

## Article

# Examining the Relevance of Religious Affiliation and Migrant Status in the Protective Capacity of Religion against Adolescent Alcohol Use—Evidence from Tarragona (Spain)

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**Abstract:** (1) Background: Adolescence is a critical period for the initiation of the consumption of alcohol, which is the toxic substance most commonly used by young people. Given the serious impact of alcohol on youth, there is an extensive body of literature that examines the facilitators of and barriers to alcohol consumption among adolescents. Among the barriers, several reports highlight that being a member of a religious community is a protective factor against alcohol consumption. (2) Methods: We conducted an analysis of a structured questionnaire completed by 1935 adolescents from Tarragona to assess the protective capacity of belonging to a religious community, differentiating between the various religions practiced in Tarragona. (3) Results: The variables related to family configuration emerged as the main protective factor against alcohol consumption attitudes among adolescents. Those who lived with both parents exhibited greater protection than those living with only one parent. Living with a single parent provided more protection than living with none. Belonging to a religious community did not significantly protect against drunkenness. However, religion appeared to inhibit alcohol use. The protective capacity of religion was evident only when the professed faith was Muslim and/or when the parents were migrants.

**Keywords:** adolescence; religion; substance use; alcohol consumption; alcohol use



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## 1. Introduction

Adolescence is a critical period for the onset of alcohol consumption, which is the most commonly used toxic substance among adolescents (Leal-López et al. 2021; Spanish Observatory of Drugs and Addictions 2022). At these ages, alcohol's neurotoxic effect has highly detrimental consequences for health and development, including physical problems (Wellman et al. 2022), impairment of brain development and neurocognitive problems (Tong et al. 2022), lower academic performance, risky sexual behavior, accidents (Perona et al. 2022), and problematic behaviors against peers, such as bullying (Prignitz et al. 2023). These considerations justify the inclusion of drug abuse, such as alcohol abuse, as one of the nine main threats to children's and adolescents' environmental health, as stated by Ortega-García et al. (2019).

It is widely accepted that religious faith is a relevant factor in the psychosocial and cognitive development of the adolescent population (King and Roeser 2009). Religious communities form social networks that provide behavioral influences such as moral norms, role models, care from peers and adults, and safe leisure activities (Smith 2003a). Therefore, religious practice influences the actions and attitudes of adolescents (King and Roeser 2009), facilitating the transmission of ethical references and, in general, healthier lifestyles (Smith 2003b; Bartkowski and Xu 2007) and resistance to risky behaviors (Desmond et al. 2013; Quinn et al. 2023). The intrinsic orientation of religion is a relevant variable associated with consumption due to the noninstrumental characteristics of religion and practices

aimed at self-exploration and self-knowledge that favor the subjective well-being of individuals (Caqueo-Urizar et al. 2022). These considerations suggest that religion could act as an inhibitor of risky behaviors (King and Roeser 2009). Furthermore, the relationship between religious organizations and community involvement prepares youth for obstacles they could face and provides a refuge from daily stressors and adversity (Hwang and Akers 2003; Quinn et al. 2023). Furthermore, it is widely confirmed that the protective effect of religiosity regarding consumption is found in a wide variety of faiths and cultures (Dalgalarrrondo et al. 2004; Gmel et al. 2013; de Andrés-Sánchez and Belzunegui-Eraso 2022).

The issues raised in the previous paragraph also suggest that religion may serve as a protective factor against tobacco, alcohol, and drug use by helping adolescents internalize messages that discourage consumption and resist social pressure to engage in socially inappropriate behaviors related to substance use (Hwang and Akers 2003; Francis et al. 2005; Chitwood et al. 2008; Menagi et al. 2008; Dohn et al. 2014; Porche et al. 2015; Kathol and Sgoutas-Emch 2017; Charro-Baena et al. 2019; Francis et al. 2019; Afifi et al. 2020; de Andrés-Sánchez et al. 2021). It is also worth noting that a significant amount of literature either does not find a significant impact of religion on alcohol consumption or argues that this relationship should be nuanced:

1. There are studies that, at best, do not provide conclusive results (Nasim et al. 2006; Parsai et al. 2010; Vargas-Valle and Martínez-Cañizales 2015). It should also be considered that religion may have unequal protective capacity regarding use compared to abuse (Park et al. 1998);
2. There may be differences among religions in their protective capacity. For instance, while there are reports indicating that Catholics consume more alcohol than Lutherans and, especially, Muslims (Kim-Spoon et al. 2014; Charro-Baena et al. 2019), there are also studies that do not observe differences in the protective capacity of different religions (Piko and Fitzpatrick 2004; Gmel et al. 2013; Queiroz et al. 2015). Likewise, the way how religion is practiced influences its protection capability (Lorch and Hughes 1985; Sinha et al. 2007; Gmel et al. 2013);
3. The preventive capability of religiosity may depend on sex (Piko and Fitzpatrick 2004; Parenteau 2015) or ethnic differences (Rote and Starks 2010).

The objective of this research is to evaluate the influence of religiosity on the use and abuse of alcohol among a sample of more than 1900 adolescents from Tarragona. Beyond investigating whether professing a religious faith itself provides protection against alcohol consumption, we will seek to establish whether this protective capacity depends on the specific religious affiliation. In addition, we will analyze whether, as suggested by the literature, the adolescent's sex or the origin of their parents moderate the influence of religiosity on alcohol use. Alcohol consumption depends on multiple factors, with the parental environment being highly relevant (Gázquez Linares et al. 2023). Thus, family configuration (Bartkowski and Xu 2007; Rasic et al. 2011; Badr et al. 2014; Dohn et al. 2014; Francis et al. 2019), the country of origin of the parents (Parsai et al. 2010; van Dorp et al. 2021), and their academic status (Bartkowski and Xu 2007; Raposo et al. 2017; Francis et al. 2019) and social status (Bartkowski and Xu 2007; Francis et al. 2019) are variables that are often explanatory of adolescent alcohol use and will be evaluated in this study.

## 2. Results

### 2.1. Descriptive Analysis of the Sample

Table 1 shows that 48.84% of respondents reported not having tried alcohol in the past 30 days, and 72.97% stated they had not been drunk. Additionally, 18.04% declared that both their parents were migrants. Regarding the academic status of the respondents' parents, over 60% of the responses indicated that the mother had at least a bachelor's degree. This percentage decreased to 56% for fathers. In terms of family configuration, over 75% of people reported living with both parents, while only 3% indicated not living with any

parent. Approximately 46.41% of the adolescents did not have any religious beliefs. Among the respondents who professed a religion, the majority identified as Catholic (31.47%), with the next most significant religion being Muslim (3.98%).

**Table 1.** Proportions of each option for the study questions.

Output Variables								
Times	Never	1–2 times	3–5 times	6–9 times	10–19 times	20–39 times	≥40 times	NA
USE	48.84%	23.00%	10.03%	5.43%	2.48%	0.52%	0.47%	9.25%
ABUSE	72.97%	12.87%	2.95%	0.93%	0.47%	0.10%	0.21%	9.51%
Input Variables								
Sex	Girl 51.37%	Boy 45.12%	NA 3.51%					
Age	17 years 12.30%	16 years 42.7%	15 years 44.81%	NA 0.36%				
Both parents migrants	No 70.59%	Yes 18.04%	NA 11.37%					
Academic level (mother)	Elementary 15.04%	Secondary 34.32%	University 26.67%	NA 23.98%				
Academic level (father)	Elementary 15.19%	Secondary 32.97%	University 22.95%	NA 28.89%				
I live with ...	Both parents 75.09%	One parent 20.21%	Other status 2.95%	NA 1.76%				
Religion	Catholic 31.47%	Lutheran 1.19%	Muslim 3.98%	Orthodox 0.78%	Others 2.33%	None 46.41%	NA 13.85%	

Table 2 presents the composition of the members of each religious community based on the migrant status of both parents and the respondent's sex. It can be observed that the proportion of children with two migrant parents and who practice the Catholic religion is significantly lower than the theoretical proportion that this group of adolescents represents in the total sample (10.67% versus 18.04% with  $p < 0.0001$ ). The opposite pattern is observed in the Muslim and Orthodox religions, where the proportion of practitioners is significantly higher than 18.04% ( $p < 0.0001$ ). Additionally, 22.76% of the adolescents with two migrant parents declare that they belong to a religious community, which is proportionally higher than their presence in the sample ( $p = 0.001$ ).

**Table 2.** Distribution of responses of adolescents regarding religious affiliation or non-affiliation.

	Catholic	Lutheran	Muslim	Orthodox	Others	Declares Not to Be Religious
(a)	18.04%	18.04%	18.04%	18.04%	18.04%	18.04%
(b)	10.67%	26.09%	94.81%	100%	35.56%	22.76%
	(<0.001)	(0.316)	(<0.001)	(<0.001)	(0.002)	(0.001)
(c)	53.37%	69.57%	57.14%	73.33%	51.11%	54.49%
(d)	51.37%	51.37%	51.37%	51.37%	51.37%	51.37%
	(0.324)	(0.081)	(0.311)	(0.089)	(0.972)	(0.084)

Notes: (a) The proportion of respondents in the sample whose parents are both migrants. (b) The proportion of respondents with two migrant parents among those who claim to profess that religion or are not religious. The  $p$  value for the null hypothesis (b) = (a) is indicated in parentheses. (c) The proportion of girls who profess the confession referred to in the column. (d) The stated religious affiliation/non-affiliation of girls in the entire sample. The  $p$  value for the null hypothesis (d) = (c).

Although, in general, the proportion of girls declaring they belong to each religion is above the theoretical value that this proportion should take (which, according to our sample, should be 51.36%), in all cases, the differences in proportions are not statistically significant at the common significance levels of  $\leq 5\%$ . This statement can be extended to the condition of declaring any religious affiliation.

## 2.2. Regression Analysis of Alcohol Consumption

In the context of the Model A regression on USE and ABUSE, Table 3 reveals the following:

- The sex and migrant status of both parents are not statistically significant. However, the academic level of the parents was significantly related to alcohol use, with an odds ratio (OR) of 1.579 ( $p = 0.0022$ );
- On the other hand, living with only one parent leads to an OR = 1.455 ( $p = 0.0031$ ) for alcohol use and an OR = 1.655 ( $p < 0.0001$ ) for alcohol abuse. Living without parents poses an even greater risk compared to living with only one parent or with both, as evidenced by an OR = 3.045 ( $p = 0.0002$ ) for alcohol use and an OR = 3.273 ( $p < 0.0001$ ) for alcohol abuse;
- Having a religious affiliation implies an OR < 1 for alcohol consumption, but this effect is significant only in the case of the Catholic, Lutheran, or Muslim religions. These ORs suggest a protective effect of religion against alcohol consumption, which is statistically significant only for the Muslim religion (OR = 0.075,  $p < 0.0001$  for USO and OR = 0.129,  $p < 0.0001$  for ABUSO). We also observe a significant protective effect against alcohol use in the case of Catholicism (OR = 0.788,  $p = 0.0232$ ).

Regarding the regressions where the explanatory variables related to religion are RELIG and its interactions with sex and the migrant status of parents, Table 3 shows the following when considering the entire sample:

- The sex variable once again does not have significance in alcohol consumption. Having two migrant parents is a significant risk factor for alcohol abuse (OR = 1.665,  $p = 0.0115$ ). The academic status of parents is positively related to alcohol use (OR = 1.741,  $p = 0.0002$ );
- Living with only one parent generates significant odds ratios for alcohol use (OR = 1.521,  $p = 0.0008$ ) and alcohol abuse (OR = 1.707,  $p < 0.0001$ ). It is evident again that living without parents increases the risk of alcohol consumption compared to living with one or both parents. For alcohol use, the OR was 2.786 ( $p = 0.0005$ ), and for alcohol abuse, the OR was 3.031 ( $p = 0.0001$ );
- Having a religious affiliation presents an OR = 0.682 ( $p = 0.0058$ ) for alcohol use and an OR = 0.814 ( $p = 0.1702$ ) for the frequency of getting drunk. This means that while the OR values suggest a protective capacity of religion against simple alcohol consumption, this does not seem to have the same effect on alcohol intoxication;
- The interaction of religiosity and sex is not particularly significant for alcohol use (OR = 1.436,  $p = 0.0662$ ) or alcohol abuse (OR = 1.237,  $p = 0.3047$ );
- The interaction of religiosity with having two migrant parents is significant and protective. In the case of alcohol use, OR = 0.447 ( $p = 0.0018$ ), while for alcohol abuse, OR = 0.380 ( $p = 0.0006$ ).

Regarding the same regression model (B), when we exclude observations related to Muslim adolescents, we observe the following:

- Sex remains nonsignificant. Having two migrant parents was found to facilitate alcohol abuse (OR = 1.672,  $p = 0.0108$ ), and the academic status of parents was still positively related to alcohol use (OR = 1.547,  $p = 0.0037$ );
- Living with only one parent presents an OR = 1.469 ( $p = 0.0026$ ) for alcohol use and OR = 1.656 ( $p < 0.0001$ ) for alcohol abuse. Living without parents poses an even greater risk, with an OR = 2.902 ( $p = 0.0005$ ) for alcohol use and an OR = 3.181 ( $p < 0.0001$ ) for alcohol abuse;
- Having a religious affiliation presents an OR = 0.741 ( $p = 0.034$ ) for alcohol use and OR = 0.837 ( $p = 0.367$ ) for alcohol abuse;
- The interaction of religiosity and sex is not significant for alcohol use (OR = 1.386,  $p = 0.089$ ) or alcohol abuse (OR = 1.185,  $p = 0.418$ );
- The interaction of religiosity with having two migrant parents still provides some protection against alcohol consumption, but to a lesser extent than when including

Muslims in the sample. In the case of alcohol use, although it exists, it is not significant ( $OR = 0.613$ ,  $p = 0.068$ ), while for alcohol abuse, it also exists and is significant ( $OR = 0.470$ ,  $p = 0.01$ ).

**Table 3.** Results of the logit ordered regressions (odd ratios).

Input   Output	Model A (Overall Sample)		Model B (Overall Sample)		Model B (Sample without Muslims)	
	USE	ABUSE	USE	ABUSE	USE	ABUSE
SEX	0.939 (0.5321)	1.129 (0.2725)	0.789 (0.0804)	1.009 (0.9488)	0.813 (0.1279)	1.032 (0.831)
IMMIGRANT	0.998 (0.9861)	1.161 (0.3085)	1.310 (0.1594)	1.665 (0.0115)	1.322 (0.1472)	1.672 (0.0108)
EDUC	1.579 (0.0022)	1.155 (0.3713)	1.741 (0.0002)	1.235 (0.1861)	1.547 (0.0037)	1.141 (0.4142)
ONLY_ONE_P	1.455 (0.0031)	1.655 (0.0001)	1.521 (0.0008)	1.707 ( $<0.0001$ )	1.469 (0.0026)	1.656 (0.0001)
NO_P	3.045 (0.0002)	3.273 ( $<0.0001$ )	2.786 (0.0005)	3.031 (0.0001)	2.902 (0.0005)	3.181 ( $<0.0001$ )
RELIG	----	----	0.682 (0.0058)	0.814 (0.1702)	0.741 (0.034)	0.872 (0.367)
RELIG $\times$ SEX	----	----	1.4342 (0.0662)	1.237 (0.3047)	1.386 (0.089)	1.185 (0.418)
RELIG $\times$ IMMIGRANT	----	----	0.447 (0.0018)	0.380 (0.0006)	0.613 (0.068)	0.470 (0.010)
CATHOLIC	0.788 (0.0232)	0.535 (0.1634)	----	----	---	----
LUTHERAN	0.721 (0.3516)	0.647 (0.258)	----	----	----	----
MUSLIM	0.075 ( $<0.0001$ )	0.129 ( $<0.0001$ )	----	----	----	----
ORTHODOX	1.632 (0.1751)	1.363 (0.3983)	----	----	----	----
OTHERS	2.198 (0.4076)	1.708 (0.07)	---	---	----	---
Maximum likelihood ratio	484.70 ( $<0.0001$ )	476.21 ( $<0.0001$ )	432.42 ( $<0.0001$ )	458.84 ( $<0.0001$ )	394.42 ( $<0.0001$ )	434.89 ( $<0.0001$ )

Notes: (1) The  $p$  values are shown in parentheses. (2) Model A tests the protective capacity of the different confessions present in the sample. Model B tests whether being a member of a religious community provides significant protection per se or whether such protection depends on gender and parental background.

### 3. Discussion

The responses given by the adolescent population of Tarragona regarding their alcohol consumption habits are similar to those reported in [Spanish Observatory of Drugs and Addictions \(2022\)](#) for Spain, both in terms of alcohol use and drunkenness. Additionally, we observed that adolescents with two migrant parents tend to belong to a religious community more often than those with at least one Spanish parent. The Catholic religion is predominantly practiced by believers who have at least one Spanish parent, in a proportion higher than their representation in the total sample. On the other hand, the Muslim and Orthodox religions are professed by adolescents whose parents are both immigrants in a proportion much higher than their actual presence in the sample. We have also observed that, although girls tend to belong to a religious community more than boys, this aspect is not significant at significance levels lower than at least 5%.



Regarding the control variables, we found that sex was not significant in adolescents' alcohol consumption, which is consistent with other studies in Spain (Charro-Baena et al. 2019). However, the parents' origin can be a facilitator of behaviors tending towards alcohol abuse, which aligns with studies indicating acculturation as an enhancer of substance consumption in adolescence (Parsai et al. 2010; Unger et al. 2014; van Dorp et al. 2021). Furthermore, a higher academic status of parents might be related to higher alcohol consumption but not to abuse. It should be noted that some studies link a higher social class with a greater tendency to consume alcohol (Francis et al. 2019). The family configuration also plays a key role in explaining alcohol consumption. This finding is consistent with the reviewed literature (Bjarnason et al. 2005; Bartkowski and Xu 2007; Rasic et al. 2011; Badr et al. 2014; Dohn et al. 2014; Francis et al. 2019). One of the main contributions of this study is that it has shown the importance of differentiating not only between living with both parents or not but also between living with one parent or living without either parent in explaining alcohol consumption. Living in a "traditional" family structure, i.e., with both parents, is a protective factor. However, we also found that adolescents living with one parent were less exposed to alcohol than those whose family configuration included neither the father nor the mother.

Regarding the variables related to religion, we can make the following considerations:

- The analysis of odds ratios reveals that the Muslim religion exhibits a greater protective capacity than Christian religions such as Lutheran and Catholic, which aligns with other findings in Spain (Charro-Baena et al. 2019). Although the Catholic, Lutheran, and Muslim religions seem to show inhibitory effects on alcohol consumption, this is only clearly significant in the case of the Muslim religion. In fact, among these religions, Islam is the only one that explicitly and categorically rejects alcohol consumption. This aspect may provide a greater incentive for Muslims to have lower alcohol use, but it may also pose challenges in obtaining unbiased responses about alcohol consumption (Dottinga et al. 2002);
- The results of the regressions involving the RELIG variable lead us to conclude that having a religious faith does not have a significant protective effect against abuse. However, it does present a protective effect against simple alcohol consumption, which aligns with the findings of the mainstream literature. Thus, our findings are in line with studies by Park et al. (1998), Vargas-Valle and Martínez-Cañizales (2015), and Parsai et al. (2010). On the other hand, we did not find that the protective capacity of religion depended on sex, contrary to what has been suggested in various studies (Piko and Fitzpatrick 2004; Parenteau 2015);
- The fact that both parents are foreign, with the ethnic and academic differences that this circumstance may entail, significantly increases the protective capacity of religion, in line with the findings of Rote and Starks (2010). When we adjust this regression model for the entire sample, the inhibitory effect of religion is observed both for alcohol use and abuse, likely due to Islam being the religion with the highest protective capacity and predominantly practiced by adolescents whose parents are foreign. However, when we excluded observations related to Muslims, we again observed protection against alcohol consumption in the interaction between being religious and having two foreign parents, although we must acknowledge that this protection is less intense than when we considered the responses of Muslims. While the protective capacity is not significant in the case of alcohol use, it becomes significant again for alcohol abuse. This finding aligns with Curtis et al. (2018), who point out that various studies demonstrate that attachment to traditions from the country of origin, such as religion, has a protective effect against substance consumption. Our finding is consistent with the reports of Abebe et al. (2015) and Sarasa-Renedo et al. (2015), who observed similar trends in immigrants of non-European origin in Norway and Spain, respectively.

The results presented in this study corroborate previous reports that highlight the protective role of belonging to a religious community, providing valuable social capital to deter substance use. This fact is clearly significant in the case of the migrant population.

While public health policymakers such as public health-related government agencies and youth-focused organizations, which in the case of Spain include municipal youth councils, regional ministries, and state ministries of public health and education, generally agree with the inhibitory effects of engaging in activities within secular environments, such as academic clubs and sports teams, the same may not always apply to activities in religion-based networks (see, for example, a report by Arbex (2003)). It is crucial for health authorities to recognize that conducting activities in religious settings can also be an invaluable approach to curbing substance use among young individuals.

This study is based on a cross-sectional survey that was carried out a year before the COVID-19 pandemic. Despite the conclusions about religion as a protective factor against alcohol consumption, which nuanced the findings presented in other countries, evaluating the directionality of the patterns obtained would require additional research and the use of longitudinal data.

In terms of generalizability, it is essential to consider that Tarragona is a city with approximately 150,000 residents, characterized by its economic focus on industry and services. The city also hosts a considerable migrant population from South America and North Africa. As a result, the findings may be applicable to comparable social settings in Spain, particularly in cities within the sphere of influence of Barcelona or Madrid.

However, caution should be exercised in extrapolating the results to adolescents in rural regions of Spain, where the primary sector or tourism plays a prominent role and there is a smaller proportion of immigrant residents. The unique characteristics of these rural areas may yield different patterns of behavior and attitudes among adolescents, which could lead to distinct outcomes compared to those observed in urban settings such as Tarragona.

#### 4. Materials and Methods

##### 4.1. Materials

This study is based on a structured questionnaire commonly used in Planet Youth studies (Planet Youth 2018), which was supplied in Spanish to high school students in Tarragona (Spain) between February and March 2019. The respondents were 17 (12.3%), 16 (42.7%), and 15 (45%) years old. The sex distribution was as follows: boys 45.12%, girls 51.37%, and other or nonrespondents 3.51%. The total number of interviews conducted was 1935, from a population universe of  $N = 2407$ .

Planet Youth is an international nonprofit primary prevention organization developed in Iceland. Founded in 1997, it is affiliated with the University of Reykjavik (Ros 2020). The methods and materials of this organization have spread to numerous countries beyond Iceland, such as Ireland (Western Region Drug and Alcohol Task Force 2018) and Spain (Ros 2020). The Planet Youth model for preventing substance use among teenagers relies on data obtained from biennial surveys using the Planet Youth questionnaire (Western Region Drug and Alcohol Task Force 2018). This questionnaire is a comprehensive lifestyle survey containing questions about substance use, health, mental health, and more, with 77 primary questions and 1590 items (Western Region Drug and Alcohol Task Force 2018).

The questionnaire Planet Youth (2018) has been used in numerous studies, not only in reports by the organization (Western Region Drug and Alcohol Task Force 2018) but also in academic journals indexed in Scopus, Web of Knowledge, or PubMed (see the list of publications at <https://planetyouth.org/the-method/publications/> (accessed on 5 September 2023)). Therefore, the construct scales contained in this questionnaire have been extensively validated using various databases. The questions used in this study are presented in Table 4. It should be noted that in all cases, both explanatory and explained factors consist of a single item, so there is no need for an analysis of the internal consistency and discriminant validity of the factors.

For variables measuring alcohol consumption in the past 30 days, we used the questions and a seven-point Likert scale, displayed in Table 4. The first question pertains to general alcohol use (USE), while the second question focuses on alcohol abuse (ABUSE), as

it specifically inquiries about experiences with alcohol intoxication. In both cases, the time frame considered is the past 30 days, and these variables are treated as ordinal, classifying alcohol consumption into seven ascending categories.

**Table 4.** Description of the survey questions analyzed in the study.

Questions about Alcohol Consumption	Answers
USE: "How many times have you consumed an alcoholic beverage in the last 30 days?" ABUSE: "How many times have you been drunk in your life?"	1.—Never 2.—"1–2 times" 3.—"3–5 times" 4.—"6–9 times" 5.—"10–19 times" 6.—"20–39 times" 7.—"40 times or more"
Input Variables	Answers
Sex	0 = Boy, 1 = Girl.
"Where were your two parents born?"	0 = At least one of them (or both) in Spain. 1 = Both parents are foreigners
<i>Academic degree</i> C1 = "What is the educational level of your mother?" C2 = "What is the educational level of your father?"	0 = Elementary, 1 = High school 3 = University degree
Family configuration "I live with (choose the closest option)"	1. Mother and father equally. 2. Mother but not father. 3. Father but not mother. 4. Mother and her partner. 5. Father and his partner. 6. Grandparents and either father or mother. 7. Only grandparents. 8. Living with my friends. 9. Living alone. 10. My family configurations are not fixed
<i>Religious community</i> What is your confession?	1 = Catholic 2 = Lutheran 3 = Muslim 4 = Orthodox 5 = Other 6 = I do not belong to any religious community

The control variables considered in this article are commonly used in the literature reviewed in the introduction and quantified from responses to questions in Table 4. They are as follows:

1. The first variable is sex (SEX). This variable is the most common in the examined literature (Larrosa and Palomo 2010). SEX is a dichotomous variable, taking the value 0 (male) or 1 (female);
2. The second variable considered is whether both parents are migrants (IMMIGRANT). This variable serves as a proxy for social class (Bartkowski and Xu 2007; Francis et al. 2019) and represents a non-native ethnicity (Parsai et al. 2010). IMMIGRANT takes the value 1 (if both parents were born outside of Spain) or 0 (otherwise). It has been demonstrated that, on the one hand, having a migrant background can serve as a potent stressor in adolescents due to the challenges associated with adapting to a new culture (van Dorp et al. 2021) and the additional issues that may be manifested, such as discrimination (Unger et al. 2014). This, in turn, can result in an increased tendency toward substance consumption (Parsai et al. 2010). Nevertheless, the findings in this regard within the literature are not unanimous. Several studies report the so-called im-



migrant paradox, that is, the fact that new immigrants show less risk-taking behavior and better health outcomes than their native counterparts (van Dorp et al. 2021). A common argument favorable to this finding is that greater ethnic pride and adherence to traditional family values are related to substance misuse (Curtis et al. 2018);

3. The educational level of the parents is captured in the variable EDUC, which is constructed by aggregating the scores of responses C1 and C2 from Table 4 and then normalizing the result to the range [0, 1], by using  $EDUC = ((C1 + C2) - 2)/4$ ;
4. The last variables are related to the family configuration of the adolescent, which is often particularly relevant in explaining substance consumption. Unlike most studies, which differentiate only between adolescents who live with both parents and those who do not, we recognize the importance of distinguishing between those living with a single parent and those living with neither. Thus, we introduce two dichotomous variables. The first is ONLY\_ONE\_P, which takes the value 1 if the adolescent lives with only one parent and 0 otherwise. The second variable is NO\_P, which takes the value 1 if the adolescent does not live with either parent and 0 otherwise. It is well known that family relationships and control have a decisive impact as risk factors for drinking alcohol and smoking tobacco (Sutherland and Shepherd 2001; Bjarnason et al. 2005; Gázquez Linares et al. 2023).

The explanatory variables that we want to evaluate are related to religion and are specifically as follows:

1. The dichotomous variables CATHOLIC, LUTHERAN, MUSLIM, ORTHODOX, and OTHER, which are used to model the religion of affiliation, and which take the value 1 if the adolescent belongs to the corresponding religious community and 0 otherwise;
2. RELIG, which takes the value 1 if the adolescent claims to belong to any religious community and 0 otherwise;
3. The dichotomous variable  $RELIG \times SEX$ , which takes the value 1 if the surveyed person claims to belong to a religious community and is female and 0 otherwise. This variable quantifies the differential effect of sex on the perceived protective capacity of religion;
4. The dichotomous variable  $RELIG \times IMMIGRANT$ , which takes the value 1 if the surveyed person claims to belong to a religious community and both parents are migrants and 0 otherwise. This variable quantifies the differential effect of having two migrant parents on the perceived protective capacity of religion.

#### 4.2. Data Analysis

In the initial stage, we conducted a descriptive analysis of the survey responses, paying particular attention to the distribution of the sample concerning religious affiliation, the migrant status of both parents, and sex.

Subsequently, for each dependent variable, USE and ABUSE, we estimated two ordinal logistic regressions to assess different aspects of the impact of religious factors on these items. Both regressions include all the control variables, but the religious variables vary.

The first regression model (Model A) for USE and ABUSE considers the dichotomous variables associated with specific religious affiliations CATHOLIC, LUTHERAN, MUSLIM, ORTHODOX, and OTHERS. This analysis of regression revealed the particular influence of each religion on alcohol consumption through their odds ratios (OR). If  $OR > 1$ , the specific religion enhances alcohol consumption, while if  $OR < 1$ , it acts as an inhibitory factor.

In the second regression model (Model B), we include the same control variables but different religious variables. These variables are belonging to any religious community (RELIG) and the interaction of religion with sex and the origin of the person's parents ( $RELIG \times SEX$  and  $RELIG \times IMMIGRANT$ , respectively). The odds ratio of the first variable indicates the influence of belonging to any religious community on alcohol consumption regardless of sex and parental origin. The ORs of  $RELIG \times SEX$  and  $RELIG \times IMMIGRANT$  quantify the differential influence of religiosity on alcohol consumption in girls and adolescents with migrant parents, respectively.

Following [Dotinga et al. \(2002\)](#), we are aware that the strict precepts of Islam regarding alcohol consumption and the fact that it is a religion in which most practitioners have both parents of foreign origins could bias the results obtained with this model. Therefore, we conducted two estimations of the same model. In the first one, we consider the entire sample, while in the second one, we exclude observations corresponding to Muslims.

## 5. Conclusions

Substance consumption during adolescence is a classic topic in public health due to its potential negative consequences for the health of adolescents, such as the adoption of high-risk behaviors and neurocognitive development issues, among others. One of the most studied substances is alcohol, given its common prevalence. The literature reports that certain factors, such as family structure, acculturation, and religious affiliation, significantly influence alcohol use and abuse. This study analyzes the influence of these factors using a sample of adolescents from Tarragona, Spain.

Regarding the protective capacity of religion, we have observed that this is particularly significant in the case of the Muslim religion. The Christian denominations represented in the sample did not exhibit a significant protective capacity. Furthermore, we have observed that despite acculturation potentially facilitating alcohol use, its interaction with religiosity significantly enhances the protective capacity of adhering to a faith. This is logical, as Muslim adolescents often have two foreign-born parents. When we exclude these adolescents from the sample, the interaction of having two foreign-born parents and professing a religion, primarily Catholicism, continues to protect young people from alcohol consumption.

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