

Article

Positive Youth Development and Alcohol Drinking: The Separate Role of the 5Cs in a Sample of Spanish Emerging Adults

Diego Gomez-Baya *  and Esther Lopez-Bermudez

Department of Social, Developmental and Educational Psychology, Universidad de Huelva, 21004 Huelva, Spain; esther.lopez279@alu.uhu.es

* Correspondence: diego.gomez@dpee.uhu.es

Abstract

The Positive Youth Development (PYD) framework provides a strengths-based perspective, paying greater attention to positive indicators of youth health. This article aimed to examine the relationship between the 5Cs of PYD (i.e., Character, Competence, Confidence, Connection and Caring) and three indicators of alcohol consumption in youth (use, drunkenness and drunken driving). A cross-sectional design was employed with a convenience sample of 1779 undergraduates aged 18 to 29 years (Mean = 20.32, SD = 1.84), recruited from ten universities across Andalusia (Spain). Data was collected during Spring 2023 through an online self-report questionnaire composed of PYD-SF, three questions to assess alcohol consumption, and demographics. Results underlined the protective association of Character and the paradoxical associations of Competence and Connection with alcohol consumption. The higher alcohol consumption scores in men (especially in the indicator of drunken driving) were associated with their lower scores in Character and their higher perceived Competence. These results underlined the importance of promoting positive contexts for developing both Competence and Connection, and the need to foster Character to increase awareness about the risk of alcohol consumption.

Keywords: alcohol; substance; positive youth development; competence; character; connection; 5Cs; youth; emerging adult; gender

1. Introduction

Alcohol consumption among adolescents and young adults has been identified as one of the main public health problems worldwide. Within the Sustainable Development Goals for 2023, Goal 3 on Good Health and Well-being includes in its Section 5 “Strengthen the prevention and treatment of substance abuse, including the misuse of narcotic drugs and the harmful use of alcohol” (United Nations, 2026). The consequences for physical and mental health, in adolescence and later stages of life, underscore the importance of increasing research efforts to prevent alcohol consumption (Boden & Fergusson, 2011; de Almeida Matos et al., 2024). Alcohol consumption has also been associated with adverse consequences in terms of social relationships, academic and work adjustment (El Ansari et al., 2013; Ilhan et al., 2007; McDonough et al., 2016; A. White & Hingson, 2014), with significant harmful consequences for other people as well (Newbury-Birch et al., 2015; Room et al., 2010). Among these consequences, we can highlight violent behavior, criminal conduct, or accidents (Laslett et al., 2013; Yu & Chen, 2025). Epidemiological studies indicate that alcohol consumption begins around mid-adolescence, despite legal constrictions, and becomes established in the following years, reaching higher levels in emerging adulthood



Academic Editors: Derek Falk and Carol Lee

Received: 6 May 2026

Revised: 30 May 2026

Accepted: 8 June 2026

Published: 9 June 2026

Copyright: © 2026 by the authors.

Licensee MDPI, Basel, Switzerland.

This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution \(CC BY\)](https://creativecommons.org/licenses/by/4.0/) license.

(Smith et al., 2024; Piquart, 2024). Data from the 2024 ESPAD study revealed that alcohol remains widely used, with 73% of the students from the 37 European countries having tried alcohol at least once in their lifetime, and 42% having reported drinking in the past month (EUDA, 2025). In the EU, nearly three in 10 young people aged 15–29 consume alcohol on a weekly basis. Thus, alcohol-related harm is a major public health concern, accounting for over 7% of all illness and early deaths in the European Union (European Commission, 2025). Given that evidence highlights that lifestyles learned during adolescence influence later stages of life, more research is needed to understand the background factors that will help us design effective prevention programs. To date, most programs have focused on risk factors, but more effort is needed to understand the protective factors that promote healthier lifestyles (Deeken et al., 2020).

Research on adolescence and youth has focused particularly on problems and risks to development, continuing the negative bias toward the transition to adulthood (Lerner, 2009). Recently, with a broader definition of physical and mental health, complementary models have been developed to scientifically address indicators of positive adjustment. The Positive Youth Development (PYD) framework provides a strengths-based perspective for examining adolescence and emerging adulthood, paying greater attention to positive indicators of youth mental health. Grounded in the Relational Developmental Systems (RDS) meta-theory (Overton & Lerner, 2014), the PYD model posits that developmental processes unfold through dynamic, bidirectional interactions between individuals and their ecological contexts. This perspective underscores the capacity of all young people to thrive when embedded in supportive environmental conditions (Lerner et al., 2021). Within this framework, the 5Cs model delineates the core developmental assets that foster adaptive functioning and well-being (Lerner et al., 2006; Lerner et al., 2025). These assets include Competence (a positive perception of one's abilities across domains), Confidence (a sense of self-worth), Connection (supportive relationships with family, peers, and community), Character (adherence to moral standards and societal norms), and Caring (empathy and compassion toward others).

Empirical evidence consistently demonstrates that higher levels of the 5Cs are associated with beneficial psychosocial outcomes, such as enhanced life purpose, increased civic engagement, and reduced internalizing symptoms (Gomez-Baya et al., 2019; Kozina & Wiium, 2023; Lerner et al., 2019; Wiium & Dimitrova, 2019). Positive developmental dimensions have been proposed as key to the prevention of risk behaviors (Guerra & Bradshaw, 2008). A systematic review by Bonell et al. (2016) showed that PYD emerged from positive developmental relationships which provide multiple positive assets and buffered against involvement in substance and violence. In USA, Jelcic et al. (2007) examined the associations between PYD and risk behaviors in early adolescents in the 4-H study. They concluded that PYD predicted higher youth contributions, lower depression and lower risk behaviors, assessing substance use and abuse, in both boys and girls. In other studies, with adolescent samples from the USA, Schwartz et al. (2010) observed that PYD was negatively associated with initiation into tobacco, marijuana use, and sexual activity for girls only, and hard drug use for both genders, while Milot Travers and Mahalik (2021) pointed out that PYD score was negatively associated with alcohol use. Manrique-Millones et al. (2021) observed in youth and emerging adults from Colombia and Peru that PYD had a protective factor against alcohol and drug use, violence and suicide attempts.

The Present Study

Few studies have examined the differential effects of the 5Cs of PYD on substance abuse. In the USA, Arbeit et al. (2014) examined profiles of problematic behaviors and their covariations with the 5Cs. They found that the Alcohol and Aggression group had

mid-to-high range Confidence and Competence, and mid-range Character and Caring. In a sample of youth from Slovenia, Norway and Kosovo, [Pivec et al. \(2020\)](#) found different results by country. In Slovenia, alcohol consumption correlated with higher levels of Confidence, Competence, and Connection, whereas participants from Kosovo exhibited the inverse pattern. Norwegian participants also reported greater perceived Competence when consuming alcohol. In a study with Spanish emerging adults, [Gomez-Baya et al. \(2023\)](#) examined gender differences in risk behaviors based on the 5Cs of PYD. They found that lower Character and higher perceived Competence in men partly explained the higher presence of risky behavior in men compared to women. Concerning substance use, they concluded that Character was protective against substance abuse, mainly in women, and Competence had a controversial role, with a positive effect on substance abuse.

Despite the evidence for the associations between PYD and risk behaviors, more research is still needed to examine different indicators of alcohol consumption. Also, further examination is recommended to separate the differential role of the 5Cs of PYD by gender in a sample of emerging adults. Thus, the aim of this study was to examine the associations between the 5Cs of PYD and different indicators of alcohol consumption, considering the use, abuse, and drunken driving, controlling for gender. Based on previous literature we expected paradoxical associations, with some Cs presenting positive effects on alcohol consumption and others showing negative ones, based on [Gomez-Baya et al. \(2023\)](#) and [Pivec et al. \(2020\)](#). No gender differences in the associations between PYD and alcohol consumption were hypothesized, based on the conclusions by [Schwartz et al. \(2010\)](#).

2. Materials and Methods

2.1. Data Collection Procedure and Participants

A cross-sectional design was employed, and data was collected during Spring 2023 through an online self-report questionnaire. Participation was voluntary, no incentives were offered, and all individuals provided written informed consent prior to participation. The study adhered to the ethical principles outlined in the Declaration of Helsinki and received approval from the University Ethics Committee.

A convenience sample comprised 1779 undergraduate students aged 18 to 29 years (Mean = 20.32, SD = 1.84), of whom 65.9% identified as women. Participants were recruited from ten universities across the Andalusia region of Spain: the Universities of Almería (6.4%), Cádiz (4.4%), Córdoba (8.8%), Granada (16.6%), Huelva (5.6%), Jaén (7.6%), Málaga (17.9%), Sevilla (25.7%), Pablo de Olavide University (Seville, 4.4%) and Loyola University (Seville and Córdoba, 2.6%). Degree programs and academic years were selected at random in each university. During teaching hours, a researcher visited each of the selected classes and invited all the students present to take part in the survey. Students were enrolled in the following disciplinary areas: Social Sciences and Law (49.4%), Sciences and Engineering (22.2%), Arts and Humanities (15.1%), and Health Sciences (13.3%). Regarding academic progression, 55.1% were first-year students, 39.1% were in their second year, and 5.7% were in their third to sixth year of study. Most participants resided in family homes (47.1%), whereas only 2.9% lived in shared student accommodation. With respect to employment status, 64.9% were not actively seeking work, while 21% held temporary employment. In terms of residential context, 37.5% lived in cities with more than 300,000 inhabitants, 32.4% in cities with populations between 50,001 and 300,000, and the remainder in smaller towns or rural areas.

2.2. Instruments

Positive Youth Development (PYD) was assessed using the short form of the PYD scale developed by [Geldhof et al. \(2014\)](#), for which a Spanish adaptation by [Gomez-Baya et al. \(2022\)](#) was utilized. The instrument consists of 34 items measuring the five

core PYD dimensions (the 5Cs): Competence (6 items; e.g., “I have a lot of friends”), Confidence (6 items; e.g., “I like my physical appearance”), Character (8 items; e.g., “I never do things I know I shouldn’t do”), Connection (8 items; e.g., “I am a useful and important member of my family”), and Caring (6 items; e.g., “It bothers me when bad things happen to other people”). Items were rated on a 5-point Likert-type scale ranging from strongly disagree/not at all important/never or almost never to strongly agree/very important/always. Dimension scores were averaged, and the overall PYD score was computed as the mean of the five dimensions. The scale demonstrated good internal consistency for the total score ($\alpha = 0.88$) and for most subscales (Competence: $\alpha = 0.73$; Confidence: $\alpha = 0.77$; Connection: $\alpha = 0.77$; Caring: $\alpha = 0.82$), although the Character dimension showed lower reliability ($\alpha = 0.59$).

Alcohol consumption. Three questions were used to examine different aspects of alcohol consumption, i.e., the use of alcohol (“Have you used alcohol once or more in the last 30 days?”), the abuse of alcohol (“Have you been drunk once or more in the last 30 days?”), and drunken driving (“Have you driven after drinking, once or more in the last 12 months?”). These questions had two response options (yes = 1, and no = 0). Acceptable reliability was observed, $\Omega = 0.63$. An exploratory factor analysis revealed that the three indicators can be integrated into a common factor, $KMO = 0.56$, $\chi^2(3) = 541.93$, $p < 0.001$, with an eigenvalue of 1.60 and a variance of 53.26%. Due to the observed factorial validity, a summatory variable was calculated by adding together the responses to the three items.

2.3. Data Analysis Design

First, percentage distribution was examined, in the total sample and by gender, regarding alcohol use, abuse and drunken driving. Second, *t*-tests were used to examine differences in the 5Cs of PYD by the responses in the three indicators of alcohol consumption. These analyses were carried out in the overall sample and by gender, reporting Cohen’s *d*. *t*-tests were also conducted to examine gender differences in the 5Cs and in the summatory of alcohol indicators. Third, bivariate correlations were calculated between the 5Cs of PYD and the summatory of alcohol consumption. Fourth, a linear regression analysis was conducted to explain alcohol consumption, based on the 5Cs and controlling for demographics. Finally, a regression-based mediation analysis was tested to examine gender differences in alcohol summatory based on gender differences in the Cs of PYD. Mediation models based on regression analysis provide an estimate of the total, direct and indirect effects within the model. However, despite this terminology regarding the types of effects, these effects should not be regarded as causal, given that cross-sectional data only allows conclusions to be drawn based on associations. These analyses were performed with SPSS 21.0 and JASP 0.18.3.0, with a significant level of $p < 0.05$.

3. Results

3.1. Differences in the 5Cs Based on the Responses on the Separate Indicators of Alcohol Consumption

Figure 1 shows the percentage distribution of the responses in the indicators of alcohol consumption. Most of the participants drank alcohol in the last month, while over a third got drunk in the last month. No gender differences were observed in these indicators. Regarding driving after drinking, a 15.4% of the men reported this risk behavior, compared to the 8.7% of the women, $\chi^2(1) = 18.44$, $p < 0.001$. These differences had a small size effect, $\phi = 0.10$.

Table 1 describes the results of the *t*-tests to examine differences in the 5Cs of PYD by the dichotomic responses in the indicators of alcohol. Participants who reported alcohol use in the last month and those who reported getting drunk in the last month had lower scores in Character, but higher perceived Competence and Connection. Those participants

who indicated drunken driving showed less Character and Caring, but more perceived Competence and Connection. Small to medium size effects were observed for Competence, while small ones were found for the other Cs.

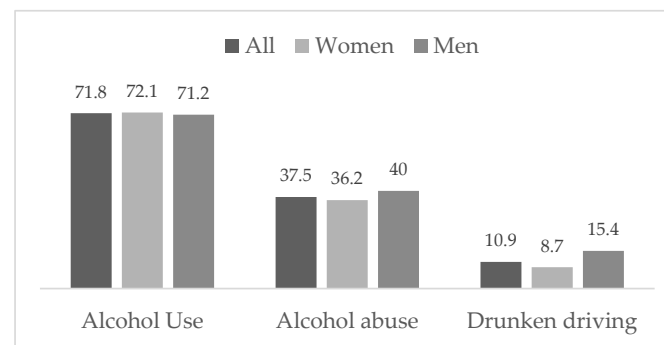


Figure 1. Percentage distribution of responses (YES) in the indicators of alcohol use, abuse and drunken driving.

Table 1. Differences in the 5Cs based on the responses in the indicators of alcohol consumption, in the total sample and by gender.

		Character	Competence	Confidence	Caring	Connection
All sample						
Alcohol use	No	3.90 (0.48)	2.88 (0.72)	3.64 (0.74)	4.13 (0.70)	3.53 (0.62)
	Yes	3.84 (0.43)	3.05 (0.65)	3.66 (0.65)	4.14 (0.65)	3.64 (0.58)
	<i>t</i> -test (d)	2.51 * (0.13)	−5.00 *** (−0.26)	−0.32 (−0.02)	−0.52 (−0.03)	−3.38 ** (−0.18)
Alcohol abuse	No	3.89 (0.44)	2.92 (0.68)	3.65 (0.69)	4.15 (0.66)	3.58 (0.62)
	Yes	3.82 (0.45)	3.13 (0.66)	3.65 (0.66)	4.12 (0.67)	3.66 (0.56)
	<i>t</i> -test (d)	3.30 ** (0.16)	−6.47 *** (−0.32)	−0.13 (−0.01)	1.01 (0.05)	−2.57 * (−0.13)
Drunken driving	No	3.87 (0.45)	2.96 (0.67)	3.64 (0.68)	4.15 (0.66)	3.60 (0.60)
	Yes	3.75 (0.46)	3.32 (0.66)	3.73 (0.63)	4.01 (0.70)	3.70 (0.56)
	<i>t</i> -test (d)	3.61 *** (0.27)	−6.92 *** (−0.53)	−1.88 (−0.14)	2.76 ** (0.21)	−2.30 * (−0.18)
Women						
Alcohol use	No	3.95 (0.48)	2.79 (0.69)	3.62 (0.75)	4.26 (0.64)	3.53 (0.63)
	Yes	3.89 (0.42)	2.90 (0.61)	3.59 (0.66)	4.29 (0.58)	3.66 (0.58)
	<i>t</i> -test (d)	2.24 * (0.15)	−2.68 ** (−0.18)	0.54 (0.04)	−0.68 (−0.04)	−3.14 ** (−0.21)
Alcohol abuse	No	3.93 (0.43)	2.82 (0.64)	3.61 (0.70)	4.28 (0.60)	3.60 (0.62)
	Yes	3.87 (0.45)	2.96 (0.60)	3.58 (0.66)	4.28 (0.60)	3.66 (0.57)
	<i>t</i> -test (d)	2.31 * (0.14)	−3.61 *** (−0.22)	0.72 (0.04)	0.05 (0.01)	−1.60 (−0.10)
Drunken driving	No	3.91 (0.43)	2.85 (0.63)	3.59 (0.70)	4.28 (0.59)	3.61 (0.60)
	Yes	3.80 (0.47)	3.07 (0.61)	3.65 (0.58)	4.25 (0.63)	3.69 (0.56)
	<i>t</i> -test (d)	2.54 * (0.26)	−3.31 ** (−0.35)	−0.72 (−0.08)	0	−1.22 (−0.13)
Men						
Alcohol use	No	3.82 (0.47)	3.03 (0.76)	3.69 (0.71)	3.88 (0.74)	3.53 (0.62)
	Yes	3.76 (0.45)	3.34 (0.65)	3.78 (0.62)	3.86 (0.69)	3.61 (0.59)
	<i>t</i> -test (d)	1.32 (0.12)	−5.16 *** (−0.46)	−1.44 (−0.13)	0.18 (0.02)	−1.42 (−0.13)
Alcohol abuse	No	3.81 (0.46)	3.13 (0.71)	3.73 (0.64)	3.89 (0.70)	3.54 (0.62)
	Yes	3.73 (0.45)	3.44 (0.64)	3.78 (0.65)	3.84 (0.69)	3.65 (0.56)
	<i>t</i> -test (d)	2.10 * (0.17)	−5.53 *** (−0.46)	−0.98 (−0.08)	0.85 (0.07)	−2.24 * (−0.19)
Drunken driving	No	3.79 (0.46)	3.19 (0.70)	3.74 (0.64)	3.89 (0.70)	3.57 (0.60)
	Yes	3.70 (0.44)	3.58 (0.60)	3.83 (0.66)	3.75 (0.68)	3.72 (0.56)
	<i>t</i> -test (d)	1.76 (0.20)	−5.08 *** (−0.57)	−1.36 (−0.15)	1.71 (0.19)	−2.25 * (−0.25)

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

The analyses were also conducted by gender. In both men and women, higher Competence scores were found in those who reported alcohol use, abuse and drunken driving. Concerning Character, less Character was observed in women who reported alcohol use, abuse and drunken driving, and in men who indicated alcohol abuse. With regard to Connection, higher scores were found in women who indicated alcohol use and men who reported alcohol abuse and drunken driving.

3.2. Gender Differences, Correlation and Regression Analyses

Table 2 shows gender differences in the 5Cs of PYD and in the summatory of alcohol indicators. Results indicated that men scored higher in the alcohol summatory and in the PYD dimensions of Competence and Confidence. Women showed higher scores in the Cs of Character and Caring. Table 2 also presents the results of the bivariate correlations between the 5Cs and the summatory of the indicators of alcohol consumption. The alcohol summatory had a negative correlation with Character and positive associations with Competence and Connection. These correlations were small-sized. Concerning the correlations among the 5Cs, positive interrelations were found, except for Caring with both Competence and Confidence. Descriptive statistics showed moderate scores in PYD dimensions, with the highest score in Caring, and the lowest one in Competence. The summatory had a mean score of 1.20.

Table 2. Bivariate zero-order correlations between alcohol consumption summatory and the 5Cs of PYD.

	Total M (SD)	Women M (SD)	Men M (SD)	t	1	2	3	4	5	6
1. Summatory Alcohol	1.20 (0.92)	1.17 (0.88)	1.27 (0.99)	−2.11 *	1					
2. Character	3.86 (0.45)	3.90 (0.44)	3.78 (0.46)	5.69 ***	−0.10 ***	1				
3. Competence	3.00 (0.68)	2.87 (0.63)	3.25 (0.70)	−11.63 ***	0.20 ***	0.19 ***	1			
4. Confidence	3.65 (0.68)	3.60 (0.69)	3.75 (0.65)	−4.57 ***	0.02	0.35 ***	0.56 ***	1		
5. Caring	4.14 (0.66)	4.28 (0.60)	3.87 (0.70)	12.93 ***	−0.03	0.48 ***	−0.05	0.02	1	
6. Connection	3.61 (0.60)	3.62 (0.60)	3.59 (0.60)	1.05	0.09 ***	0.34 ***	0.41 ***	0.47 ***	0.18 ***	1

Note. *** $p < 0.001$; * $p < 0.05$.

Table 3 shows the results of a linear regression analysis to explain alcohol summatory based on Competence, Character and Connection (the Cs with significant associations with alcohol summatory in the correlations) and controlling for demographics. Results indicated positive associations with age, Competence and Connection, and negative association with Character. Older participants showed higher scores in the summatory. The main relationships were observed for Character and Competence, with moderate sizes. The overall variance explained was reduced, at below 10%. The biggest associations were observed for Competence and Character. Durbin–Watson score indicated no autocorrelation in the regression residuals.

Finally, a mediation analysis was tested to examine the mediational role of Character and Competence in the gender differences in the alcohol summatory. Only Character and Competence were added as mediators, because no gender differences were previously observed in Connection. Figure 2 represents the mediation and Table 4 shows the results of the analysis. The analyses suggested that gender differences in alcohol summatory were statistically accounted for by differences in Character and Competence. Thus, gender

had an indirect association on alcohol summatory through the relationships with those two dimensions of PYD. Concretely, the higher scores in the alcohol summatory in the sample of men were associated with their higher scores in Competence and their lower scores in Character, compared to women's sample. Comparing the size effects, Competence showed a strong positive effect, while Character had a moderate negative one. The variance explained of the model was low.

Table 3. Linear regression analysis to explain alcohol consumption based on demographics and the 5Cs of PYD.

	F/R ²	β	t	p
Model	12.15 ***/0.07			
Gender		−0.05	−1.04	0.300
Age		0.05	3.37	<0.001
Nationality		−0.15	−1.36	0.176
Habitat		−0.01	−0.31	0.755
Couple		0.02	0.51	0.613
University		0.01	1.64	0.102
Academic year		−0.03	−0.63	0.527
Character		−0.33	−5.92	<0.001
Competence		0.28	7.41	<0.001
Connection		0.10	2.33	0.020

Note. *** $p < 0.001$. Durbin–Watson = 1.92.

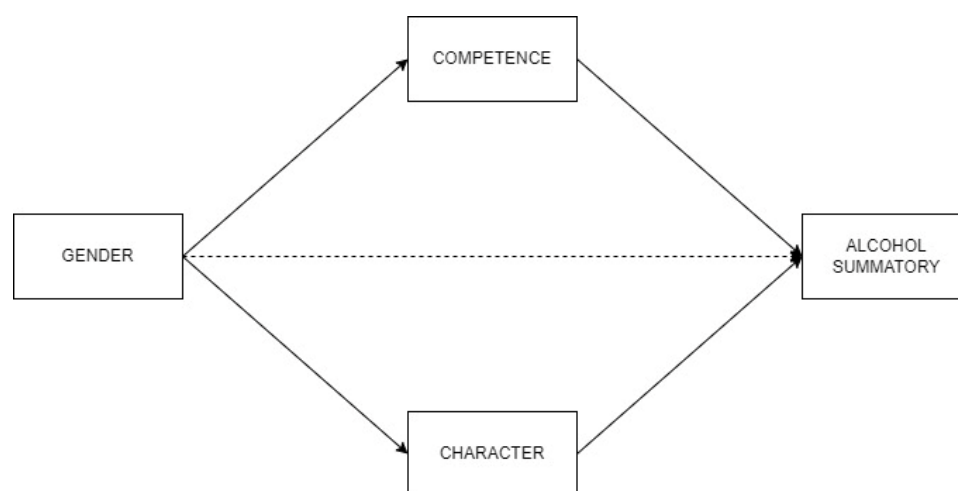


Figure 2. Representation of the mediation analysis of Character and Competence in the gender differences in alcohol summatory.

Table 4. Mediation analysis of Character and Competence in the gender differences in alcohol summatory.

	Estimate	Std Error	Z	p	LLCI	ULCI
Indirect effect						
G → CH → A	0.04	0.01	4.16	<0.001	0.02	0.06
G → CO → A	0.13	0.02	7.30	<0.001	0.10	0.16
Total indirect effects						
G → A	0.17	0.02	8.35	<0.001	0.13	0.21
Total effect						
G → A	0.11	0.05	2.12	0.034	0.01	0.20

Table 4. *Cont.*

	Estimate	Std Error	Z	p	LLCI	ULCI
Residual covariance						
CH↔CO	0.23	0.02	9.79	<0.001	0.18	0.27
Path coefficients						
CH → A	−0.15	0.02	−6.08	<0.001	−0.19	−0.10
CO → A	0.23	0.03	9.38	<0.001	0.18	0.28
G → A	−0.07	0.05	−1.26	0.207	−0.17	0.04
G → CH	−0.28	0.05	−5.70	<0.001	−0.38	−0.19
G → CO	0.56	0.05	11.63	<0.001	0.47	0.66

Note. CH = Character, CO = Competence, A = Alcohol summatory, G = Gender. Explained variance: CH $R^2 = 0.02$; CO $R^2 = 0.07$, A $R^2 = 0.06$.

4. Discussion

This study aimed to analyze the associations between the five Cs of PYD and different indicators of alcohol consumption, such as use, abuse (drunkenness), and drunk driving, while examining possible gender differences. First, the results highlighted the high prevalence of alcohol use (over 70%) and drunkenness (nearly 40%) in the last month. Regarding drunk driving in the past year, the data were also notable, particularly among men (approximately 15%). Moderate scores were observed in the 5Cs of PYD. Higher scores were observed in Character and Caring among women and in Competence and Confidence among men. Small gender differences in alcohol consumption were also observed, with higher scores in men. The descriptive results of the high prevalence of alcohol consumption are consistent with the evidence from recent European reports, such as those by EUDA (2025). The gender differences observed in alcohol consumption are consistent with previous literature (A. M. White, 2020), as are those found in the 5Cs (Gomez-Baya et al., 2019, 2023).

Second, the results showed that alcohol consumption, considering the integrated factor including the three indicators, was positively associated with Competence and Connection and negatively associated with Character. These significant associations showed a small size. A mediation model showed that higher Competence scores and lower Character scores among men were associated with their higher alcohol consumption scores compared to women. This regression-based model explained a small proportion of the variance. The protective effect of Character is because this dimension of PYD focuses on respect for social norms and values. Thus, it is expected to be related to greater awareness of the risks of consumption for oneself and others, and greater awareness of the consequences of driving while intoxicated. In contrast, the dimensions of Competence and Connection seem to have a paradoxical effect on alcohol consumption variables. These results are in line with previous research by Gomez-Baya et al. (2023) and Pivec et al. (2020). No gender differences in the associations between PYD and alcohol consumption were observed, consistent with Schwartz et al. (2010).

Although the PYD model suggests that all dimensions of PYD should be associated with positive outcomes in adolescents and young adults, previous research has observed some paradoxical results that require more detailed analysis. One possible explanation is that higher perceived Competence may be associated with increased feelings of social confidence, perceived control, or peer integration within leisure contexts where alcohol consumption is socially normalized. Since alcohol consumption may be socially integrated and a common behavior among emerging adults and adults, its consumption can increase feelings of personal power to the extent that it satisfies stereotypes of being an adult and being allowed to consume substances. In addition to this possible feeling of adult maturity, alcohol consumption occurs in youth leisure contexts that allow young people

to socialize and make friends. Feeling capable of making friends also feeds one's own perception of Competence. Hence, consumption also appears to be positively associated with Connection. If alcohol consumption is socially prestigious among young people, it is likely that this consumption will be associated with greater personal Competence and that this consumption will be accessible to them in leisure contexts of socialization with their peers.

Some limitations may be evident in the results. Due to the cross-sectional design, conclusions can only be based on bidirectional associations. Longitudinal studies are needed to examine the directionality of the relationships between the 5Cs as antecedents and alcohol problems as consequences. Moreover, the results indicated small size effects and reduced explained variance, which may indicate a modest predictive power of the PYD dimensions and the likely influence of broader contextual, social and psychological variables on alcohol consumption. Another limitation stems from the assessment of alcohol indicators, as only three dichotomous items were used. More complex scales with robust psychometric properties are recommended for future research. Future research should assess the frequency or quantity of drinking and distinguish occasional from problematic use. Moreover, in the present research, we combined distinct behaviors into a single summary score, which may affect the interpretation of the results, as the most frequent behavior may bias the total score. Concerning the PYD measure, the relatively low reliability of the Character subscale should be considered when interpreting findings related to this dimension, as measurement inconsistency may have influenced the strength of observed associations. Furthermore, since all participants were enrolled in universities in Southern Spain, future research should examine samples from across the country. Cross-national comparisons are also a promising area of research to examine the differential role of the 5Cs in relation to alcohol consumption. Finally, future studies should control for other third variables, such as other substance use and mental health indicators.

Despite the limitations, the results of this manuscript may have practical implications. Preventing alcohol-related problems among youth may entail addressing risk factors such as positive attitudes and resistance to peer pressure, as well as protective factors such as those described by the PYD model. The results indicated that respect for social norms (i.e., Character) plays a protective role and should be promoted more strongly among young men. Furthermore, Connection and Competence played controversial roles in alcohol consumption. Higher perceived Competence may increase the risk of alcohol consumption when associated with a sense of invulnerability and an overestimation of control. Drunk driving is a dangerous behavior that can be connected to this sense of invulnerability and an overestimation of control. Alcohol consumption may be associated with adult role stereotypes that may be more frequent among some young men. Thus, promoting more realistic perceived Competence and increased awareness of the risks of alcohol consumption is crucial. The importance of key beliefs about alcohol risks, self-affirmation and intentions to avoid binge drinking was found to be effective in reducing alcohol misuse in undergraduates (Norman et al., 2018). It is also important to design further leisure activities that increase empowerment, perceived Competence, and adaptive coping skills. In this line, Youth Action Research for Prevention (YARP) uses youth empowerment as the foundation of a multi-level intervention aimed at reducing and delaying the onset of drug use, while also strengthening both individual and collective efficacy and raising educational expectations (Berg et al., 2009). Leisure is a key developmental setting during adolescence and emerging adulthood, as it supports healthy growth and helps reduce engagement in risky behaviors (Weybright et al., 2019). These leisure activities should provide more opportunities to socialize with friends in contexts that promote health, such as sports and physical activities. Since contexts associated with alcohol consumption provide

opportunities for socializing and connecting with others, alternative leisure activities for young people should be encouraged. Furthermore, a gender perspective should also be considered when designing alcohol prevention programs, as pointed out by Lowik et al. (2024). Also, based on the PYD model, different profiles by gender have been observed in the 5Cs and their role in alcohol consumption. To prevent alcohol problems, equal opportunities to promote the 5Cs of PYD are required for both men and women, especially to eliminate differences in Character and perceived Competence.

5. Conclusions

As a conclusion, the present manuscript has provided evidence for the associations between the 5Cs and alcohol consumption (i.e., alcohol use, abuse and drunken driving) in a sample of Spanish emerging adults. Results underlined the protective association of Character and the paradoxical effect of Competence and Connection on alcohol consumption. This study also addressed gender differences, showing that the higher alcohol consumption scores in men (especially in the indicator of drunken driving) were associated with their lower scores in Character and their higher perceived Competence. These results underlined the importance of promoting positive contexts for developing both Competence and Connection, and the need to foster Character to increase awareness about the risk of alcohol consumption.

Author Contributions: Conceptualization, D.G.-B. and E.L.-B.; methodology, D.G.-B.; formal analysis, D.G.-B.; investigation, E.L.-B.; writing—original draft preparation, D.G.-B. and E.L.-B.; writing—review and editing, D.G.-B. and E.L.-B.; visualization, E.L.-B.; supervision, D.G.-B.; project administration, D.G.-B.; funding acquisition, D.G.-B. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by Excellence Project of the Consejería de Universidad, Investigación e Innovación of Junta de Andalucía (Spain), entitled Positive Youth Development in Andalusian University Students: Longitudinal Analysis of Gender Differences in Well-Being Trajectories, Health-Related Lifestyles and Social and Environmental Contribution, grant number PROYEXCEL_00303).

Institutional Review Board Statement: The studies involving human participants were reviewed and approved by the bioethics committee of the University of Huelva on 10 January 2019 (UHU-1259711), in accordance with the Declaration of Helsinki.

Informed Consent Statement: The participants provided their written informed consent to participate in this study.

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

Conflicts of Interest: The authors declare no conflicts of interest.

References

- Arbeit, M. R., Johnson, S. K., Champine, R. B., Greenman, K. N., Lerner, J. V., & Lerner, R. M. (2014). Profiles of problematic behaviors across adolescence: Covariations with indicators of positive youth development. *Journal of Youth and Adolescence*, 43(6), 971–990. [\[CrossRef\]](#)
- Berg, M., Coman, E., & Schensul, J. J. (2009). Youth action research for prevention: A multi-level intervention designed to increase efficacy and empowerment among urban youth. *American Journal of Community Psychology*, 43(3), 345–359. [\[CrossRef\]](#)
- Boden, J. M., & Fergusson, D. M. (2011). The short- and long-term consequences of adolescent alcohol use. In *Young people and alcohol: Impact, policy, prevention, treatment* (pp. 32–44). John Wiley & Sons, Ltd.
- Bonell, C., Hinds, K., Dickson, K., Thomas, J., Fletcher, A., Murphy, S., Melendez-Torres, G. J., Bonell, C., & Campbell, R. (2016). What is positive youth development and how might it reduce substance use and violence? A systematic review and synthesis of theoretical literature. *BMC Public Health*, 16, 135. [\[CrossRef\]](#)

- de Almeida Matos, P. J., da Silva Junior, F. L., de Melo Campos, M. A., da Silva, E. D. N. R., & Tavares, P. G. B. C. (2024). Prevention of problems associated with alcohol abuse in adolescents. *Research, Society and Development*, 13(7), e14713746458. [CrossRef]
- Deeken, F., Banaschewski, T., Kluge, U., & Rapp, M. A. (2020). Risk and protective factors for alcohol use disorders across the lifespan. *Current Addiction Reports*, 7(3), 245–251. [CrossRef]
- El Ansari, W., Stock, C., & Mills, C. (2013). Is alcohol consumption associated with poor academic achievement in university students? *International Journal of Preventive Medicine*, 4(10), 1175.
- EUDA. (2025). *ESPAD report 2024*. Available online: <https://www.espad.org/espad-report-2024> (accessed on 26 February 2026).
- European Commission. (2025). *Public health: Alcohol*. Available online: https://health.ec.europa.eu/alcohol/overview_en (accessed on 26 February 2026).
- Geldhof, G. J., Bowers, E. P., Mueller, M. K., Napolitano, C. M., Callina, K. S., & Lerner, R. M. (2014). Longitudinal analysis of a very short measure of positive youth development. *Journal of Youth and Adolescence*, 43(6), 933–949. [CrossRef]
- Gomez-Baya, D., Martin-Barrado, A. D., Muñoz-Parralo, M., Roh, M., Garcia-Moro, F. J., & Mendoza-Berjano, R. (2023). The 5Cs of positive youth development and risk behaviors in a sample of Spanish emerging adults: A partial mediation analysis of gender differences. *European Journal of Investigation in Health, Psychology and Education*, 13(11), 2410–2427. [CrossRef]
- Gomez-Baya, D., Reis, M., & Gaspar de Matos, M. (2019). Positive youth development, thriving and social engagement: An analysis of gender differences in Spanish youth. *Scandinavian Journal of Psychology*, 60(6), 559–568. [CrossRef]
- Gomez-Baya, D., Santos, T., & Gaspar de Matos, M. (2022). Developmental assets and positive youth development: An examination of gender differences in Spain. *Applied Developmental Science*, 26(3), 516–531. [CrossRef]
- Guerra, N. G., & Bradshaw, C. P. (2008). Linking the prevention of problem behaviors and positive youth development: Core competencies for positive youth development and risk prevention. *New Directions for Child and Adolescent Development*, 2008(122), 1–17. [CrossRef]
- Ilhan, I. O., Demirbas, H., & Dogan, Y. B. (2007). Psychosocial factors in alcohol use-related problems of working youth. *Substance Use & Misuse*, 42(10), 1537–1544. [CrossRef]
- Jelicic, H., Bobek, D. L., Phelps, E., Lerner, R. M., & Lerner, J. V. (2007). Using positive youth development to predict contribution and risk behaviors in early adolescence: Findings from the first two waves of the 4-H Study of Positive Youth Development. *International Journal of Behavioral Development*, 31(3), 263–273. [CrossRef]
- Kozina, A., & Wiium, N. (2023). The development of the 5Cs of positive youth development in a school year: A 3-wave longitudinal study of Slovenian youth during the COVID-19 pandemic. *Frontiers in Psychology*, 14, 982856. [CrossRef] [PubMed]
- Laslett, A. M., Callinan, S., & Pennay, A. (2013). The increasing significance of alcohol's harm to others research. *Drugs and Alcohol Today*, 13(3), 163–172. [CrossRef]
- Lerner, R. M. (2009). The positive youth development perspective: Theoretical and empirical bases of a strengths-based approach to adolescent development. In *Oxford handbook of positive psychology* (2nd ed., pp. 149–163). Oxford University Press.
- Lerner, R. M., Lerner, J. V., Almerigi, J., Theokas, C., Phelps, E., Naudeau, S., & Von Eye, A. (2006). Towards a new vision and vocabulary about adolescence. In *Child psychology: A handbook of contemporary research* (pp. 445–469). Psychology Press.
- Lerner, R. M., Lerner, J. V., Buckingham, M. H., Le, T. U., & Kim, E. J. (2025). Promoting positive youth development: The meaning and significance of models. In *Positive youth development: Integrating research and practice* (pp. 57–76). Springer Nature Switzerland.
- Lerner, R. M., Lerner, J. V., Murry, V. M., Smith, E. P., Bowers, E. P., Geldhof, G. J., & Buckingham, M. H. (2021). Positive youth development in 2020: Theory, research, programs, and the promotion of social justice. *Journal of Research on Adolescence*, 31(4), 1114–1134. [CrossRef] [PubMed]
- Lerner, R. M., Tirrell, J. M., Dowling, E. M., Geldhof, G. J., Gestsdóttir, S., Lerner, J. V., King, P. E., Williams, K., Iraheta, G., & Sim, A. T. (2019). The end of the beginning: Evidence and absences studying positive youth development in a global context. *Adolescent Research Review*, 4(1), 1–14. [CrossRef]
- Lowik, A. J., Mniszak, C., Pang, M., Ziafat, K., Karamouzian, M., & Knight, R. (2024). A sex- and gender-based analysis of alcohol treatment intervention research involving youth: A methodological systematic review. *PLoS Medicine*, 21(6), e1004413. [CrossRef]
- Manrique-Millones, D. L., Pineda-Marin, C. P., Millones-Rivalles, R. B., & Dimitrova, R. (2021). The 7Cs of positive youth development in Colombia and Peru. In *Handbook of positive youth development* (pp. 35–48). Springer.
- McDonough, M. H., Jose, P. E., & Stuart, J. (2016). Bi-directional effects of peer relationships and adolescent substance use: A longitudinal study. *Journal of Youth and Adolescence*, 45(8), 1652–1663. [CrossRef]
- Milot Travers, A. S., & Mahalik, J. R. (2021). Positive youth development as a protective factor for adolescents at risk for depression and alcohol use. *Applied Developmental Science*, 25(4), 322–331. [CrossRef]
- Newbury-Birch, D., Jackson, K., Hodgson, T., Gilvarry, E., Cassidy, P., Coulton, S., Ryan, Y., Wilson, G. B., McGovern, R., & Kaner, E. (2015). Alcohol-related risk and harm amongst young offenders aged 11–17. *International Journal of Prisoner Health*, 11(2), 75–86. [CrossRef]

- Norman, P., Cameron, D., Epton, T., Webb, T. L., Harris, P. R., Millings, A., & Sheeran, P. (2018). A randomized controlled trial of a brief online intervention to reduce alcohol consumption in new university students. *British Journal of Health Psychology*, 23(1), 108–127. [CrossRef]
- Overton, W. F., & Lerner, R. M. (2014). Fundamental concepts and methods in developmental science: A relational perspective. *Research in Human Development*, 11(1), 63–73. [CrossRef]
- Pinquart, M. (2024). Change in alcohol consumption in adolescence and emerging adulthood: A meta-analysis. *Journal of Studies on Alcohol and Drugs*, 85(1), 41–50. [CrossRef]
- Pivec, T., Kozina, A., Wium, N., & Uka, F. (2020). Are the 5Cs of positive youth development related to risky behaviours? *Psychology Applied to Trends*, 1(1), 220–222. [CrossRef]
- Room, R., Ferris, J., Laslett, A. M., Livingston, M., Mugavin, J., & Wilkinson, C. (2010). The drinker's effect on the social environment. *International Journal of Environmental Research and Public Health*, 7(4), 1855–1871. [CrossRef] [PubMed]
- Schwartz, S. J., Phelps, E., Lerner, J. V., Huang, S., Brown, C. H., Lewin-Bizan, S., Li, Y., & Lerner, R. M. (2010). Promotion as prevention: Positive youth development as protective against tobacco, alcohol, illicit drug, and sex initiation. *Applied Developmental Science*, 14(4), 197–211. [CrossRef]
- Smith, L., Sánchez, G. F. L., Pizzol, D., Oh, H., Barnett, Y., Schuch, F., Butler, L., McDermott, D. T., Ball, G., Chandola-Saklani, A., Shin, A. I., & Koyanagi, A. (2024). Global trends in the prevalence of alcohol consumption among school-going adolescents aged 12–15 years. *Journal of Adolescent Health*, 74(3), 441–448. [CrossRef]
- United Nations. (2026). *Sustainable development goals. Health*. Available online: <https://www.un.org/sustainabledevelopment/es/health/> (accessed on 26 February 2026).
- Weybright, E. H., Son, J. S., & Caldwell, L. L. (2019). “To have healthy leisure is to have balance”: Young adults' conceptualization of healthy and unhealthy leisure. *Journal of Leisure Research*, 50(3), 239–259. [CrossRef]
- White, A., & Hingson, R. (2014). The burden of alcohol use: Excessive alcohol consumption and related consequences among college students. *Alcohol Research: Current Reviews*, 35(2), 201–218. [CrossRef]
- White, A. M. (2020). Gender differences in the epidemiology of alcohol use and related harms in the United States. *Alcohol Research: Current Reviews*, 40(2), 1. [CrossRef] [PubMed]
- Wium, N., & Dimitrova, R. (2019). Positive youth development across cultures: Introduction to the special issue. *Child & Youth Care Forum*, 48(2), 147–153. [CrossRef]
- Yu, C., & Chen, J. (2025). Global Burden of substance use disorders among adolescents during 1990–2021 and a forecast for 2022–2030: An analysis for the Global Burden of Disease 2021. *BMC Public Health*, 25(1), 1012. [CrossRef] [PubMed]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.