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Analysis of the Relationship between Emotional Intelligence, Resilience, and Family Functioning in Adolescents' Sustainable Use of Alcohol and Tobacco

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Abstract: The use of alcohol and tobacco is related to several variables, which act as risk or protective factors depending on the circumstances. The objectives of this study were to analyze the relationship between emotional intelligence, resilience, and family functioning in adolescent use of alcohol and tobacco, and to find emotional profiles for their use with regard to self-concept. The sample was made up of 317 high school students aged 13 to 18, who filled out the Brief Emotional Intelligence Inventory, the Resilience Scale for Adolescents, the APGAR Scale, the Alcohol Expectancy Questionnaire-Adolescents, and the Five-Factor Self-Concept Questionnaire. The results revealed that emotional intelligence and resilience, specifically stress management and family cohesion, were significant in the group of non-users. Family functioning acts as a predictor for the onset of use of tobacco and alcohol. Positive expectancies about drinking alcohol were found to be a risk factor, and the intrapersonal factor was found to be protective. Both stress management and family cohesion were protective factors against smoking. Furthermore, cluster analysis revealed the emotional profiles for users of both substances based on self-concept. Finally, the importance of the direction of the relationship between the variables studied for intervention in this problem should be mentioned. Responsible use by improving adolescent decision-making is one of the results expected from this type of intervention.

Keywords: substance use; emotional intelligence; resilience; family functioning; adolescents

1. Introduction

Adolescence is one of the most vulnerable stages of development—it is the beginning of experimentation in different areas, for instance, sensation-seeking and social influence [1] versus family [2,3], and peer-group pressure [4], along with the various other changes adolescents must cope with. This period is therefore associated with health problems, such as the use of alcohol and tobacco [5–7]. According to recent surveys carried out on the use of legal and illegal drugs during secondary education (ESTUDES 2016–2017) in Spain, the substances most used, by order of importance, are alcohol, tobacco, and cannabis, followed by hypnosedatives, psychoactive substances, cocaine, ecstasy, and other substances [8]. There is also a relationship between the use of tobacco and alcohol among adolescents, in which the probability of smoking is ten times higher among those drinking alcohol [9]. Many studies have been done over the years on the relationship between these two substances, as well as their repercussions in adolescence [10,11]. Among these consequences are decreased academic performance [12], increased impulsivity [13], and both physically and verbally [14,15] violent behavior [16] in school [17].

Sustainability **2019**, 11, 2954 2 of 17

1.1. Risk and Protection Factors of Using Alcohol and Tobacco

The effects of smoking and alcohol can cause long-term physical and psychological harm [18,19]. These consequences are linked to a series of risk or protection factors. Age and gender, and some personality traits, are factors influencing the onset of alcohol and tobacco use [20]. The study by Granja et al. [10], for example, found that use of alcohol was higher in men than in women. This risk behavior is also linked to adolescent emotional skills. Thus, youths who have low emotional intelligence are prone to greater tobacco and alcohol use [21], and conversely, adolescents with high emotional intelligence levels show less inclination toward their use [22], along with good psychosocial adjustment. According to Fainsilber, Stettler, and Gurtovenko [23], stress management helps individuals control their emotions, which acts as a mediator to stressful situations. At the same time, not only is adolescents' emotional regulation associated with the use of alcohol and tobacco, but also their resilience, which may be defined as their capacity to achieve adaptive results in spite of having been exposed to adverse situations [24]. Some studies have found that emotional intelligence and resilience have a positive relationship, which is more significant in terms of the emotional repair factor. Individuals who have good emotional control will therefore have higher levels of resilience [25,26]. There is also a positive relationship between resilience and self-efficacy in students [27].

Resilience is negatively associated with substance use, and specifically with the attitude toward use of alcohol and tobacco [28]. In a study with university students, Rudzinski et al. [29] showed the influence of resilience on alcohol, tobacco, and other drug use behavior, in which low scores on using these substances were associated with high levels of resilience. Along this same line, a study done with adolescents showed that non-users of alcohol, or those who did so infrequently, had high levels of resilience [30]. Therefore, one of the factors that predicts low resilience is frequency of use [31].

With regards to the frequency of use of alcohol and tobacco by adolescents, use by both the peer group [32] and family members [33] are predictive factors in their onset, when expectancies of use are fundamental [34]. Use of alcohol is also linked to group pressure and to perceived social support from the family [35]. Acquisition of risk conduct is therefore influenced by both individual [36] and family factors [37]. Trujillo-Guerrero et al. [38] did not find any association between parents' perceptions of family functioning and use of alcohol by their adolescent children. However, Ohannessian et al. [39] did find a significant negative link between alcohol use and family functioning. That is, youths who perceive little affectivity from their family, or belong to a dysfunctional family in which conflict prevails, usually engage in more substance use. Thus, the influence of family functioning has been confirmed as a predictive factor in starting to consume substances such as alcohol [39,40]. Adolescents with medium-to-high dependence on smoking show severe and moderate family dysfunction compared to non-smokers, and among these, family functioning is significantly higher [41].

In another vein, smoking and drinking by youths is also related to high levels of social self-concept [42]. Use of alcoholic beverages has been found to influence academic, emotional, and family self-concept, but not physical self-concept [43]. However, these authors did mention the influence of smoking on the physical, family, and academic dimensions. Meanwhile, Mezquita et al. [44] indicated a positive relationship between physical and social self-concept and alcohol use, acting as potentiators of their intake. These problems question the balance in relationships and stable practices established among its members. The family is one of the main agents of socialization, based on respect for traditions, cultural identity, and values, necessary for development of a sustainable society.

Keeping in mind some of the above variables, in the study by Chacón et al. [45], tobacco and alcohol use profiles were found, in which smoking was linked to improper use of alcohol and illegal drugs. Use of alcohol has also been associated with having friends who drink and smoke. Pérez-Fuentes et al. [46] identified profiles of violence and use of alcohol and tobacco in relation to impulsivity.

These risk behaviors by the adolescent population lead to social problems, which demand intervention directed at developing prosocial behavior. Responsible use by improving adolescent decision-making is one of the results expected from this type of intervention. Thus, social self-concept is a determining factor in the intensity of the response.

Sustainability **2019**, 11, 2954 3 of 17

The actions necessary for coping with social problems such as use of alcohol and tobacco can be carried out in the educational environment [47,48]. Durkheim [49], from the perspective of the sociology of education, emphasized the presence of a set of common beliefs which lead to developing collective action, where individuals should act according to the norms established by society. In this way, deviation from socially unacceptable behaviors and ideas is restricted [50].

Therefore, for each phenomenon studied here, there must be adequate decision-making management by the individual [51], which will promote the sustainable development of personal responsibility and resources. This approach to these social phenomena would facilitate social balance and adequate development of sustainable lifestyles [52].

As pointed out by Schuler et al. [33], efforts to prevent problematic behaviors, such as substance use and violence, must begin in primary school and cover the secondary stage. These efforts should focus on addressing the influence of adolescent social environments, especially the family environment, considered crucial in the development of the aforementioned problematic behaviors.

At the present time, there are few studies analyzing the relationship between alcohol and tobacco use, emotional intelligence, resilience, family functioning, and self-concept together in high school students.

1.2. Study Objectives

The objective of this study was to analyze the relationship between emotional intelligence, resilience, and family functioning in adolescent use of alcohol and tobacco, and to establish emotional profiles for users of both substances with regard to self-concept.

In view of previous empirical evidence, the following hypotheses were posed: (1) there are significant differences in emotional intelligence, resilience, and family functioning between alcohol and tobacco users and the non-user groups; (2) adolescents with higher positive expectancies about the effects of alcohol have a higher risk of being users; (3) adolescents with high levels of stress management and family cohesion show a lower risk of becoming smokers; and (4) there are significant differences in self-concept between user groups with high and low emotional intelligence.

To summarize, this study is intended to acquire information on the individual characteristics of a population in which problems emerge, and which share common educational spaces where the basis for this social perspective can be laid down.

2. Materials and Methods

2.1. Participants

The sample was comprised of 317 students from high schools in the province of Almería (Spain), aged 13 to 18 with a mean age of 14.93 (SD = 1.065). Of these, 50.8% (n = 161) were boys and 49.2% (n = 156) were girls. The mean age of the boys was 14.85 (SD = 1.008) and the mean age of the girls was 15.01 years (SD = 1.119). Of the total sample, 61.5% (n = 195) were in their third year of high school and 38.5% (n = 122) were in their fourth year.

2.2. Instruments

The Brief Emotional Intelligence Inventory for Senior Citizens (EQ-i-20M)—adapted from the Emotional Intelligence Inventory: Young Version (EQ-i:YV) by Bar-On and Parker [53], which has been validated and scaled for an adult Spanish population [54]—was used. It consists of 20 items with four answer choices on a Likert-type scale (1 = never happens to me, and 4 = always happens to me), and five factors: intrapersonal, interpersonal, stress management, adaptability, and mood. The internal consistency of the instrument is adequate at 0.89 [53]. The reliability of the five-factor Spanish version varies from 0.63 to 0.80 [55]. In the brief version, the Cronbach's alpha was 0.57 for the intrapersonal factor, 0.80 for the interpersonal factor, 0.68 for stress management, 0.81 for adaptability, and 0.83 for the mood factor. In this sample, the instrument showed reliability (alpha ordinal) of 0.88 for the

Sustainability **2019**, 11, 2954 4 of 17

intrapersonal scale, 0.81 for the interpersonal scale, 0.86 for stress management, 0.81 for adaptability, and 0.91 for mood.

The Spanish adaptation and validation for a Mexican population [56] of the original Resilience Scale for Adolescents (READ) by Hjemdal et al. [57] was used. The scale has five factors: personal competence, social competence, family cohesion, social resources, and orientation toward goals, distributed over 22 items. The alpha ordinal was 0.90 in family cohesion, 0.82 in personal competence, 0.87 in social competence, 0.92 in social resources, and 0.84 in orientation toward goals.

The Family Function Scale (APGAR) [58] is a Spanish adaptation of the original scale [59], consisting of five components for evaluating family function: adaptation, association/society, growth, affection, and resolution. The items are answered 0 with (hardly ever), 1 (some of the time), or 2 (most of the time). There are also three categories of functionality: severe dysfunction (0 to 3), moderate dysfunction (4 to 6), and family functioning (6 or more). The alpha ordinal was 0.89.

The Spanish adaptation of the Alcohol Expectancy Questionnaire-Adolescent, Brief (AEQ-AB) [60] by Gázquez et al. [34] evaluates the expectancies of use in an adolescent population quickly and simply, given the brief extension of the questionnaire and the adequacy of the model of expectancies on which it is based. It is comprised of seven items rated on a five-point Likert-type scale (from 1, "strongly agree", to 5, "strongly disagree"). The questionnaire is made up of two factors, one measuring positive effects (four items) and the other negative effects (three items). The alpha ordinal on the positive factor was 0.83 and on the negative factor 0.56.

The Five-Factor Self-Concept Questionnaire (AF5) [61] questionnaire has 30 items distributed in five dimensions: academic/work, social, emotional, family, and physical. It is answered on a five-point Likert scale, where 1 is "completely disagree" and 5 is "completely agree". The authors of the questionnaire found a Cronbach's alpha of 0.81. The validity of this construct has been verified by several different studies [62]. In the one by Morales [63], for example, the alpha for academic/work was 0.84, for social 0.84, for emotional 0.46, for family 0.74, and for physical 0.75. In this study, the alpha ordinal for the academic/work dimension was 0.89, for social it was 0.82, for emotional 0.68, for family 0.90, and for physical 0.86.

2.3. Procedure

To carry out the study, the high school principals and participants were informed of its objectives, methods, and data usage. The students were also told that their participation was voluntary and were given the instructions necessary to complete the questionnaire. They were informed of the anonymity of their answers and confidentiality in the handling of the data. Each of the participants had the opportunity to give their informed consent to comply with research ethics.

2.4. Data Analysis

First, the data on the frequency of use of alcohol and tobacco were analyzed for sociodemographic variables by frequency analysis. Then, to explore the relationship of the variables, a correlation analysis was performed for the continuous quantitative variables, and a Student's t test for the categorical variables.

After that, a binary regression analysis was done using the enter method. For this, the dependent variables were use of alcohol and tobacco, with a dichotomous answer (yes/no). The predictor variables included were emotional intelligence (intrapersonal, interpersonal, stress management, adaptability, and mood), resilience (family cohesion, personal competence, social competence, social resources, and orientation toward goals), and family functioning.

Finally, taking the group of users in the sample, a two-step cluster analysis was done to determine different profiles based on emotional intelligence dimensions. Once the groups, or clusters, had been identified, a comparative analysis of means determined the existence of significant differences between the groups with respect to the components of self-concept, using the Student's t for independent

Sustainability **2019**, *11*, 2954 5 of 17

samples and Cohen's *d* (1988) to test for the effect size of the differences found. The SPSS version 23.0 statistical package for Windows was used for data processing and analysis.

To examine the reliability of the instruments used for data collection, the following procedure was used to estimate the internal consistency of the scores: (1) First, an exploratory factor analysis was carried out on the polychoric correlation matrix, using the FACTOR software [64]. The data was computed under a criterion of parametric analysis and promin rotation. (2) To calculate the alpha ordinal coefficient, the Excel spreadsheet developed by Domínguez-Lara [65] was used, which provides data on the alpha ordinal coefficient, based on the data of the polychoric correlation analysis and, therefore, is more suitable for calculating the reliability of scales with ordinal response or based on a Likert scale [66].

3. Results

3.1. Use of Alcohol and Tobacco

A total of 37.5% (n = 119) of the sample answered affirmatively when they were asked if they drank alcohol, and 12.3% (n = 39) of the sample said they smoked. By sex, in the group of males 36.6% (n = 59) drank alcohol and 9.9% (n = 16) smoked. In the case of girls, 38.5% (n = 60) consumed alcohol and 14.7% (n = 23) smoked tobacco.

3.2. Emotional Intelligence, Resilience and Family Functioning: Relationship with Alcohol and Tobacco Use

The means for each of the dimensions of emotional intelligence in the user/non-user groups were compared. As observed in the table, non-users of alcohol (M = 2.68; SD = 0.78) scored significantly higher in stress management ($t_{(315)} = 2.33$; p < 0.05; d = 0.27) than the user group (M = 2.45; SD = 0.95). Comparing the users (M = 2.22; SD = 0.72) and non-users of tobacco, the latter also scored higher (M = 2.64; SD = 0.86) in the stress management dimension ($t_{(315)} = 2.92$; p < 0.01; d = 0.34).

Concerning the components of resilience in the user/non-user groups for alcohol/tobacco, those who did not drink (M = 3.98; SD = 0.78) had significantly higher scores in family cohesion ($t_{(315)} = 2.00$; p < 0.05; d = 0.23) than drinkers (M = 3.79; SD = 0.87). The differences between smokers (M = 2.22; DT = 0.72) and non-smokers (M = 2.64; SD = 0.86) were also observed in family cohesion ($t_{(315)} = 2.37$; p < 0.05; d = 0.28), where non-smokers scored higher.

Finally, the results of the analysis of mean scores on family functioning were compared in user/non-user groups of alcohol and tobacco. In this case, there were no significant differences between users/non-users of alcohol ($t_{(315)} = 1.38$; p = 0.16). Results for tobacco showed significant differences in family functioning ($t_{(315)} = 2.77$; p < 0.01; d = 0.32) between smokers (M = 6.48; DT = 2.67) and non-smokers (M = 7.57; DT = 2.24), the latter of whom had the highest scores.

Frequency of use of alcohol did not correlate with any of the emotional intelligence factors (intrapersonal: r = 0.07; p = 0.39; interpersonal: r = 0.06; p = 0.45; stress management: r = -0.14; p = 0.10; adaptability: r = 0.00; p = 0.92; mood: r = 0.08; p = 0.32), resilience (family cohesion: r = -0.13; p = 0.11; personal competence: r = -0.34; p = 0.001; social competence: r = -0.34; p = 0.06; social resources: r = 0.01; p = 0.77; orientation toward goals: r = -0.05; p = 0.53), or family functioning (r = -0.03; p = 0.71).

Similarly, frequency of use of tobacco did not show any correlation with the emotional intelligence factors (intrapersonal: r = 0.17; p = 0.20; interpersonal: r = 0.20; p = 0.13; stress management: r = 0.00; p = 0.99; adaptability: r = -0.01; p = 0.93; mood: r = 0.18; p = 0.18), resilience (family cohesion: r = -0.09; p = 0.05; personal competence: r = 0.17; p = 0.20; social competence: r = 0.25; p = 0.06; social resources: r = 0.09; p = 0.50; orientation toward goals: r = -0.06; p = 0.64), or family functioning (r = 0.19; p = 0.17).

In view of the absence of correlations between the study variables and frequency of use of alcohol/tobacco, explanatory models were constructed taking use of either of the substances (yes/no) as the criterion variable, instead of the frequency. The binary logistic regression models for use of alcohol and tobacco are presented below.

Sustainability **2019**, 11, 2954 6 of 17

3.3. Logistic Regression Model: Alcohol

For the logistic regression analysis, use of alcohol was the dependent variable, for which it was first dichotomized into two categories: users, at 37.5% (n = 119) and non-users, at 62.5% (n = 198).

The predictor variables entered in the equation were emotional intelligence (intrapersonal, interpersonal, stress management, adaptability, and mood), resilience (family cohesion, personal competence, social competence, social resources, and orientation toward goals), family functioning, and expectancies (positive and negative) about using alcohol. Table 1 presents these variables, the regression coefficients, standard error of estimation Wald statistic with degrees of freedom and the associated probability, the partial correlation coefficient, and the odds ratio.

Variables	β	S.E.	Wald	df	Sig.	Exp(β)	CI 95%
Intrapersonal	-0.454	0.199	5.208	1	0.022	1.574	1.066-2.325
Interpersonal	-0.032	0.259	0.015	1	0.902	0.969	0.583 - 1.609
Stress Management	-0.182	0.163	1.261	1	0.262	0.833	0.606 - 1.146
Adaptability	0.199	0.184	1.170	1	0.279	1.221	0.851 - 1.752
Mood	-0.040	0.206	0.037	1	0.847	0.961	0.641 - 1.440
Family Cohesion	-0.350	0.232	2.276	1	0.131	0.705	0.447 - 1.110
Family Competence	-0.113	0.231	0.239	1	0.625	0.893	0.568 - 1.404
Social Competence	0.293	0.194	2.280	1	0.131	1.340	0.916 - 1.960
Social Resources	0.184	0.229	0.642	1	0.423	1.202	0.767 - 1.883
Orientation toward Goals	-0.207	0.216	0.916	1	0.339	0.813	0.533 - 1.242
Family Functioning	-0.017	0.074	0.051	1	0.822	0.984	0.851 - 1.137
Positive Expectancies	0.795	0.182	19.160	1	0.000	2.215	1.551-3.162
Negative Expectancies	0.295	0.179	2.714	1	0.099	1.344	0.946 - 1.910
Constant	-3.274	1.254	6.816	1	0.009	0.038	

Table 1. Results derived from the logistic regression for the probability of drinking alcohol.

The odds ratio found for each variable showed that: (a) the risk of drinking alcohol is higher in adolescents with positive expectancies about the effects of its use; and (b) the intrapersonal factor acts as a protective factor insofar as the probability of drinking is concerned. Therefore, subjects who have a higher mean score in this construct are at less risk of drinking alcohol.

The overall goodness of fit of the model ($\chi^2 = 55.39$; df = 13; p < 0.001) was confirmed by the Hosmer–Lemeshow test ($\chi^2 = 8.75$; df = 8; p = 0.36). The Nagelkerke R^2 coefficient showed that 21.8% of the variability in the response variable was explained by the logistic regression model. Based on the classification table, the estimated probability of the logistic function being correct was 67.8%, with a false positive rate of 0.15 and a false negative rate of 0.39.

3.4. Logistic Regression Model: Tobacco

To take smoking as the dependent variable for the logistic regression, it was dichotomized in two categories: smokers, at 12.3% (n = 39), and non-smokers, at 87.7% (n = 278).

The predictor variables entered in the equation were emotional intelligence (intrapersonal, interpersonal, stress management, adaptability, and mood), resilience (family cohesion, personal competence, social competence, social resources, and orientation toward goals), and family functioning. Table 2 shows these variables, the regression coefficients, the standard error of estimation, the Wald statistic with degrees of freedom and the associated probability, the partial correlation coefficient, and the odds ratio.

The odds ratio found for each variable showed that: (a) adolescents with higher scores in family cohesion have a lower risk of being a smoker, or in other words, family cohesion would be acting as a protective factor against probability of being a smoker; and (b) in emotional intelligence, stress management was the significant (protective) factor in the logistic equation.

Sustainability **2019**, 11, 2954 7 of 17

Variables	β	S.E.	Wald	df	Sig.	Exp(β)	CI 95%
Intrapersonal	0.215	0.258	0.698	1	0.404	1.240	0.749-2.054
Interpersonal	0.355	0.357	0.990	1	0.320	1.426	0.709 - 2.869
Stress Management	-0.716	0.245	8.510	1	0.004	0.489	0.302 - 0.791
Adaptability	-0.005	0.286	0.000	1	0.986	0.995	0.568 - 1.744
Mood	-0.189	0.276	0.470	1	0.493	0.828	0.482 - 1.422
Family Cohesion	-0.715	0.294	5.920	1	0.015	0.489	0.275 - 0.870
Family Competence	0.196	0.311	0.399	1	0.528	1.217	0.662 - 2.237
Social Competence	0.057	0.274	0.043	1	0.836	1.058	0.619 - 1.810
Social Resources	0.512	0.317	2.603	1	0.107	1.668	0.896 - 3.107
Orientation toward Goals	-0.331	0.294	1.268	1	0.260	0.719	0.404 - 1.277
Family Functioning	-0.073	0.099	0.542	1	0.462	0.930	0.765 - 1.129
Constant	0.236	1.471	0.026	1	0.873	1.266	

Table 2. Results derived from the logistic regression for probability of being a smoker.

Overall goodness of fit (χ^2 = 27.41; df = 11; p < 0.01) was confirmed by the Hosmer–Lemeshow test (χ^2 = 4.51; df = 8; p = 0.80). The Nagelkerke R^2 coefficient indicated that 15.8% of the variability in the response variable was explained by the logistic regression model. Based on the classification table, the estimated probability of the logistic function being correct was 88%, with a false positive rate of 0.007 and a false negative rate of 0.076.

3.5. Emotional Profiles of Drinkers and Differences in Self-Concept

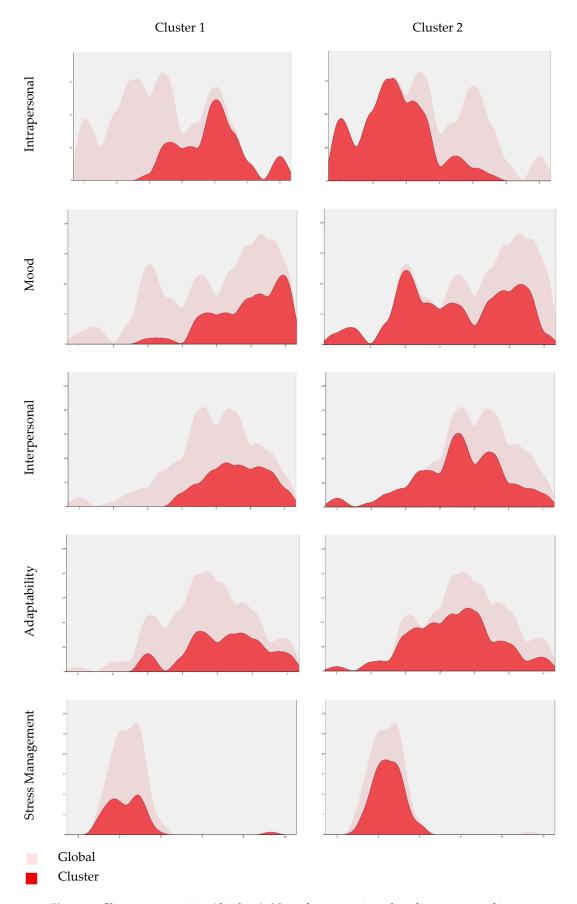
To form the groups, a two-step cluster analysis was performed with the emotional intelligence dimensions. Two user groups resulted from inclusion of these variables (Figure 1), with the following distribution: 37.8% (n=45) of the subjects were in Cluster 1, and 62.2% (n=74) in Cluster 2. Table 3 summarizes the mean scores of the variables being analyzed, both for the total sample of drinkers and for each of the clusters.

	Total Sample of	Cluster					
	Drinkers ($\tilde{N} = 119$)		(n=74)				
Intrapersonal	M = 2.25 (SD = 0.76)	M = 2.96 (SD = 0.50)	M = 1.82 (SD = 0.54)				
Interpersonal	M = 2.98 (SD = 0.62)	M = 3.30 (SD = 0.42)	M = 2.79 (SD = 0.64)				
Stress management	M = 2.45 (SD = 0.95)	M = 2.40 (SD = 1.30)	M = 2.47 (SD = 0.67)				
Adaptability	M = 2.86 (SD = 0.62)	M = 3.10 (SD = 0.55)	$M = 2.71 \ (SD = 0.61)$				
Mood	M = 2.99 (SD = 0.78)	M = 3.45 (SD = 0.51)	M = 2.71 (SD = 0.79)				

Table 3. Mean scores for the total sample of drinkers and clusters.

The first group resulting from the cluster analysis (Cluster 1) was characterized by showing mean scores above the total sample in all the emotional intelligence dimensions, while the second cluster had mean scores below the total sample of drinkers for all the variables entered, except in stress management, where the mean scores were similar (Figures 1 and 2).

Sustainability **2019**, 11, 2954 8 of 17



 $\textbf{Figure 1.} \ \ \textbf{Cluster composition (drinkers)}. \ \ \textbf{Note: factors are in order of importance of input}.$

Sustainability **2019**, 11, 2954 9 of 17

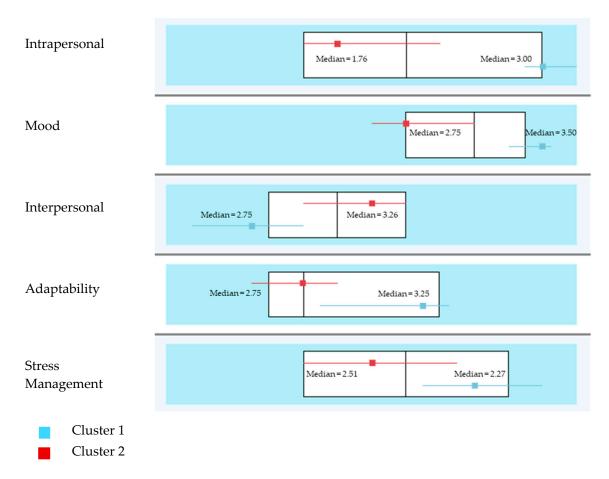


Figure 2. Cluster comparison (drinkers).

After classifying the groups based on the two-cluster solution, a Student's *t* test for independent samples was carried out to find out whether there were any differences between the clusters with respect to each of the self-concept dimensions (Table 4).

Table 4. Self-concept—descriptive statistics and test by drinker emotional profile.

	Cluster 1				Cluster 2	t	v	
•	N	Mean	SD	N	Mean	SD	- •	•
Academic Self-Concept	45	3.48	0.75	74	3.06	0.78	2.88 **	0.005
Social Self-Concept	45	3.77	0.44	74	3.36	0.48	4.66 ***	0.000
Emotional Self-Concept	45	3.41	0.71	74	3.09	0.66	2.46 *	0.015
Family Self-Concept	45	3.87	0.83	74	3.39	0.53	3.82 ***	0.000
Physical Self-Concept	45	3.57	0.83	74	3.27	0.87	1.84	0.067

* p < 0.05; ** p < 0.01; *** p < 0.001.

As shown in Table 4, there were significant differences between the clusters in academic self-concept ($t_{(118)} = 2.88$; p < 0.01; d = 0.55), social self-concept ($t_{(118)} = 4.66$; p < 0.001; d = 0.89), emotional self-concept ($t_{(118)} = 2.46$; p < 0.05; d = 0.47), and family self-concept ($t_{(118)} = 3.82$; p < 0.001; d = 0.73). In all cases where differences were detected between clusters, Cluster 1, with emotional intelligence scores above the mean for drinkers, had higher scores in almost all the self-concept dimensions. There were no differences between clusters for physical self-concept.

Sustainability **2019**, 11, 2954 10 of 17

3.6. Emotional Profiles of Smokers and Differences in Self-Concept

A two-step cluster analysis was done with the emotional intelligence dimensions to form the groups. Two groups of smokers resulted from the inclusion of these variables (Figure 3), with the following distribution: 30.8% (n=12) of the subjects were in Cluster 1, and 69.2% (n=27) in Cluster 2. Table 5 summarizes the mean scores on the variables analyzed for the total sample of smokers and each of the clusters.

	Total Sample of	Cluster					
Smokers $(N = 39)$		$ \begin{array}{c} 1\\ (n=12) \end{array} $	2 (n = 27)				
Intrapersonal	M = 2.23 (SD = 0.82)	M = 2.67 (SD = 0.92)	M = 2.04 (SD = 0.71)				
Interpersonal	M = 3.07 (SD = 0.67)	M = 3.67 (SD = 0.30)	M = 2.80 (SD = 0.62)				
Stress Management	M = 2.22 (SD = 0.72)	M = 1.67 (SD = 0.63)	M = 2.46 (SD = 0.62)				
Adaptability	M = 2.80 (SD = 0.78)	M = 3.17 (SD = 0.70)	M = 2.64 (SD = 0.77)				
Mood	M = 2.85 (SD = 0.89)	M = 3.71 (SD = 0.35)	M = 2.46 (SD = 0.79)				

Table 5. Mean scores for the total sample of smokers and clusters.

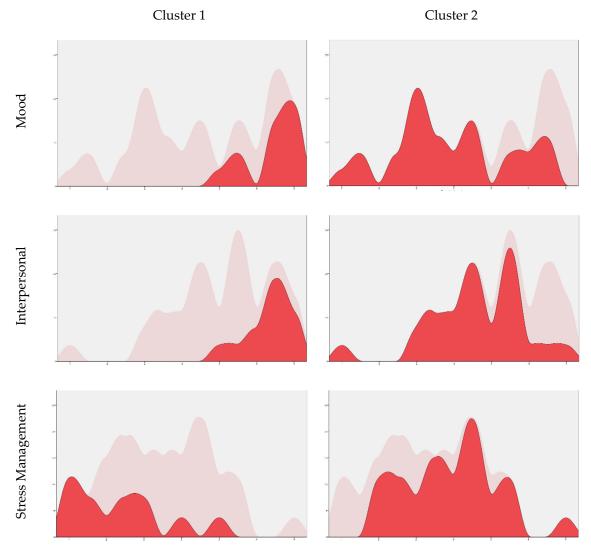


Figure 3. Cont.

Sustainability **2019**, 11, 2954 11 of 17

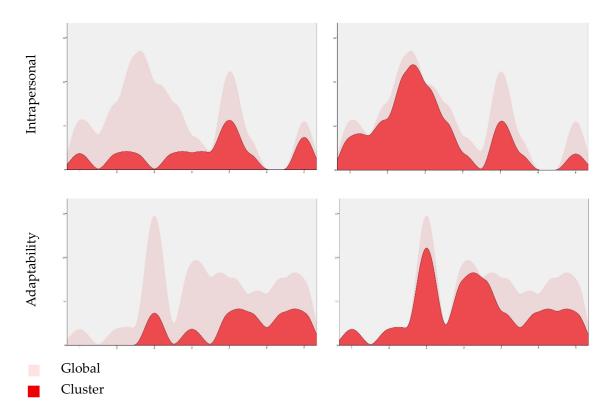


Figure 3. Cluster composition (smokers). Note: factors are in order of importance of input.

Cluster 1 is characterized by showing mean scores above those of the total sample in the intrapersonal, interpersonal, adaptability, and mood dimensions and stress management factors. In Cluster 2, mean scores were lower than the total sample of smokers for all the variables entered, except stress management, where the mean score was higher (Figures 3 and 4).

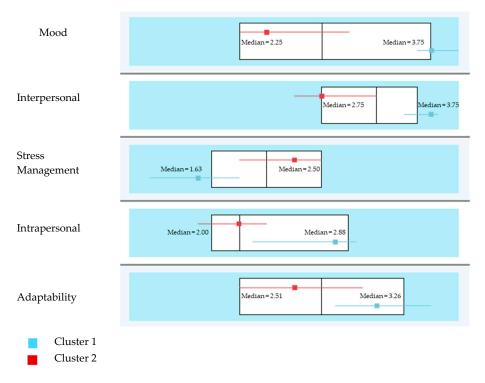


Figure 4. Cluster comparison (smokers).

Sustainability **2019**, 11, 2954 12 of 17

After the groups had been classified based on the two-cluster solution, a Student's t test for independent samples was carried out to find out whether there were any differences between the clusters with respect to the self-concept dimensions. As shown in Table 6, there were significant differences between clusters in academic self-concept ($t_{(38)} = 2.75$; p < 0.01; d = 0.98), social self-concept ($t_{(38)} = 3.00$; p < 0.01; d = 1.07), family self-concept ($t_{(38)} = 2.20$; p < 0.05; d = 0.78), and physical self-concept ($t_{(38)} = 3.22$; p < 0.01; d = 1.15). In all cases where differences were detected, Cluster 1 had higher scores in most of the self-concept dimensions. There were no differences between clusters in emotional self-concept.

	Cluster 1			Cluster 2	t	p		
	N	Mean	SD	N	Mean	SD		,
Academic Self-Concept	12	3.39	0.78	27	2.70	0.69	2.75 **	0.009
Social Self-Concept	12	3.83	0.40	27	3.34	0.50	3.00 **	0.005
Emotional Self-Concept	12	3.64	0.67	27	3.09	0.84	1.98	0.054
Family Self-Concept	12	3.79	0.56	27	3.31	0.66	2.20 *	0.034
Physical Self-Concept	12	3.76	0.72	27	2.89	0.80	3.22 **	0.003

Table 6. Self-concept—descriptive statistics and y t test by smoker emotional profile.

4. Discussion

Adolescence is one of the stages with highest risk of starting and using substances, and many factors intervene in and influence their maintenance [20]. Concerning sex, the percentage of girls who drank and smoked was higher than boys, while in other studies it has been boys who used these substances more than girls [10].

In the relationship between the emotional intelligence dimensions and the alcohol/tobacco user/non-user groups, the group of non-users of alcohol and tobacco had significantly higher scores in stress management than the group of consumers. These data are related to the results of other studies, such as the one by Fainsilber et al. [23], in which good stress management was found to contribute to better emotional control, where emotions act as mediators in stressful situations.

The resilience results showed the group of non-users of alcohol and tobacco to have higher scores in family cohesion compared to users. This finding is in line with the study by Moreno et al. [30], in which students who were non-users of alcohol showed higher levels of resilience.

There were no differences in family functioning between groups of users and non-users of alcohol. However, higher scores were observed in the group of non-smokers, and this difference was statistically significant with respect to the smokers. Zurita and Álvaro [41] mentioned that family functioning scores were higher in youths who did not smoke. In this sense, family functioning would act as a predictor factor in the onset of substance use [39].

However, no relationship was found between frequency of use of alcohol or tobacco and any of the emotional intelligence, resilience, or family functioning factors, so an explanatory model was necessary, which took into account use and non-use of both substances, instead of frequency. We found that the intrapersonal variable was acting as a protective factor against the probability of drinking, and positive expectancies intervened as a risk factor. Both stress management and family cohesion were protective factors against the probability of smoking.

Moreover, this study determined emotional profiles [46] of drinkers and smokers, and their relationship with the dimensions of self-concept. The results of the cluster analysis led to two groups of drinkers. In the first group, the means in all the emotional intelligence dimensions were above the total sample, and in the second group it was the opposite—the means were lower than the general sample, except for stress management. There were also significant differences between the two groups.

^{*} *p* < 0.05; ** *p* < 0.01.

Sustainability **2019**, *11*, 2954

The first group had higher scores in all the dimensions of self-concept, except physical self-concept. These results are in consonance with those found by Álvaro et al. [43], who did not find any association between drinking alcohol and physical self-concept either. Two groups were also formed for the smoker profiles. The first was characterized by having mean scores above the total sample in all the dimensions except stress management, where they were below the overall mean, and in the second profile, the means on all the dimensions were lower, except stress management, which were slightly above the total sample. Similarly, there were differences between the groups in favor of the first in all the dimensions of self-concept except emotional self-concept. Álvaro et al. [43] also mentioned the influence of physical, family, and academic self-concept on smokers. However, other studies have found lower social and physical self-concepts were related with a high level of use [44]. Therefore, it is necessary to use educational actions to cope with these social problems [47,48].

5. Conclusions

Based on these results, we can say that use of alcohol and tobacco depends on emotional intelligence, resilience, and family functioning, each of which acts as a protective or risk factor, depending on the circumstances. As there are so few studies that analyze the relationships of all these variables together in the adolescent population, we were limited in our ability to compare with others. Therefore, in future studies, it would be of interest to increase the size of the sample to test the associations and whether all the factors of the variables act the same way. In short, this study demonstrated the importance of developing programs for emotional skills, and the need for in depth study of emotional intelligence and its influence on alcohol and tobacco consumption in adolescents, as well as take into account the directionality of the relationships between the variables studied at the time of intervening before these problems develop.

Similarly, programs must be planned that promote decision-making for the sustainable development of responsibility in adolescents, thereby fostering the prevalence of prosocial competencies in interventions in risk behavior. Responsible use due to the improved decision making of adolescents is one of the expected results of this type of intervention. Where prevention efforts for this type of behavior are being made, they should begin in primary education, focusing on the influence of the social environment and the role played by the family in the development of these behaviors.

A series of priority actions are also posed by the sociology of education: (a) achieve the coherent organization of social development strategies, education of society, and its current problems, and (b) promote participation of social sectors in approaching those problems. This is why social problems affecting individuals who are developing require an approach provided with an integrating focus, with the design and implementation of socio-educational action combining efforts made by different social disciplines, such as sociology and education. Education takes on special relevance in the values which promote respect for cultural identity and maintaining ethical standards from within the family. Thus, the family is situated as a social setting where ethical and cultural values are acquired naturally.

Furthermore, risks associated with adolescence become even more visible when they find certain stimuli in their group of peers which reinforce group identity, and thereby active involvement in their activities [67]. This may explain why adolescents sometimes break with values acquired in the family and adopt habits which threaten normal social adjustment [68]. Not forgetting that adolescence is a stage for seeking, full of personal and social challenges, risk settings are beginning to be discussed in the recent scientific panorama [69], not only because of the easy accessibility to substances such as alcohol and tobacco, but also because of the presence of signs that encourage their use.

Thus, healthy habits should be fostered in adolescents through value-based decision-making, facilitating socially and culturally sustainable lifestyles. Society needs to promote changes for the positive development of adolescence through education.

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Sustainability **2019**, *11*, 2954 14 of 17

assessment of bias risk. All authors analyzed and interpreted the data. M.d.M.M.J., M.d.C.P.F., and A.B.B.M. wrote this manuscript. M.d.C.P.F. and J.J.G.L. edited this manuscript. M.d.M.M.J. is responsible for the overall project.

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