking 39; 27% of boys and 21% of girls smoked during the previous year 31; 1.4% smoke regularly 29.

Older studies reported that the prevalence of alcohol was lower in adolescents with ID than in the general population 30.37. However, significant differences related to that were not found in more recent studies 29, 33–34. The literature provides the following data on the incidence of trying alcohol in adolescents with ID: 41% 32; 48% 37; 71.7% 29. Authors who have dealt with these problems have different observations about the incidence of alcohol use: 22.7%–54.5% consumed alcohol in the previous year 30, i.e., 29.5% 36, 8.8%–35.5% consumed alcohol in the previous month 30, i.e., 39% 37, 0.6% drink alcohol regularly 35.

It is generally believed that the use of illegal drugs is less prevalent in adolescents with ID than in the general population.29,30,33–37. However, the research results indicate that a significant number of adolescents with ID tried marijuana: 10% 34; 13% 31,37; 34.3% 29. Marijuana was used by 0.9%–13.8% 30, i.e., 10% of adolescents tried over the previous month, and 1.5%–23.9% during the previous year 30.

The aim of this study was to determine the existence and nature of the relations among three domains of resilience (sense of mastery, sense of relatedness, and emotional reactivity) and cigarette, alcohol, and marijuana use in adolescents with ID. With regard to the previous studies, it was assumed that the SU negatively correlated with the sense of mastery and positively with emotional reactivity. However, inconsistent findings on the role of a sense of relatedness did not provide a basis for making initial assumptions about the relation between this domain of resilience and the SU.

Methods

The research was conducted in four schools for students with disabilities in Belgrade. The sample included 100 adolescents with ID, aged 13–20 years [average age: (mean ± standard deviation (SD) = 15.59 ± 1.736 years), of both genders (63% boys and 37% girls). There were no significant differences in the average age of the male and female participants (t = 0.574; df = 98; p > 0.05). The participants’ intellectual functioning was at the level of mild ID (IQ = 50–69). The sample included only the adolescents with adequate verbal abilities who were assessed as being able to give answers on a Likert-type scale. The sample did not include the adolescents with dual diagnoses and multiple disabilities.

The data on the participants’ age, gender, intellectual functioning, and health were taken from the school records.

The Peabody Picture Vocabulary Scale (PPVT-IV) 38 was used for the assessment of participants’ verbal abilities. Form A was applied in this research, with 114 items divided into 16 sets which test the knowledge of nouns, verbs, and adjectives from 20 different areas (e.g., plants and professions).

The Youth Risk Behavior Survey (YRBS) 39 was used to collect data on the SU. Only the questions from the Scale on the SU related to the history of cigarette use (eight questions), alcohol use (six questions), and marijuana use (four questions) were used in this research. Due to the considerable differences in the responses to questions about the incidence of usage, data on a whole-life prevalence of cigarette, alcohol, and marijuana use were used in the research, and the participants were grouped with regard to whether they had ever used the given psychoactive substances or not. Internal consistency of the scale applied in this research was good (α = 0.862).

The Resiliency Scales for Children and Adolescents (RSCA) \(^9\) were used to assess resilience. The instrument consisted of 64 questions distributed in the following three scales: the Sense of Mastery (MAS) scale consists of Optimism, Self-efficacy and Adaptability subscales; the Sense of Relatedness (REL) scale consists of the Sense of Trust, Perceived Access to Support, Comfort with Others and Tolerance of Differences subscales; the Emotional Reactivity (REA) scale consists of Sensitivity, Recovery and Impairment subscales. The higher scores on the MAS and REL scales and the lower scores on the REA scale point to greater resilience. Internal consistency of the RSCA (\(\alpha = 0.894\)) as well as the MAS (\(\alpha = 0.820\)), the REL (\(\alpha = 0.880\)) and the REA (\(\alpha = 0.924\)) scales was good in this research.

The informed consent was obtained from the school, parents and participants for the purpose of this research. Class teachers selected students with adequate verbal abilities who were able to participate in the research. Also, before giving out the questionnaires, the assessment of receptive speech was conducted by means of the PPVT-IV. The participants achieved standard scores in the range 94–185 (mean \(\pm SD = 135.61 \pm 22.861\)). The research aims were explained and instructions on data collecting procedure were given to each participant. The participants were informed that participation in the research was voluntary and that their responses were confidential. The questionnaires were completed in a separate room in the school, without the presence of anybody else but the examiner and participants. The questions were read as they were given in questionnaires, with necessary additional explanations. The participants were required to choose one of the given answers. Cards with provided answers were made in order to make it easier for the participants to answer the questions.

Descriptive statistics, correlation method, and regression analysis (binary logistic analysis) were used in data analysis.

Results

Out of 100 participants, a total of 49% reported cigarette use, 63% reported alcohol use and 4% reported marijuana use at least once in their lifetime.

<table>
<thead>
<tr>
<th>RSCA scales and subscales</th>
<th>Range min–max</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS</td>
<td>31–73</td>
<td>50.83 ± 8.016</td>
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<tr>
<td>optimism</td>
<td>10–25</td>
<td>17.37 ± 3.569</td>
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<tr>
<td>self-efficacy</td>
<td>9–36</td>
<td>23.98 ± 5.077</td>
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<tr>
<td>adaptability</td>
<td>1–12</td>
<td>9.48 ± 1.801</td>
</tr>
<tr>
<td>REL</td>
<td>40–96</td>
<td>71.34 ± 10.050</td>
</tr>
<tr>
<td>sense of trust</td>
<td>10–28</td>
<td>20.65 ± 3.273</td>
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<tr>
<td>perceived access to support</td>
<td>10–24</td>
<td>19.64 ± 2.830</td>
</tr>
<tr>
<td>comfort with others</td>
<td>6–16</td>
<td>11.46 ± 2.298</td>
</tr>
<tr>
<td>tolerance of differences</td>
<td>10–28</td>
<td>19.59 ± 3.822</td>
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<tr>
<td>REA</td>
<td>0–66</td>
<td>33.17 ± 13.761</td>
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<tr>
<td>sensitivity</td>
<td>0–22</td>
<td>11.94 ± 4.397</td>
</tr>
<tr>
<td>recovery</td>
<td>0–16</td>
<td>5.41 ± 3.015</td>
</tr>
<tr>
<td>impairment</td>
<td>0–38</td>
<td>15.82 ± 8.402</td>
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The relation between the main variables was tested by means of the correlation method. Table 2 shows the values of the Pearson’s correlation coefficient. Cigarette use had a statistically significant positive correlation with the scores on the Adaptability subscale, the REA scale and its subscales – Sensitivity, Recovery and Impairment. Alcohol use had a statistically significant positive correlation with the scores on the REA scale and its Sensitivity and Impairment subscales and a negative correlation with the scores on the Optimism subscale. There were no significant correlations between marijuana use and the scores on the Resiliency Scales for Children and Adolescents.

The relation between resilience and cigarette/alcohol use was assessed by a series of binary logistic analyses. The binary logistic analyses were not performed for marijuana use, since very few of the participants stated that they had tried marijuana (4 out of 100 participants) and there were no significant correlations.

<table>
<thead>
<tr>
<th>Correlations between scores on the Resiliency Scales for Children and Adolescents (RSCA) and cigarette, alcohol and marijuana use</th>
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\(^* p < 0.05; \ ^† p < 0.01.\)

For other abbreviations see under Table 1.
The results of binary logistic analyses indicated that participants’ resilience was related to cigarette use \( (\chi^2 = 13.384; \text{df} = 3; p = 0.004) \), with the achieved scores on REA scale being singled out as the only significant predictor (Table 3). By contrast, the assessed dimensions of resilience (MAS, REL, and REA) were not significant predictors of alcohol use \( (\chi^2 = 6.789; \text{df} = 3; p > 0.05) \).

The second series of binary logistic analyses assessed the predictive value of scores achieved on the subscales of MAS (Optimism, Self-efficacy and Adaptability), the subscales of REL scale (Sense of Trust, Perceived Access to Support, Comfort with Others and Tolerance of Differences) and the subscales of REA scale (Sensitivity, Recovery and Impairment). The achieved scores on the mentioned subscales were not the significant predictors either of cigarette use \( (\chi^2 = 17.955; \text{df} = 10; p = 0.056) \) or alcohol use \( (\chi^2 = 13.841; \text{df} = 10; p = 0.180) \).

### Discussion

Although the prevalence of the SU in adolescents with ID is not the subject of this study, the obtained results deserve a brief comment. The incidence of cigarette and alcohol use was higher when compared to the results of other studies conducted on the samples of adolescents with ID in the USA \(^{30}\), Great Britain \(^{31-32}, 34, 36\) and Taiwan \(^{35}\) and lower when compared to the empirical data from South Africa \(^{29}\). However, the incidence of marijuana use was significantly lower when compared to the results of studies conducted in other countries \(^{29, 30, 33-34, 37}\).

This research analyzed the relation among three domains of resilience and cigarette, alcohol, and marijuana use in the adolescents with ID. Compared to the normative population, the participants’ scores on the MAS scale were below the average range, in the average range on the REL scale and above the average range on the REA scale. The most important findings indicated that the sense of mastery and sense of relatedness were not significantly related to the SU while emotional reactivity was.

Contrary to our expectations, a negative correlation between the sense of mastery and the SU was not confirmed. A very low positive correlation was determined between Adaptability and cigarette use. This finding may be compared to observations of other authors who found that, in the population of people with ID, smoking had a higher incidence in those with developed adaptive skills \(^{40-42}\), and that cigarette use was a symbol of maturity and competence \(^{43}\), or a means to blend in \(^{44}\). Also, a very low negative correlation was determined between Optimism and alcohol use, which is in accordance with the results of the previously mentioned studies indicating that adolescents who had more positive expectations of the future used alcohol less frequently \(^{14-16}\).

When interpreting the results on the relation between sense of mastery and the SU, we should bear in mind that the participants generally had the scores below average on the MAS scale. Thus, it is possible that the applied instrument was not sensitive enough to detect subtle individual differences in the adolescents with ID.

The absence of significant correlations between the sense of relatedness and the SU was somewhat expected. As already mentioned, the results of the previous studies suggested that the nature of this relation varied depending on whether the relationship was with parents or with peers. The questions referring to the relationships with parents and peers were not separated in the REL scale which could have influenced the obtained results.

The results of this research indicated that emotional reactivity was a significant predictor of cigarette use in the adolescents with ID. In generally sparse literature on the SU in adolescents with ID, the studies on the relation between the SU and emotional difficulties are quite rare. However, although scarce, the existing studies on the risk factors of the SU in the adolescents with ID suggest that the mental health problems have a particularly important role \(^{36, 45-47}\).

The obtained results are in accordance with the results of numerous studies which point to a significant relation between the SU and emotional difficulties in the general population of adolescents. The authors who researched the relation between negative emotions and the SU were consistently finding that adolescents with higher negative affectivity used substances more frequently to overcome, or alleviate unpleasant emotions \(^{28, 48-49}\). The conclusions of the study which summarized the results of relevant research in this field emphasized that apart from negative affectivity, higher positive affectivity and poor regulation of emotions also had a significant role in initiation of the SU \(^{50}\). In other words, intensive emotional states, oversensitivity to emotional stimuli, and inability to control emotions increased the risk of the SU in adolescence. Empirical data on frequent co-morbidity of the SU and depression and anxiety disorders in adolescence \(^{26, 51-52}\) should also be mentioned. The literature related to this subject shows that the prevalence of co-morbidity of the SU and depression ranges from 11.1% to 32%, and of the SU and anxiety disorders from 7% to 40.4% \(^{53}\) in adolescents.

According to the results of this research, emotional reactivity was significantly related to cigarette use, but not to alcohol use. A stronger connection of the emotional difficulties with cigarette use than with alcohol use was also confirmed in the studies conducted on samples of typically developing adolescents \(^{26}\) and adolescents with ID \(^{32}\).

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The literature discusses the possibility that emotional difficulties and the SU have a common etiology in genetic influences and environmental factors. This viewpoint is supported by empirical data on higher incidence of the SU in adolescents with a family history of substance abuse.

Finally, many authors believe that the relation between the SU and emotional difficulties is two-way, i.e., that the emotional difficulties may have a role of a risk factor or a consequence, depending on the phase of using psychoactive substances. The increased level of the emotional difficulties increases the risk of initiation and experimental use of psychoactive substances, but the regular SU contributes to emotional difficulties. Cigarette use may contribute to an increased level of stress and negative affectivity and proved to be a more significant predictor of severe symptoms of depression in adolescents than alcohol use.

This study has certain limitation that need to be mentioned. First of all, attention was directed to the individual qualities which represented only one aspect of a complex resilience construct. Future research should be aimed at environmental influences and the interaction of the individual and environmental factors. Second, only data obtained from the adolescents with ID were used. Thus, different sources of information, methods and instruments should be used for assessing resilience and the SU in the future. Third, the research does offer a possibility to draw conclusions on causal relations between the assessed variables which points to the need for longitudinal research of this subject.

Despite the mentioned limitations, the findings of this study provided a significant insight into insufficiently researched relation between the SU and a sense of mastery, sense of relatedness, and emotional reactivity in adolescents with ID.

Identification of factors which contribute to the SU in adolescence has important implications for prevention. The results of this research suggest that the attention should be directed to the emotional difficulties which increase the risk of SU in adolescents with ID. Alleviating emotional difficulties may be a strong motivating factor for the SU and may increase adolescents’ susceptibility to negative influences of peers and the media. Therefore, in preventing the SU in adolescents with ID, priority should be given to interventions aimed at improving self-control and emotion regulation as well as learning effective strategies to overcome negative emotions and stress. Bearing in mind the data on the incidence of cigarette and alcohol use in adolescents with ID, these interventions should be applied to a universal level, through organized curricular and extracurricular activities for all students.

Conclusion

The results of this research may contribute to understanding the relation between individual qualities of resilience and the SU in adolescents with ID. The obtained findings with a significant predictive value of emotional reactivity complement the extensive literature on the relation between the emotional difficulties and the SU in adolescence. Future research should be aimed at studying mechanisms underlying this relation.
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