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Ethnic, Cultural, and Religious Inequalities in Adolescent Cyberbullying: A Critical Approach

Desigualdades étnicas, culturales y religiosas en el ciberacoso adolescente: una aproximación crítica

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Abstract

The study "From Cyber-Victim to Cyber-Aggressor" analyses the relationship between digital victimisation and aggression in adolescents, with a special focus on ethnic, religious, and cultural variables. The study sample comprises 1,478 secondary-school students from southern Spain, who were surveyed using a validated questionnaire to measure their experiences of cyberbullying from an intercultural perspective. The results reveal that belonging to an ethnic or religious minority significantly increases the risk of being a victim or aggressor in digital environments. The Roma, Armenian, and Mongolian ethnic groups, as well as religions such as Judaism, Islam, and Buddhism, are associated with greater exposure to cyberviolence. The study also confirms that being a victim of cyberbullying increases the likelihood of adopting aggressive behaviours, reinforcing the hypothesis of the cycle of digital violence. This phenomenon is exacerbated by factors such as institutional invisibility, the code of silence among adolescents, and the "Coliseum effect," which multiplies the emotional damage by making aggressive content go viral. Statistical analysis, using structural equation models and chi-square, showed significant associations between culture, ethnicity, and religion with the roles of victim and aggressor. The model presented moderate predictive power ($R^2 = 0.248$), confirming that cybervictimisation is a key factor in the emergence of cyberbullying behaviours. In conclusion, the study analyses the pressing need to implement intercultural educational policies, technological prevention

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tools, and an intersectional approach to combat digital violence among adolescents from an inclusive perspective.

Keywords: digital harassment; ethnic diversity; adolescence; cultural diversity.

Resumen

El estudio "cibervíctima a ciberagresor" analiza la relación que se da entre la victimización digital y la agresión en adolescentes, con especial atención a las variables étnicas, religiosas y culturales. La muestra del estudio consta de 1.478 estudiantes de secundaria del sur de España, utilizando un cuestionario validado para medir experiencias de ciberacoso desde un enfoque intercultural. Los resultados revelan que pertenecer a una minoría étnica o religiosa aumenta significativamente el riesgo de ser víctima o agresor en entornos digitales. Las etnias gitana, armenia y mongola, así como religiones como el judaísmo, islam y budismo se asocian con mayor exposición a la ciberviolencia. El estudio también confirma que haber sido víctima de ciberacoso incrementa la probabilidad de adoptar comportamientos agresivos, reforzando la hipótesis del ciclo de violencia digital. Este fenómeno se ve agravado por factores como la invisibilidad institucional, la ley del silencio entre adolescentes y el "efecto Coliseum", que multiplica el daño emocional al viralizar contenidos agresivos. El análisis estadístico, mediante modelos de ecuaciones estructurales y chi-cuadrado, mostró asociaciones significativas entre cultura, etnia y religión con los roles de víctima y agresor. El modelo presentó un poder predictivo moderado ($R^2 = 0.248$), confirmando que la cibervictimización es un factor clave en la aparición de conductas de ciberacoso. En conclusión, el estudio analiza la necesidad imperante de aplicar políticas educativas interculturales, herramientas tecnológicas de prevención, y un enfoque interseccional para combatir la violencia digital entre adolescentes desde una perspectiva inclusiva.

Palabras clave: acoso digital; diversidad étnica; adolescencia; diversidad cultural.

Introduction

The exponential growth of ICTs has transformed communication, particularly among adolescents, who spend a significant amount of their time online and on social media (Murray et al., 2022). This shift from an instrumentalist to a relational use of ICTs (Garaigordobil, 2025) has reduced face-to-face interactions (Harrison & Polizzi, 2021) and exposed youth to misinformation and harmful content (Brey et al., 2023), generating new challenges for families, schools, and institutions (Invernón et al., 2025). Within this digital ecosystem, peer interactions increasingly occur in online environments. In these spaces, social norms are blurred, visibility is amplified, and power imbalances may be reproduced or intensified.

Problematic Mobile Use (PMU) and Problematic Internet Use (PIU) encompass a range of maladaptive behaviours, including compulsive shopping, pornography use, cyberchondria, and cyberbullying (Kreski et al., 2022). Among these, cyberbullying has emerged as one of the most harmful phenomena for adolescent development, as it directly affects peer relationships, emotional well-being, and identity construction during a critical developmental stage. Cyberbullying is commonly defined as intentional and repeated aggression carried out through digital technologies (Cosgun & Kucuk, 2026; Montiel et al., 2025), characterised by features such as anonymity, rapid

dissemination, permanence of content, and the potential for a wide and uncontrollable audience, which differentiate it from traditional bullying and exacerbate its impact (Cottom, 2020). The so-called "Coliseum Effect" further amplifies harm by transforming aggression into a public spectacle (Montiel et al., 2025).

From a psychosocial perspective, cyberbullying is a multidimensional construct that includes different roles (victim, aggressor, and victim–aggressor), diverse forms of aggression (verbal abuse, exclusion, harassment, or dissemination of private information), and varying degrees of involvement and severity. Typical manifestations include insults, humiliation, exclusion, and the disclosure of private information (Vo et al., 2026), often leading to low self-esteem, impaired social skills, emotional distress, and depressive symptoms. For adolescents, these consequences may interfere with academic engagement, peer belonging, and healthy identity development, increasing the risk of long-term psychosocial maladjustment (Kowalski et al., 2018).

Vulnerability to cyberbullying is not evenly distributed across the adolescent population. Research suggests that social and cultural factors may condition both exposure to and experiences of cyberbullying, with heightened risk among cultural, ethnic, and religious minorities who face intersecting forms of discrimination (Palomera et al., 2021). Verbal abuse and sexual harassment are particularly prevalent in these groups (Palomera et al., 2021). Cultural and religious identities do not act as isolated risk factors. Instead, they interact with broader contextual variables, such as social norms, stereotypes, and power relations, shaping adolescents' online experiences.

Religion has also been identified as a relevant variable in cyberbullying dynamics. Adolescents belonging to religious minorities such as Judaism, Islam, or Buddhism show higher rates of cybervictimization, while religious affiliation may also be associated with cyberaggressive behaviours (Hamilton et al., 2020). These dynamics may reinforce social disadvantages, as minority youth are more frequently exposed to verbal aggression, exclusion, and misinformation in digital environments (Dodge et al., 2026). In the Spanish context, empirical research remains limited, although available studies indicate higher levels of cybervictimization among immigrant students (Betts et al., 2021), alongside increasing reports of discrimination, particularly toward Roma, Moroccan, and Muslim adolescents (Hinduja & Patchin, 2018). García-Fernández (2024) analyzes the contextual variable in the Spanish education system, determining that perpetration and victimization in bullying and cyberbullying do not depend exclusively on context nor can they be explained solely by the transition between educational stages, as these are social phenomena that vary with age and require consideration of other contextual and personal factors. For their part, Arroyo-Uriarte et al., (2024) examined how having a migrant background or belonging to a different economic context influences the prevalence of cyberbullying. Although the results showed a direct and positive relationship in some subgroups (such as boys from low-income countries), no comprehensive explanation of complex cultural aspects beyond migration status is developed. The study by Conde-Vélez and Delgado-García (2020), despite not empirically analyzing belonging to cultural or migrant minorities as a predictor variable for cyberbullying, provides a relevant conceptual and instrumental framework for testing the hypotheses put forward. Although the study does not compare groups based on cultural origin, it explicitly recognizes these forms of discrimination as manifesta-

tions of violence, which theoretically supports the hypothesis of greater vulnerability of minorities to cyber victimization. These findings highlight the need to examine cyberbullying within specific sociocultural contexts. This approach avoids assuming homogeneous patterns across populations.

Another key aspect of the construct is the victim–aggressor continuum, whereby adolescents who experience cybervictimization may subsequently engage in cyberaggression as a form of retaliation or coping strategy (Falla et al., 2021). Among minority groups, this dynamic has been linked to increased suicidal ideation, emotional dysregulation, and difficulties in empathy development (Chen et al., 2020; Lozano-Blasco et al., 2020). The so-called "law of silence" (Lo Cricchio et al., 2022) further perpetuates cyberbullying by discouraging disclosure and limiting access to social and institutional support.

In summary, cyberbullying in multicultural adolescent contexts constitutes a complex and multidimensional phenomenon involving shifting roles, contextual risk factors, and significant psychosocial consequences. Understanding how cultural, ethnic, and religious belonging intersects with cyberbullying experiences is essential for identifying vulnerable profiles and informing preventive and educational interventions. Given the scarcity of empirical studies in Spain, this study aims to analyse how belonging to ethnic, cultural, or religious minorities is associated with involvement in cyberbullying, and to examine the extent to which cybervictimization predicts subsequent cyberaggression among adolescents.

In general terms, the study presents the following research focus and research questions:

Objective: To explore how belonging to ethnic, cultural, or religious minorities and the experience of having been a cybervictim influence adolescents' involvement in cyberbullying behaviours. Research questions:

- Does belonging to an ethnic, cultural, or religious minority increase the risk of experiencing cyberbullying?
- Are adolescents who belong to minority groups more likely to become cyberaggressors?
- Does having been a cybervictim increase the likelihood of becoming a cyberaggressor?

Research Hypotheses

Based on the theoretical framework presented and the research questions posed, the study is structured around the following hypotheses:

- **H1**. Belonging to an ethnic, cultural, or religious minority is associated with a higher likelihood of experiencing cybervictimization during adolescence.
- **H2.** Adolescents belonging to ethnic, cultural, or religious minorities are more likely to engage in cyberaggressive behaviors compared to those who do not belong to these groups.
- **H3.** Having been a victim of cyberbullying significantly increases the likelihood of adopting cyberaggressive behaviors, highlighting the existence of a cycle of digital violence.

Methodology

Participants

The sample was selected through a non-probabilistic sampling process using a purposive approach. A total of 1,478 adolescents enrolled in Compulsory Secondary Education participated in the study, with ages ranging from 12 to 16 years (M = 13.99 years; SD = 1.352). Of these, 738 (49.9%) were male and 740 (50.1%) were female. The sample was drawn from adolescents residing in various cities in southern Spain, including the autonomous cities of Ceuta and Melilla, as well as cities within the Andalusia region, such as Granada, Málaga, Almería, Jaén, Córdoba, Sevilla, Cádiz, and Huelva. The percentage of participants from each of these cities is detailed in Table 1.

Table 1

The frequency of young people surveyed by the city

City	N	%
Granada	121	8.2
Málaga	131	8.9
Almería	111	7.5
Jaén	161	10.9
Córdoba	193	13.1
Sevilla	205	13.9
Cádiz	127	8.6
Huelva	89	6.0
Melilla	172	11.6
Ceuta	168	11.4
Total	1478	100.0

Note. N (Number of participants); % (Percentage of participants)

The sample was distributed across various categories based on cultural background, ethnicity, and religious affiliation, as shown in Figure 1. In terms of cultural identity, 999 adolescents (67.6%) identified as White, 303 (20.5%) as Latino, 66 (4.5%) as Black, 21 (1.4%) as Asian, 14 (0.9%) as Nordic, and 75 (5.1%) did not respond to this question. Regarding ethnicity, 47 adolescents (3.2%) identified as Roma, 7 (0.5%) as of Celtic origin, 17 (1.2%) as Armenian, 197 (13.3%) as Mongolian, 976 (66.0%) as Castilian, and 234 (15.8%) did not respond.

As for religious affiliation, 1,020 participants (69.0%) identified as Christian, 79 (5.3%) as Jewish, 60 (4.1%) as Muslim, 16 (1.1%) as Taoist, and 5 (0.3%) as Buddhist. The remaining 298 adolescents (20.2%) reported no religious affiliation.

In this regard, the sample shows near gender parity, with the most represented age groups being 13 and 14 years old (23.6% and 23.4%, respectively). Participants primarily

attended public educational institutions located in Seville (13.9%), Córdoba (13.1%), and Melilla (11.6%), among other cities. In terms of religion, approximately 69% identified as Christian, with the majority identifying as Castilian in ethnicity (66.0%) and White in cultural background (67.6%).

Sampling Strategy and Inclusion Criteria

A purposive (intentional) non-probabilistic sampling strategy was employed, guided by theoretical and contextual criteria aligned with the study objectives. The inclusion criteria were as follows:

- being enrolled in Compulsory Secondary Education;
- being aged between 12 and 16 years;
- attending a school located in a sociocultural context characterised by ethnic, cultural, and religious diversity
- providing informed consent from both students and their legal guardians.

The selection of educational centres was not random but theoretically driven. Schools were intentionally chosen from the autonomous cities of Ceuta and Melilla and from provinces within Andalusia identified as ERACIS zones (Estrategia Regional Andaluza para la Cohesión e Inclusión Social), which are officially recognised as areas with high levels of social vulnerability, cultural heterogeneity, and immigrant population density. These territories constitute border regions in southern Spain with a long-standing coexistence of multiple cultural, ethnic, and religious groups, making them particularly relevant for examining cyberbullying dynamics in multicultural contexts (Téllez & Ramírez, 2018). This contextual criterion strengthens the ecological validity of the study, as it ensures that participants were drawn from environments where intercultural interaction and potential identity-based discrimination are structurally present.

Instruments: Survey Design

The instrument used was the Cyberbullying Scale for Students with Cultural and Religious Diversity (CSCRD), which was adapted and validated for the Spanish context by Tomé-Fernández et al. (2019) (Appendix A). The survey consists of two sections: the first collects sociodemographic data (age, gender, nationality, city of residence, school, grade, ethnicity, cultural background, and religion), while the second evaluates participants' cyberbullying experiences through a 38-item Likert-type scale with five response options ranging from "never" (1) to "always" (5). The variables religion and ethnicity were collected through closed-ended sociodemographic items included in the first section of the questionnaire. For transparency and replicability purposes, the full instrument has been incorporated as an Appendix A at the end of the manuscript.

Religious affiliation was measured using a multiple-choice item with the following response options: Christianity, Judaism, Islam, Buddhism, Taoism, No religion, and Other religion (please specify). In addition, a Prefer not to answer option was included to respect participants' right to withhold sensitive identity information. For analytical purposes, responses marked as Prefer not to answer were recoded as "No reported religious affiliation" and treated as missing values in inferential analyses.

It should be noted that some expressions used throughout the manuscript (e.g., "other religions," "no reported religious affiliation," or "any religion") do not refer to conceptually equivalent categories but rather to analytical groupings created during the data-processing phase. These groupings were applied to ensure sufficient cell sizes and statistical stability in contingency tables and regression models, in line with standard methodological recommendations for categorical data analysis.

Similarly, ethnicity was operationalized through a closed-ended item with the following response categories: Roma, Celtic, Armenian, Mongolian, Castilian, and Other ethnicity (please specify), together with a Prefer not to answer option. As in the case of religion, this latter option was recoded as missing data for inferential analyses.

To avoid ambiguity, the manuscript has been revised to clearly differentiate between (a) the original response options presented to participants and (b) the recoded or aggregated categories used in the statistical analyses. This ensures that all interpretations and conclusions drawn in the study are strictly grounded in the actual structure of the measurement instrument and the subsequent analytical procedures applied.

Ethnicity was measured through a closed-ended self-identification item. It should be noted that this variable reflects participants' subjective self-perception rather than an objective genealogical or cultural classification. Given the adolescent population and the sociocultural context of data collection, the term "ethnicity" may have been interpreted in a non-technical or colloquial manner by some respondents.

In particular, the category "Mongolian" may have been used by some participants as a generic label for individuals with East Asian phenotypical traits, independently of their actual country of origin, religion, or cultural background. This semantic ambiguity may have contributed to a disproportionate frequency of this category relative to other identity variables (e.g., religion or cultural background). For this reason, ethnicity should be interpreted as an approximate indicator of perceived identity rather than a strictly objective ethnic classification (Appendix B and Appendix C).

This second section is structured into three dimensions: Intercultural Cyberbullying (Cronbach's alpha was $\alpha = 0.90$; $\omega \approx 0.91$), referring to disrespectful or intentionally aggressive behavior in intercultural digital interactions (Sánchez-Romero & Muñoz-Jiménez, 2021). This dimension includes behaviors such as making racist comments about other races, ethnicities, or religions on social networks, insulting classmates for having a different skin color through WhatsApp or other digital platforms, or spreading lies online about people from other ethnic or religious groups. Digital Racist Threats ($\alpha = 0.82$; $\omega \approx 0.83$) includes vulgar, offensive, or threatening messages aimed at spreading false rumors or violating privacy on social networks (Mills & Unsworth, 2018). Representative items refer to situations such as being threatened through messages because of one's religious or ethnic traditions, having one's social network account hacked to ignite hatred against a racial or religious group, or receiving racist comments posted publicly on social media. Finally, Identity Theft ($\alpha = 0.76$; $\omega \approx 0.78$) encompasses acts of stealing a victim's online identity to damage reputation and incite racist or xenophobic sentiments (Feijóo et al., 2021). This dimension includes behaviors such as someone posing as the victim on a social network to ridicule religious or ethnic traditions, posting fake photos online to mock a person's race or cultural activities, or sharing humiliating videos or images related to a person's ethnic or religious background.

The scale comprises eight items for Intercultural Cyberbullying (score range: 8–40), seven for Digital Racist Threats (range: 7–35), and four for Identity Theft (range: 4–20). Confirmatory factor analysis (CFA) showed an excellent model fit: $\chi^2 = 2414.536$, $p = .00$; NNFI = .80; CFI = .83; IFI = .80; RMSEA = .05 (Lorenzo-Seva, 2025).

Design and Statistical Analysis

This study adopts a quantitative, non-experimental, cross-sectional, and explanatory design, aimed at analysing the relationships between cybervictimisation and cyberaggression in adolescents, with a specific focus on ethnic, cultural, and religious variables. A quantitative approach was selected due to its suitability for examining latent constructs and testing theoretically grounded hypotheses through statistical modelling (Henseler, 2018; Kline, 2011). The non-experimental design is justified by the ethical and practical impossibility of manipulating sensitive variables such as religious affiliation, ethnic identity, or cyberbullying experiences.

The cross-sectional nature of the study allows for the identification of associative and predictive patterns between cybervictimisation and cyberaggression at a specific developmental stage (adolescence), which is especially relevant given the rapid evolution of digital interaction behaviours. Finally, the explanatory orientation of the design is supported by the use of structural equation modelling (PLS-SEM), which enables the assessment of predictive relationships and effect sizes between constructs, in line with the study's objective of testing the cyberviolence cycle hypothesis.

Preliminary analyses were conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS 3.2.8. This method was selected because it does not assume multivariate normality and reduces the risk of inadmissible solutions, such as factor loadings exceeding one, which are common limitations in covariance-based SEM (Fornell & Bookstein, 1982). PLS-SEM is well established in the social sciences and has been widely applied in educational research across different levels and contexts (Ghasemy et al., 2020).

To examine differences in cyberbullying and cybervictimisation by culture, ethnicity, and religion, Chi-square (χ^2) tests and contingency tables were used to assess relationships between qualitative variables.

Procedure

Following approval from the Ethics Committee of the University of Granada (Code 5352/CEIH/2025), the research team contacted the administration of the participating educational institutions to inform them of the study's objectives and to coordinate the administration of the instruments. Data collection was conducted through the digital distribution of questionnaires via the Google Forms platform, during regular school hours. Prior to participation, informed consent was obtained from both students and their parents or legal guardians, ensuring adherence to ethical principles regarding confidentiality, anonymity, and voluntary participation. The administration of the questionnaires was supervised by an expert surveyor, a member of the research team, who provided detailed instructions and addressed any questions that arose during the

process. The estimated time required to complete the questionnaires was approximately 20 to 25 minutes. A total of 1,642 students were initially invited to participate in the study. Of these, 1,478 adolescents completed the questionnaire correctly and met the inclusion criteria, yielding a response rate of 90.0%. Questionnaires with incomplete responses or missing informed consent were excluded from the final sample.

Results

Given the explanatory nature of this study, the focus is placed on the predictive power of the model, as well as on effect sizes and the statistical inference of the structural relationships (Henseler, 2018). Accordingly, the analysis begins with an assessment of the reliability and validity of the measurement model, followed by an examination of the structural model, which includes the application of the aforementioned tests and statistical procedures.

Analysis of the reliability and validity of the measurement model

Following the confirmatory analysis previously conducted, three dimensions were established for each of the constructs. For the construct of Cybervictimization (hereafter, CV), the identified dimensions were: Digital Racist Threats (ARDcv), Identity Theft (UIcv), and Intercultural Cybervictims (CIcv). For the construct Cyberbullying (hereafter, CA), the corresponding dimensions were: Digital Racist Threats (ARDca), Identity Theft (UIca), and Intercultural Cyberbullying (CIca).

Subsequently, the individual-level reliability and validity analysis of the measurement model is presented in the following table, where factor loadings greater than 0.70 indicate acceptable reliability (Sudheesh et al., 2023). At the construct level, reliability was assessed using composite reliability, with values above 0.70 considered optimal (Henseler et al., 2015).

Discriminant validity analysis was used to determine the extent to which each construct is distinct from the others. For this purpose, the Heterotrait-Monotrait (HTMT) ratio must be below 0.90 (Kline, 2011), a condition that was met in this study. The reliability and validity analyses, presented at both the indicator and construct levels, are shown in Tables 2 and 3.

Table 2

Reliability and Validity Analysis of the Measurement Model (Second-Order Constructs)

Second Order	First Order	Factor Loadings (p-value)
Cyberbully (CA)	Digital Racist Threats (ARDca)	0.866 (0.000)
	Identity Theft (UIca)	0.951 (0.000)
	Intercultural Cyberbullying (CIca)	0.926 (0.000)
Cybervictim (CV)	Digital Racist Threats (ARDcv)	0.812 (0.000)
	Identity Theft (UIcv)	0.912 (0.000)
	Intercultural Cybervictims (CIcv)	0.916 (0.000)

Table 3

Reliability and Validity Analysis of the Measurement Model (at the Construct Level)

	Alfa de Cronbach	ϱC	ϱA	A.V.E	Ratio Heterotrait-Monotrait		
						CA	CV
Cyberbully (CA)	0.902	0.939	0.915	0.837	CA		
Cybervictim (CV)	0.857	0.912	0.886	0.777	CV	0.554	

Structural Model Analysis

The explanatory nature of the model requires its interpretation in terms of predictive power, predictive relevance, and the effect size of the variables on the endogenous variable Cyberbullying. Predictive power is assessed using the coefficient of determination (R^2), which, in this case, yielded a moderate and statistically significant value for the model ($R^2 = 0.248$, $p = 0.000$) (Chin, 1998). Additionally, the model demonstrated predictive relevance as indicated by Q^2 values greater than zero ($Q^2 = 0.204$), in accordance with the thresholds established by Stone (1974) and Geisser (1975). Based on this, and through the analysis of effect size (f^2), the variable Cybervictimization was found to exert a moderate and significant effect on the endogenous variable Cyberbullying ($f^2 = 0.330$, $p = .000$) (Cohen, 1988). The statistical inference of the structural relationships was performed using a bootstrapping procedure with 10,000 resamples (Streukens & Leroi-Werelds, 2016), yielding t-values, p-values, and confidence intervals. The results are presented in Table 4.

Table 4

Hypothesis Testing

	Original Sample (O)	t(P.val)	IC 95%	
			5%	95%
H1: Cybervictim Cyberbully	0.498***	7.651(0.000)	0.382	0.598

The results obtained through the analysis highlight the positive influence of cybervictimization behaviours, indicating that students who have been victims of cyberbullying are highly likely to engage in cyberbullying behaviours themselves in the future. This finding supports the hypothesis proposed in the model. Figures 1 and 2 display the proposed structural model based on the initial hypothesis and the final structural model following the analysis of the results.

Figure 1

Proposed Structural Model

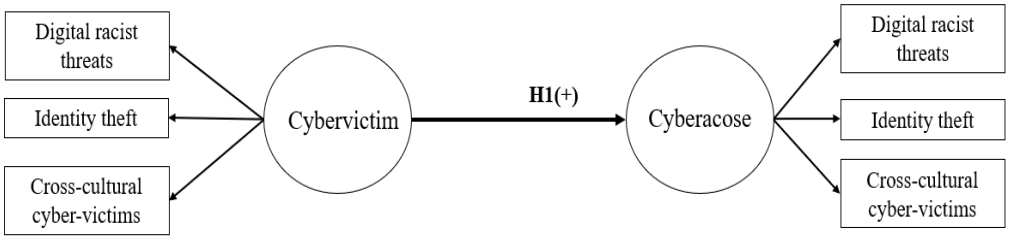
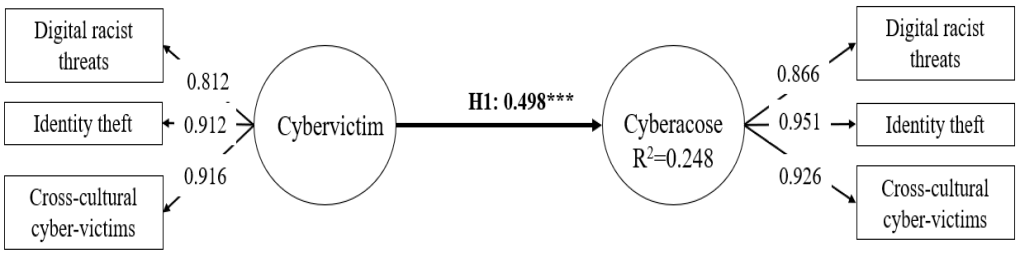


Figure 2

Final Structural Model



The results of the Chi-square test indicate a significant relationship between being a cybervictim and belonging to a specific religion, ethnicity, or culture. With high χ^2 values and asymptotic significance levels below 0.001, the analysis confirms that these variables are not independent, suggesting that belonging to a minority group in terms of religion, ethnicity, or culture increases the likelihood of experiencing cyber-victimization. While this does not imply a direct causal relationship, it does reveal an inequality in digital harassment experiences based on individuals' cultural identities. These findings underscore the importance of implementing protective and preventive measures targeted at vulnerable minority groups (Table 5).

Table 5

Chi-Square Tests (Cybervictim)

		Value	gl	P
Cybervictim	Pearson's Chi-Square			
Religion	X^2	672, 581	195	<.001
Ethnicity	X^2	1006,860	195	<.001
Culture	X^2	802,031	195	<.001

The Chi-square test results for cyberaggressors (Table 6) indicate that religion, ethnicity, and culture are also significantly associated with the likelihood of engaging in cyberaggressive behaviour. With high χ^2 values and asymptotic significance levels below .001, the analysis confirms that these variables are not independent, suggesting that cultural identity plays a role in influencing the probability of becoming an aggressor in digital environments.

Table 6

Chi-Square Tests (Cyberaggressor)

		Value	gl	P
Cyberbully	Pearson's Chi-Square			
Religion	X^2	396,846	195	<.001
Ethnicity	X^2	724,848	195	<.001
Culture	X^2	800,299	195	<.001

When this analysis is related to the previous findings on cybervictims, it suggests the presence of the cyberviolence cycle—a phenomenon in which individuals who have been cybervictims may develop digital aggression as a response or coping mechanism. This supports the hypothesis that discrimination or marginalisation based on religion, ethnicity, or culture not only increases the risk of online victimisation for certain groups but may also lead to the reproduction of aggressive behaviours within those same groups. These findings are further supported by the model's predictive power and relevance, which demonstrate a moderate and statistically significant predictive capacity.

Association Between Religion and Roles in Cyberbullying

Binary logistic regression models were used to analyze the association between religious affiliation and involvement in cyberbullying, distinguishing between the roles of cybervictimization and cyberaggression, using students with no religious affiliation as the reference group.

Regarding cybervictimization, the results indicate that Jewish (OR = 2.44; 95% CI [1.2–4.1]) and Muslim affiliation (OR = 2.42; 95% CI [1.3–4.5]) are associated with a higher likelihood of being a victim of cyberbullying compared to the reference group. Similarly, Buddhist affiliation also shows a positive association with victimization (OR = 1.86; 95% CI [1.3–3.5]). In contrast, Christian affiliation is associated with a lower likelihood of cybervictimization (OR = 0.80; 95% CI [0.5–0.9]), suggesting a possible protective effect in this role, as is the case for Taoism (OR = 0.60; 95% CI [0.3–0.8]).

With respect to cyberaggression, a different pattern emerges. Christian affiliation is associated with a higher likelihood of engaging in cyberbullying behaviors (OR = 4.73; 95% CI [1.2–6.0]). Likewise, Jewish (OR = 3.80; 95% CI [1.1–10.0]) and Muslim

participants (OR = 3.60; 95% CI [1.2–6.0]) show significantly higher odds of cyberaggressive behavior compared to those with no religious affiliation. In contrast, Buddhist affiliation is associated with a lower likelihood of being a cyberaggressor (OR = 0.30; 95% CI [0.3–0.4]), whereas Taoism shows a moderate but statistically significant increase in the risk of cyberaggression (OR = 1.29; 95% CI [1.1–2.3]). Taken together, these findings reveal differentiated patterns depending on the role assumed in cyberbullying dynamics. The fact that Christian affiliation is associated with a lower likelihood of cybervictimization and, simultaneously, with a higher likelihood of cyberaggression underscores the importance of analytically distinguishing between both roles, as a given group may display divergent risk profiles. This apparent asymmetry does not constitute a statistical inconsistency but rather reflects the estimation of two independent logistic models with distinct dependent variables.

Finally, it should be noted that the Christian group represents the majority of the sample (approximately 69%), whereas some religious categories show reduced sample sizes (e.g., Buddhism). Therefore, although the odds ratios are statistically significant, estimates corresponding to low-frequency categories should be interpreted with caution due to their potential instability, as discussed in the Limitations section (Table 7).

Table 7

Association Between Religions and Roles in Cyberbullying: A Logistic Regression Analysis.

	Cybervictims	**Cyberbullies**
Religions	OR (95% CI)	OR (95% CI)
Judaism	2.44 (1.2–4.1)	3.80 (1.1–10.0)
Christian	0.80 (0.5–0.9)	4.73 (1.2–6.0)
Islam	2.42 (1.3–4.5)	3.60 (1.2–6.0)
Buddhism	1.86 (1.3–3.5)	0.30 (0.3–0.4)
Taoism	0.60 (0.3–0.8)	1.29 (1.1–2.3)

Association Between Ethnicity and Roles in Cyberbullying

Table 8 shows that all examined ethnic groups have a statistically significant association with cyberbullying involvement, as all adjusted odds ratios (OR) are above one and confidence intervals exclude 1. The highest likelihood of cyberaggression is observed among Armenian students (OR = 2.74; 95% CI: 1.30–3.50), followed by Roma students (OR = 2.10; 95% CI: 1.20–4.60) and Celtic students (OR = 2.03; 95% CI: 1.50–3.20). For cybervictimization, Roma (OR = 1.53; 95% CI: 1.1–2.1) and Armenian students (OR = 1.21; 95% CI: 1.05–1.8) show the highest risks. Overall, these results indicate that certain ethnic groups are more vulnerable both as victims and perpetrators in digital contexts.

Table 8

Association Between Ethnicities and Cyberbullying Profiles Among Students: Victims and Aggressors

	Cybervictims	**Cyberbullies**
Ethnicities	OR (95% CI)	OR (95% CI)
Gypsy	1.53 (1.1–2.1)	2.10 (1.2–4.6)
Celtic	1.20 (1.05–1.6)	2.02 (1.5–3.2)
Armenian	1.21(1.05–1.8)	2.74 (1.3–3.5)
Mongolian	1.10 (1.02–1.3)	1.32 (1.1–1.8)

Cultural Association and Roles in Cyberbullying

Table 9 reveals that students' cultural background significantly influences their involvement in cyberbullying, both as victims and aggressors, with results statistically supported at the 95% confidence level.

For cybervictimization, African (OR = 2.05; CI: 1.1–3.0) and Asian students (OR = 2.27; CI: 1.2–4.0) are more than twice as likely to be victimised compared to the reference group, while Indigenous students also show a moderate but significant risk (OR = 1.33; CI: 1.1–1.6). By contrast, White students present a lower likelihood (OR = 0.58; CI: 0.4–0.8), suggesting a relative protective effect.

Regarding the cyberaggressor profile, African (OR = 3.68; CI: 1.5–6.0), Asian (OR = 4.04; CI: 1.3–8.0), and White students (OR = 3.79; CI: 1.4–6.5) show elevated probabilities of engaging in aggression, while Indigenous students display a weaker but still significant association (OR = 1.09; CI: 1.01–1.3).

Overall, these results indicate that cultural background plays a relevant role in cyberbullying dynamics, operating through differentiated variables associated with victimization and aggression. The dual involvement of some groups (notably African and Asian students) as both victims and aggressors illustrates the complexity of the phenomenon. It reinforces the need for culturally sensitive, multifaceted interventions.

Table 9

Significant Association Between Culture and Cyberbullying Profiles Among Students.

	Cybervictims	**Cyberbullies**
Cultura	aOR (95% CI)	aOR (95% CI)
African	2.05 (1.1–3.0)	3.68 (1.5–6.0)
Asian	2.27 (1.2–4.0)	4.04 (1.3–8.0)
Indigenous	1.3 (1.1–1.6)	1.09 (1.01–1.3)
White	0.58 (0.4–0.8)	3.79 (1.4–6.5)

Discussion

Scientific literature has repeatedly warned of the adverse effects associated with the problematic use of mobile devices and the internet, particularly among young people. Although the present study does not directly assess problematic internet or mobile use, these dynamics provide a relevant contextual framework for understanding the digital environments in which cyberbullying behaviours emerge during adolescence. Although the prevalence of this phenomenon in Spain is still considered relatively low (Pepler et al., 2021), neither the educational community nor healthcare professionals can remain indifferent to the consequences that dysfunctional technology use has on adolescents' psychosocial well-being. The rise of maladaptive behaviors, driven by misinformation, excessive screen exposure, and uncritical consumption of digital content, affects not only users' mental health but also the quality of their interpersonal relationships (Giumetti et al., 2021). In response, several initiatives have been implemented in Spain to raise awareness and educate youth on responsible technology use through evidence-based educational programs (Wachs et al., 2020). The findings of the present study empirically confirm two central hypotheses. First, belonging to an ethnic, religious, or cultural minority significantly increases the likelihood of experiencing cybervictimization, thus providing support for Hypothesis 1 (H1). Second, being a victim of cyberbullying greatly increases the probability of becoming a cyberaggressor, confirming Hypothesis 3 (H3) and reinforcing a digital violence cycle in which victim and aggressor roles become intertwined in a continuous dynamic.

The link between minority status and heightened exposure to cyberviolence is consistent with previous findings (Cottom, 2020). Digital environments amplify prejudice and hate speech through anonymity, lack of regulation, and virality. These dynamics are often expressed as insults, exclusion, memes, or identity theft (Agus et al., 2025). The visibility of identity markers, such as religious clothing, language, or skin colour, further increases vulnerability (CEDRE, 2024). The consequences for victims include stigmatization, secondary victimization, mental health problems, increased substance use, and an elevated risk of suicide (Borrego-Ruiz, 2025). Cyberbullying, therefore, operates as a symbolic mechanism of social dominance (Finkelhor et al., 2021), extending the offline dynamics of discrimination (Rodríguez-Hidalgo & Ortega-Ruiz, 2017).

Research also shows that minority adolescents are disproportionately perceived as inferior, making them recurrent targets of racist and xenophobic aggression (Esposito et al., 2024.; Sánchez-Romero & Muñoz-Jiménez, 2021). Far from serving as an inclusive space, the digital environment often reproduces exclusion, with serious outcomes such as anxiety, depression, suicidal ideation, and academic difficulties (Keum & Cano, 2021). These findings stress the importance of inclusive approaches to online coexistence (de Alda & Merino-Arribas, 2020). In this regard, cultural context should not be understood as a homogeneous factor, but rather as a set of differentiated variables, such as minority status, visibility of identity markers, ethnic belonging, and religious affiliation, whose influence on cyberbullying dynamics may vary across adolescent profiles.

Hypothesis 3 (H3) is also supported, as cybervictimization significantly predicts later cyberaggression. Victims may resort to aggression as a form of retaliation or emotional release (Tomé-Fernández et al., 2020); however, while this work focuses on

earlier educational stages, the present findings suggest that these dynamics become more complex and intensified during adolescence, when digital autonomy and peer interaction increase. Statistical results ($f^2 = 0.330$) confirm the predictive value of this variable, in line with Hood and Duffy (2018), who describe the blurred boundaries between victim and aggressor. The Coliseum effect (Montiel et al., 2025) further intensifies harm, prolonging victimisation and reinforcing exclusion. The resulting psychological toll includes low self-esteem, isolation, psychosomatic complaints, and depression (Feijóo et al., 2021).

Finally, institutional responses to cyberbullying remain insufficient, particularly when addressing the intersection of digital violence with ethnic, cultural, and religious forms of discrimination. The persistence of the adolescent "code of silence" (Lo Cricchio et al., 2022) continues to hinder detection and timely intervention, thereby facilitating the transition from victimization to aggression. These findings highlight the need to consider intersectional perspectives when analysing cyberbullying dynamics, especially in relation to vulnerable groups, and point to the importance of coordinated responses across educational and social contexts.

Taken together, the results presented here underscore the urgent need to rethink digital coexistence strategies from an intersectional approach that acknowledges how multiple forms of discrimination intersect in adolescents' cyberbullying experiences. In this sense, the differentiated patterns observed across ethnic, cultural, and religious groups also provide support for Hypothesis 2 (H2), indicating that minority status is associated not only with victimization but also with cyberaggressive behaviours.

This study demonstrates that cyberbullying among adolescents cannot be fully understood without accounting for the ethnic, cultural, and religious dimensions that shape experiences of victimization and aggression in digital environments. The findings confirm that belonging to a minority group—whether ethnic, religious, or cultural—significantly increases the likelihood of experiencing cyberbullying, revealing that social structures of exclusion, stigmatization, and discrimination are also reproduced in virtual spaces. This reality highlights that cyberviolence is not an isolated or merely behavioral phenomenon, but one that reflects and amplifies pre-existing inequalities embedded in the social fabric.

The study also confirms a direct relationship between being a cybervictim and the later adoption of cyberaggressive behaviors, evidencing the existence of a cycle of digital violence fueled by feelings of helplessness, frustration, revenge, or a need for identity affirmation. This pattern is especially pronounced among historically marginalized groups, underscoring the need for approaches that go beyond simplistic frameworks and consider the sociocultural context in which these dynamics unfold.

Conclusion

The results obtained in this study make it possible to draw several conclusions of interest for understanding cyberbullying in adolescence from an ethnic, cultural, and religious perspective. First, it is confirmed that belonging to identity minorities is associated with greater exposure to situations of cybervictimization. This finding highlights that digital environments are not neutral spaces, but rather reproduce and

even intensify dynamics of exclusion and discrimination already present in face-to-face social and educational contexts.

Likewise, the analysis confirms the existence of a close relationship between having been a victim of cyberbullying and the subsequent adoption of cyberaggressive behaviors. Far from being independent phenomena, the results show that both roles may become intertwined, shaping a cycle of digital violence in which prior victimization acts as a factor that increases the likelihood of aggressive responses. This dynamic is particularly relevant among adolescents who are in situations of greater social, cultural, or religious vulnerability.

On the other hand, the study shows that variables such as religion, ethnicity, and culture do not operate uniformly in experiences of cyberbullying, but rather influence patterns of victimization and aggression in differentiated ways. This diversity of patterns reinforces the need to move beyond simplified approaches to the phenomenon and to advance toward analytical models that take into account the intersection of multiple identity dimensions.

From an applied perspective, the results underscore the importance of developing cyberbullying prevention strategies that explicitly incorporate an intercultural approach. Educational interventions should recognize identity diversity as a central element of digital coexistence and should not be limited to generic responses. Similarly, the findings highlight the shared responsibility of educational institutions, public administrations, and digital platforms in creating safer, more inclusive, and more respectful virtual environments.

Overall, the findings of this study confirm that adolescent cyberbullying cannot be adequately analyzed or addressed without considering the ethnic, cultural, and religious dimensions that shape young people's experiences in digital environments. Integrating this perspective is essential to advance toward more equitable digital coexistence. It also supports the design of educational responses attuned to contemporary social complexity.

Limitations and Implications

This study provides relevant evidence on adolescent cyberbullying from an intersectional perspective; however, it presents certain methodological limitations that should be acknowledged. The exclusive use of self-report measures may introduce social desirability and recall biases; therefore, future research should be complemented with data from multiple informants, such as teachers, families, and peers, as well as with objective digital trace data when ethically feasible. Additionally, the cross-sectional nature of the study design limits the ability to establish causal relationships, highlighting the need for longitudinal research that allows the examination of developmental trajectories and temporal dynamics in the victim–aggressor cycle. Future studies are encouraged to incorporate a broader set of contextual and individual variables that were beyond the scope of the present research, including educational stage and school grade (e.g., different levels of Compulsory Secondary Education), type of school ownership (public, private, or charter), territorial context (urban vs. rural areas), and school-level characteristics such as diversity climate or coexistence policies. Likewise, the inclusion of

socioeconomic status, migratory background, language spoken at home, and family structure would contribute to a more nuanced understanding of structural inequalities shaping cyberbullying experiences. Moreover, it is recommended that future research integrate psychological and relational variables such as gender identity, mental health indicators (e.g., anxiety, depression, emotional regulation), parenting styles, peer support, and school belonging, in order to better explain vulnerability and resilience patterns among adolescents.

The adoption of qualitative or mixed-method approaches would also allow a deeper exploration of subjective meanings, identity negotiations, and contextual factors underlying cyberbullying dynamics in multicultural settings. On a practical level, the findings underscore the urgent need to implement educational programs with an explicit intercultural focus, aimed at promoting respect for diversity and preventing cyberbullying through critical awareness. It is essential for schools to adopt specific protocols that recognize identity-related dimensions as risk factors and to ensure that educational staff receive training in the detection and management of digital violence. Furthermore, the promotion of emotional competencies, empathy, and conflict-resolution skills among youth is key to breaking the victim–aggressor cycle. Finally, the role of digital platforms and inclusive public policies is emphasized in the creation of safe, equitable, and culturally respectful virtual environments, highlighting the shared responsibility of educational institutions, technology companies, and governmental bodies in addressing cyberbullying from a structural and intersectional perspective.A further limitation concerns the internal coherence of the sociodemographic variables, particularly ethnicity. The relatively high proportion of students self-identifying as "Mongolian" contrasts with the low prevalence of Asian cultural identity and Buddhist or Taoist religious affiliation. This inconsistency suggests a potential self-identification bias and a non-technical understanding of the term "ethnicity" among adolescents.

In the sociocultural contexts where data were collected, the label "Mongolian" may have been used colloquially to refer to East Asian physical traits rather than to an actual ethnic or national origin. As a result, some of the observed statistical associations involving ethnicity—especially for this category—should be interpreted with caution, as they may partially reflect classification errors rather than substantive sociocultural effects. Future research should refine the operationalization of ethnicity through multi-item measures (e.g., family origin, language spoken at home, length of residence, self-identification with multiple categories) and, when possible, apply verification or triangulation procedures to improve construct validity.

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Appendix A

Cyberbullying Scale for Students with Cultural and Religious Diversity (CSCRD)
(Tomé-Fernández et al., 2019)

Sociodemographic Information

Sex:_____Age:_____City:_____

Institution: _____Course: _____

Nationality: _____

Circle your answer:

Religion: Judaism—Christianity—Islamic—Buddhism—Taoism—I don't belong to any
Ethnicity: Roma – Celtic – Armenian – Mongolian – Don't know/no answer
Race / Cultural background: Asian – African – Latino – White – Don't know/no answer

Instructions

Mark an X in the following boxes where:

Level of cyber victim or cyberbullying in adolescents

1 = None 2 = Little 3 = Moderate 4 = Quite a lot 5 = A lot

Section A. Cybervictimization

1. Someone has insulted me or used swear words against me for having a different skin color using email, WhatsApp, or another social network.
2. Someone has insulted me or used swear words against me for being of a different ethnicity or religion using email, WhatsApp, or another social network.
3. Racist comments have been made about me on social networks because of my race, ethnicity, or religion.
4. Lies have been told to classmates about my race, ethnicity, or religion using the Internet, WhatsApp, or social networks.
5. I have been threatened through messages on Messenger, WhatsApp, or other social networks because of my religious or ethnic traditions.
6. Someone has illegally accessed my social network account and taken information to generate hatred against my racial, ethnic, or religious group.
7. Someone has accessed my account and pretended to be me on Facebook or Twitter to ridicule my religious or cultural traditions.

8. A false account has been created by someone pretending to be me in order to promote fear about my country's customs or my ethnicity or religion.
9. Someone has posted personal information about my family online to make fun of our traditions and customs.
10. Someone has posted videos or photos online about my group's religious or ethnic traditions to humiliate me.
11. Someone has posted videos or photos online about my race to humiliate me.
12. Fake images have been posted online to ridicule my group's religious or ethnic activity.
13. Fake images have been posted online to ridicule my race.
14. I have been excluded or ignored on social networks or chats for being of another race or belonging to a religion or ethnicity different from my classmates'.
15. I have been recorded being physically assaulted and the video was posted online because I am different (skin color, hair, clothing, traditions, or religion).
16. Someone has called me on my mobile phone and imitated my way of speaking to make fun of my language.
17. I have received threatening WhatsApp audios telling me that my race, religion, or ethnicity should be exterminated.
18. I have been mocked for fun for dressing or wearing different clothes from the rest of my classmates.
19. Someone has impersonated me on a forum or social network, insulting and threatening others to generate fear toward people of my race, ethnicity, or religion.

Section B. Cyberaggression

1. I have insulted or used swear words against classmates for having a different skin color using email, WhatsApp, or another social network.
2. I have insulted or used swear words against classmates for being of a different ethnicity or religion using email, WhatsApp, or another social network.
3. I have made racist comments on social networks about other races, ethnicities, or religions.
4. I have told lies to classmates about other races, ethnicities, or religions using the Internet, WhatsApp, or social networks.
5. I have threatened other religious or ethnic traditions using Messenger, WhatsApp, or other social networks.
6. I have illegally accessed a social network account and taken information to generate hatred against other racial, ethnic, or religious groups.
7. I have accessed an account and pretended to be someone else on Facebook or Twitter to ridicule religious or ethnic traditions different from mine.
8. I have created a false account posing as someone else in order to promote fear about customs of other countries or different ethnicities or religions.
9. I have posted personal information about classmates' families online to make fun of their traditions and customs.

10. I have posted videos or photos online about religious or ethnic traditions of other groups to humiliate them.
11. I have posted videos or photos online about the race of others to humiliate them.
12. I have posted fake images online to ridicule the religious or ethnic activities of another group.
13. I have posted fake images online to ridicule the race of another group.
14. I have excluded or ignored others on social networks or chats for being from a different race, religion, or ethnicity from the rest of my classmates.
15. I have physically assaulted classmates, recorded them, and posted the videos online because they are different from me (skin color, hair, clothing, traditions, or religion).
16. I have called a classmate on the phone and imitated their way of speaking to make fun of their language.
17. I have sent threatening WhatsApp audios saying that the race, religion, or ethnicity of other classmates should be exterminated.
18. I have mocked other classmates for dressing or wearing different clothing from the rest of my classmates.
19. I have impersonated someone else on a forum or social network, insulting and threatening to generate fear toward people of other races, ethnicities, or religions.

Appendix B

Table 10

Summary of ethnic-religious case processing

	Valid		Lost		Total	
	N	%	N	%	N	%
Ethnicity *Religion	1478	100,0%	0	0,0%	1478	100,0%

Table 11

*Cross-tabulation Ethnicity*Religion*

			Religion						Total
			Judaism	Christianism	Islam	Buddhism	Taoism	Other	
Ethnicity	Gypsy	Count	7	29	5	0	0	6	47
		Expected count	2,5	32,4	1,9	,2	,5	9,5	47,0
		% within Ethnicity	14,9%	61,7%	10,6%	0,0%	0,0%	12,8%	100,0%
		Standardized residual	2,8	-,6	2,2	-,4	-,7	-1,1	
		Corrected residual	3,0	-1,1	2,3	-,4	-,7	-1,3	
	Celtic	Count	2	4	1	0	0	0	7
		Expected count	,4	4,8	,3	,0	,1	1,4	7,0
		% within Ethnicity	28,6%	57,1%	14,3%	0,0%	0,0%	0,0%	100,0%
		Standardized residual	2,7	-,4	1,3	-,2	-,3	-1,2	
		Corrected residual	2,7	-,7	1,4	-,2	-,3	-1,3	

			Religion						Total
			Judaism	Christianism	Islam	Buddhism	Taoism	Other	
Ethnicity	Armenian	Count	2	9	5	1	0	0	17
		Expected count	,9	11,7	,7	,1	,2	3,4	17,0
		% within Ethnicity	11,8%	52,9%	29,4%	5,9%	0,0%	0,0%	100,0%
		Standardized residual	1,1	-,8	5,2	3,9	-,4	-1,9	
		Corrected residual	1,2	-1,4	5,3	4,0	-,4	-2,1	
	Mongolian	Count	34	93	6	0	10	54	197
		Expected count	10,5	136,0	8,0	,7	2,1	39,7	197,0
		% within Ethnicity	17,3%	47,2%	3,0%	0,0%	5,1%	27,4%	100,0%
		Standardized residual	7,2	-3,7	-,7	-,8	5,4	2,3	
		Corrected residual	8,0	-7,1	-,8	-,9	5,8	2,7	
	Others	Count	12	105	33	0	0	84	234
		Expected count	12,5	161,5	9,5	,8	2,5	47,2	234,0
		% within Ethnicity	5,1%	44,9%	14,1%	0,0%	0,0%	35,9%	100,0%
		Standardized residual	-,1	-4,4	7,6	-,9	-1,6	5,4	
		Corrected residual	-,2	-8,7	8,5	-1,0	-1,7	6,5	
Total		Count	79	1020	60	5	16	298	1478
		Expected count	79,0	1020,0	60,0	5,0	16,0	298,0	1478,0
		% within Ethnic group	5,3%	69,0%	4,1%	0,3%	1,1%	20,2%	100,0%

Table 12

Pruebas de chi-cuadrado ethnic-religious

	Value	Gl	Asymptotic significance (two-tailed)
Pearson's chi-square	352.797a	25	<001
Likelihood ratio	283.615	25	<001
Linear by linear association	13.200	1	<001
N of valid cases	1478		

Note. a. 20 20 boxes (55.6%) have expected a count lower than 5. The minimum expected count is 02.

Table 13

Symmetrical ethnic-religious measures

		Value	Significations approximate
Nominal by Nominal	Phi	.489	<001
	V de Cramer	.218	<001
Number of valid cases		1478	

Appendix C

Table 14

Summary of Ethnic-Culture case processing

	Valid		Lost		TOTAL	
	N	%	N	%	N	%
Ethnic-Culture	1478	100.0%	0	0.0%	1478	100.0%

Table 15

*Cross-tabulation Ethnicity*Culture*

			Culture						Total
			Africana	**Asian**	**Indigenous**	**White**	**Nordic**	**Others**	
Ethnicity	Gypsy	Count	7	0	14	22	0	4	47
		Expected count	2,1	,7	9,6	31,8	,4	2,4	47,0
		% within Ethnicity	14,9%	0,0%	29,8%	46,8%	0,0%	8,5%	100,0%
		Standardized residual	3,4	-,8	1,4	-1,7	-,7	1,0	
		Corrected residual	3,5	-,8	1,6	-3,1	-,7	1,1	

			Culture						Total
			Africana	Asian	Indigenous	White	Nordic	Others	
Ethnicity	Celtic	Count	1	0	0	2	2	2	7
		Expected count	,3	,1	1,4	4,7	,1	,4	7,0
		% within Ethnicity	14,3%	0,0%	0,0%	28,6%	28,6%	28,6%	100,0%
		Standardized residual	1,2	-,3	-1,2	-1,3	7,5	2,8	
		Corrected residual	1,3	-,3	-1,3	-2,2	7,6	2,8	
	Armenian	Count	1	3	7	4	0	2	17
		Expected count	,8	,2	3,5	11,5	,2	,9	17,0
		% within Ethnicity	5,9%	17,6%	41,2%	23,5%	0,0%	11,8%	100,0%
		Standardized residual	,3	5,6	1,9	-2,2	-,4	1,2	
		Corrected residual	,3	5,7	2,1	-3,9	-,4	1,3	

			Culture						Total
			Africana	Asian	Indigenous	White	Nordic	Others	
Ethnicity	Mongolian	Count	14	2	125	50	4	2	197
		Expected count	8,8	2,8	40,4	133,2	1,9	10,0	197,0
		% within Ethnicity	7,1%	1,0%	63,5%	25,4%	2,0%	1,0%	100,0%
		Standardized residual	1,8	-,5	13,3	-7,2	1,6	-2,5	
		Corrected residual	1,9	-,5	16,0	-13,6	1,7	-2,8	
	Others	Count	31	12	75	59	4	53	234
		Expected count	10,4	3,3	48,0	158,2	2,2	11,9	234,0
		% within Ethnicity	13,2%	5,1%	32,1%	25,2%	1,7%	22,6%	100,0%
		Standardized residual	6,4	4,8	3,9	-7,9	1,2	11,9	
		Corrected residual	7,1	5,2	4,8	-15,1	1,3	13,4	
Total		Count	66	21	303	999	14	75	1478
		Expected count	66,0	21,0	303,0	999,0	14,0	75,0	1478,0
		% within Ethnic group	4,5%	1,4%	20,5%	67,6%	0,9%	5,1%	100,0%

Table 16

Pruebas de chi-cuadrado ethnic-culture

	Value	Gl	Asymptotic significance (two-tailed)
Pearson's chi-square	847,659a	25	<,001
Likelihood ratio	696,318	25	<,001
Linear by linear association	21,926	1	<,001
N of valid cases	1478		

Note. a. 19 polling stations (52.8%) have expected a count of less than 5. The minimum expected count is 0.07.

Table 17

Symmetrical ethnic-culture measures

		Value	Significations approximate
Nominal by Nominal	Phi	,757	<001
	V de Cramer	,339	<001
Number of valid cases		1478	