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Asymmetric and sexist polarization: political self-positioning as a moderator of the relationship between extremism and the justification of violence among adolescents

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In this paper, we present the results of a study on violent extremism and political self-positioning of adolescents in the province of Almería (Spain). This research is based on a questionnaire conducted in secondary schools in Almería (4) and Madrid (1) in May 2022. We tried to answer the following questions: are social extremism and the justification of violent illegal acts related? To what extent does political self-positioning moderate the relationship between extremism and the justification of violence among Alpha Generation adolescents? Does this occur in the same way for boys and girls? We proceeded to adapt and validate a scale of violent extremism. For a sample of 1,170 students aged 12–19 years, a hierarchical regression analysis was conducted for a multicategorical moderator variable. The results indicate that political polarization among adolescents does not manifest itself in the same way for those who identify with the most radical ideologies on the political spectrum. The endorsement of pro-violence attitudes is a notable phenomenon, particularly among boys who align with the political extreme right.

KEYWORDS

asymmetric and sexist polarization, social extremism, pro-violence attitudes, adolescents, political self-positioning, analysis of moderation, Spain

Introduction

Adolescents born around 2013 onwards are part of a generation that has been labeled the iPad generation, the Alpha generation, or the Polars (Jaiswal, 2023). This last term refers to two significant challenges that this generation will likely face: the melting of the polar ice caps due to climate change and political polarization (Twenge, 2023, p. 2). In this article, we will focus on the latter problem, that of political polarization.

Specifically, we will seek to explore the relationship between political self-positioning and violent extremism in a sample of adolescents born around 2013, and currently in secondary education in Almería (Spain). We will begin by alluding to the general characteristics of this new generation of adolescents.

While it is not clear that they constitute a generation different from Generation Z (Nagy and Köllcsey, 2017), it seems that the most characteristic features of this Alpha generation would be the fact that they have been socialized in the digital world and in the new technological trends, apps, tweets, memes, social networks, tablets, and in the colloquial slang of these media (McCrindle and Wolfinger, 2009).

These adolescents are highly connected, with a preference for video formats. They are independent in making their own decisions, and they are diverse in demographics (such as ethnicity and gender), as well as in terms of their tastes and points of view (Iberdrola, 2023). However, it is important to note that one in three adolescents may engage in problematic use of the Internet and social media (Iberdrola, 2023).

Additionally, one in five may have a certain addiction to video games, while one in five may be suffering from cyberbullying. Furthermore, 29% indicate that their caregivers do not set limits or rules on the use of the Internet and screens (Andrade et al., 2021). The authors believe that it is important to encourage this generation to develop skills such as managing emotions, forming stable relationships, and integrating technology into their daily lives (Jha, 2020, p. 9). It would seem that happiness, satisfaction with life and expectations have all decreased somewhat (Twenge, 2023). However, it would be a mistake to assume that this generation is homogeneous.

In the Spanish case, the INJUVE study on political ideology of young people pointed out in 1917 that young people tended to place themselves near the center of the ideological scale, slightly to the left, while they placed their parents/mothers more to the right (INJUVE, 2017). The 2020 report (INJUVE, 2021) pointed out that it should be studied where young people are getting political information, since the consumption of political information through social networks or internet had reached the levels of television, which had been until that moment the most used media to get informed. And that, this trend is being observed in all the countries of our environment and will be especially pronounced among the youngest people (INJUVE, 2021, p. 188).

We live in polarized, or perhaps asymmetrically polarized, environments, as noted by authors who note that “polarization is mainly due to a sharp retreat of moderation on the right side of the political spectrum” (Hacker and Pierson, 2017, p. 59). In these environments, the lack of trust in democratic processes, the political detachment of the citizenry—exacerbated in the case of young people—, and the rise of violent extremism constitute serious threats against the values of freedom, citizenship and tolerance that should define a democratic society (Azqueta and Merino-Arribas, 2022). It is possible that adolescents may be more susceptible to the processes of extremism and radicalization (Tamayo Sáez et al., 2021), particularly through their exposure to hate speech (Wachs et al., 2022), as they are mainly informed through social media. In fact, Rodríguez Martínez et al. (2024) found that the amount and type of daily social media use moderated the relationship between extremism and the justification of violence and illegal acts among adolescents aged 12 to 19. Greater social media use does not correlate with being more extremist; rather, it correlates with being more supportive of violence.

In recent years, an increasing number of articles in the media have also highlighted that there may be a growing gender gap occurring among high school seniors. While teenage boys appear to be becoming more conservative, girls seem to be leaning more toward liberal or progressive views (De-Visé, 2023), which highlights the differences in the gender gap over political issues.

The gender gap persists with regard to the use of violence. This may indicate the rise of toxic masculinity, which involves a stronger commitment to traditional male gender roles that stigmatize and restrict the expression of emotions typically associated with femininity, while promoting anger and other similar emotions (Liu, 2016). This closely links to the defense of violent attitudes. Indeed, a review of the literature on the subject reveals that several studies conducted in Spain have demonstrated that the content of children’s television programs in 2021 is 2fold more violent than that of the preceding year. This is evidenced by the prevalence of violence against women and other men, perpetrated by boys, and violence against women and other women, perpetrated by girls (CIMA, 2023). These data are significant in light of the fact that in 2021 Spain occupied the first position in terms of hours of television consumption (219 min per day) in comparison to the rest of the European Union countries. With regard to behaviors, data on bullying and cyberbullying in childhood (12 to 16 years) indicate that there is a notable disparity between boys and girls in Spain. In particular, a higher percentage of boys (6.3%) than girls (3.5%) have been identified as aggressors. This discrepancy persists with regard to cyberbullying. A 2016 study by Save the Children found that 4.5% of boys had engaged in cyberaggression, compared to 3% of girls. A recent study on cyber violence in Spain concludes that women, especially young women, are the main victims of cyberbullying (Sousa et al., 2024).

In any case, when referring to violent extremism, it is important to notice that we can refer to either attitudes or behaviors. When referring to attitudes, we usually use the term cognitive radicalization. When referring to behaviors, we use the term behavioral radicalization. However, attitudes and behaviors are not always linked. Many people, including adolescents, who hold radical (or extremist) views, will never resort to violent behavior to defend their beliefs (Wolfowicz et al., 2021). There is no single profile or path for a person to undergo behavioral radicalization, which does not necessarily follow cognitive radicalization. Furthermore, most adolescents (ages 12–19) do not express extremist or pro-violent attitudes (Nivette et al., 2022).

In this study we aim to answer these questions: to what extent does political self-positioning moderate the relationship between extremism and justification of violence-illegal acts among adolescents of the Alpha generation? Does it occur in the same way for both sexes? Assuming that extremist positions are those that are going to justify violence to a greater extent, it is also worth asking whether pro-violence attitudes are associated with left-wing or right-wing extremism.

We will present the results of a study on violent extremism and political self-positioning of adolescents based on a questionnaire conducted in secondary schools in the province of Almería in May 2022. We will begin by presenting the process that leads to the development of violent extremist attitudes and the concept of

political self-positioning. We will then present our hypotheses. We will report on how we collected the data and highlight the main results of our analysis.

Socialization, environments and violent extremism

During adolescence, there are three primary environments influence socialization: the family, school, and peer groups. The family plays a fundamental role in the socialization of young people. Positive family experiences can foster resilience in the face of violence (Spalek, 2016). Conversely, an inadequate family environment can make adolescents feel detached and expose them to behavioral models based on poor conflict management (Farrington et al., 2009). Harsh treatment, the imposition of rules, and parental violence can lead to violent extremist attitudes or behaviors (Baier et al., 2016).

The school environment can redirect extremist attitudes toward activism and improve young people's resilience (Koirikivi et al., 2021). However, it can also increase feelings of failure and frustration, leading to violence. Adolescents often distance themselves emotionally from their parents, meaning their peer group plays a significant role in shaping their ideologies and attitudes (Greve, 2007). Linked to family breakdown and school failure, this phenomenon can facilitate identification with extremist groups that engage in violent behavior and identify as victims of established social structures (Eldor et al., 2022). Participation in shared spaces and leisure activities where aggressive and violent behavior is common can contribute to the normalization of such behavior. These dynamics can cause adolescents to view violence as a justified means of achieving their ideological goals and accept the culture of aggression in these social contexts.

The development of violent extremist attitudes

The term violent extremist attitudes encompasses the acceptance of a radical ideology at the cognitive level and a pattern of behavior that includes engaging in, participating in, sustaining, or supporting violent actions (Bazaga-Fernández and Tamayo-Sáez, 2021). The development of these attitudes can be explained by three factors, as outlined in the 3N radicalization model (Kruglanski et al., 2019). Firstly, the need to feel respected and to imbue one's life with meaning is a significant factor (Kruglanski et al., 2013). Consequently, when the adolescent self-perceives humiliation, oppression, oblivion, social alienation or uncertainty, one option is the search for meaning through the formation of a group identity (N1). The group serves as a social network (N2), offering a source of empowerment through mere membership (Jost et al., 2008). Bonds based on opposition to those outside the group are strengthened (Swann et al., 2012). Consequently, there is a distinction between the in-group and the out-group (Webber and Kruglanski, 2017). One indicator of identity is the utilization of shared narratives or interpretations (N3) of a polarized society (Jost et al., 2008). This discourse is predicated on the condemnation of

actions deemed wrong (García-Juanatey et al., 2020). Under this meaning of identity, the dichotomy of friend and foe is postulated (Talschir, 2005).

One's own positions are elevated, and violence and aggression toward opposing groups are legitimized (Lobato et al., 2020). This construction of us serves as the foundation for justifying violence and illegal acts as a legitimate form of defense against perceived aggression from the them (Ozer and Bertelsen, 2018; Lobato et al., 2020). It is often observed that violent extremist groups elaborate their messages on the basis of perceived grievances directed toward the target groups (Schils and Verhage, 2017). For example, "the H7-group, which is associated with the VOX political party, has been known to espouse views that are perceived as hateful and xenophobic. [...] an extreme right-wing political party [...] of hatred of foreigners, hatred of the MENA region, LGTB regulation, and other similar sentiments. Ultimately, many individuals espouse these views and utilize the flag of Spain as a symbol of their affiliation. They are inciting hatred among the general population" (CIS, 2023a).

In Rodríguez Martínez et al. (2023), the authors present a comprehensive review of instruments designed to measure violent extremist attitudes among adolescents. Indeed, one of the most effective instruments is the one developed by Ozer and Bertelsen (2018). The authors emphasized the necessity of developing and validating two generic scales for empirical research on violent radicalization, specifically concerning (1) approval of extremism and (2) acceptance of violent and/or illegal means. They posit that extremist attitudes are related to two interdependent dimensions: (1) approval of global personal and social change and (2) intolerance toward other groups of citizens who oppose these social changes. The construction of the two scales is based on the assumption that extremist attitudes *per se* need not be accompanied by pro-violence attitudes. Ozer and Bertelsen (2018) designated their scales as the Extremism Scale and the Pro-violence and Illegal Acts in Relation to Extremism Scale. The initial scale was designed to assess attitudes toward comprehensive sociocultural transformation and intolerance toward others through group dynamics. The first component included lifestyle and culture, socioeconomic foundations, and the governmental system. The second component concerned the us-them distinction, devaluation of others, breakdown of deliberation, and inability to coexist. The second scale was designed to measure attitudes of pro-violence and acceptance of the use of illegal means in relation to extremism, with a focus on various domains, including society, a higher cause, family and friends, and the group.

Both scales were tested with high school students from Denmark and the United States and yielded consistent results; in addition to information on age, gender, and country of birth, the measures contained five self-report measurement scales: The Extremism Scale consisted of 14 items scored on a 7-point scale, and the Pro-violence and Illegal Acts in Relation to Extremism Scale included 6 items relating to acceptance of the use of violence and 6 relating to acceptance of the use of illegal means. Both scales ranged from (1) Strongly Disagree to (7) Strongly Agree. According to the authors, both scales confirmed the initially assumed distinction between attitudes related to activism and those referring to radicalism; moreover, they considered that the

Extremism Scale was able to identify extremism through the criterion of a deeply felt desire to change the conditions of life and leaving aside concerns for human coexistence.

As we argued earlier, the processes that lead to the development of violent extremist attitudes can be expected to be associated with both far-left and far-right political positions, although, as the authors point out, right-wing and left-wing populisms may not coincide on the same goals: “although a wide range of politicians advocate for the people, left-wing populists prefer to attack the economic elite. Attacks on the media elite and ostracism of others, however, are predominantly made by right-wing speakers” (Engesser et al., 2017, p. 1109). We will now turn our attention to the tools that can be used to measure adolescents’ political self-positioning.

Political self-positioning

The authors highlight the utility of the political self-positioning scale as a tool for identifying the ideological positions of citizens in advanced democracies (Peral and Calvo, 2023; Bauer et al., 2017). In fact, this scale is included in the question asked in the barometers of the Centro de Investigaciones Sociológicas (CIS). It should be noted that while the CIS repository (<https://www.cis.es/>) contains questionnaires dating back to June 1979, the first instance of a specific question on political self-positioning appears in March 1981 (CIS, 2023b). From March 1981 to May 1983 (CIS, 2023c), the scale had seven options and the question was formulated as follows: “When thinking about political tendencies, the words left and right are normally used. Please place yourself on the following scale according to your political tendency: 1 extreme left, 2 left, 3 center left, 4 center, 5 center right, 6 right, 7 extreme right, 8 don’t know, 9 no answer.” (CIS, 2023c). Since June 1983 (CIS, 2023d), up to the present, the scale has ten options, from extreme left (1) to extreme right (10), although authors such as Camino (2022) propose a simplification that entails the recategorization of the variable into five categories: 1 and 2 for extreme left, 3 and 4 for left, 5 and 6 for center, 7 and 8 for right, 9 and 10 for extreme right.

In general, those who define themselves as left-wing are concerned with issues associated with social justice, global inequality, climate change or women’s rights, while those who define themselves as right-wing are concerned with social order, criminality, capitalism, national symbols or immigration (García-Sánchez et al., 2022). On the other hand, Peral and Calvo (2023) found that, although “citizens place themselves on the left-right scale according to their values or social status, they do so more significantly according to their proximity to political parties” (Peral and Calvo, 2023, p. 36). Few studies analyze political ideology and the use of violence for ideological reasons. Jasko et al. (2022) point out that data on extremists in the United States indicates that left-wing extremists are less likely to use violence than right-wing extremists and Islamists. Using global databases, the authors demonstrate that attacks motivated by left-wing groups were less deadly than those motivated by right-wing and Islamist groups. Nevertheless, the percentage of extremists who use violence remains very low. For example, in the United States, the probability

was 0.33% for left-wing extremists, 0.61% for right-wing extremists, and 0.62% for Islamists.

Research hypothesis

The following research hypotheses were proposed:

- [H1] Attitudes about social extremism are directly related to those related to the justification of violence and illegal acts.
- [H2] The perception of aggressive or violent behavior in different social settings significantly correlates with political self-positioning.
- [H3] Perception of aggressive or violent behavior in different social settings significantly moderates the relationship between social extremism (ES) and justification of violence—illegal acts (PIARES).
- [H4] Political self-positioning exerts an influence on the relationship between attitudes about social extremism and the justification of violence and illegal acts.
- [H5] There is a significant difference between the influence of far-left political self-positioning and that of the far left on the relationship between social extremism and attitudes toward the justification of violence and illegal acts.
- [H6] The relationship between political self-positioning and justification of violence and illegal acts is moderated by sex.

Method

Participants

The data for this research were collected from students in public and private secondary schools located in Almería (4) and Madrid (1) during May 2022. This research project was conducted in the context of a larger study on the violent radicalization of adolescents. A total of 1,175 participants completed the questionnaire. Questionnaires from participants who did not indicate their gender (12 participants), did not complete any items related to calculating the Social Extremism Scale or the Pro-Violence and Illegal Acts in Relation to Social Extremism Scale (9 participants), or answered all items on these scales with the same score (19 participants, due to acquiescence bias) were excluded. After eliminating incomplete questionnaires, the sample consisted of 1,135 participants. The participants’ ages ranged from 12 to 19 years, with a mean age of 15.6 years. The sample consisted of 581 females (51.2%) and 554 males. The data can be accessed via the following link: <https://repositorio.ual.es/handle/10835/14093> (Rodríguez Martínez et al., 2020).

The questionnaire was answered by all the adolescents from five secondary schools present in the classrooms with the prior consent of the School Councils of the schools. In the process, the researchers explained the general guidelines of the questionnaire, assuring the adolescents that their responses would be treated anonymously. To answer the questionnaire, the research team provided the adolescents with a QR code that they used to answer the questionnaire on their cell phones for approximately 30 min. In case they did not have a cell phone, they were provided with the questionnaire on paper.

The questionnaire included sociodemographic questions (sex, age, parents' nationality, family savings level, mother's highest level of education, frequency of attendance at religious services and self-positioning on the political ideological scale) and questions on the adolescent's integration into the school, perception of discrimination and violence, attitudes toward violence and use of violence. All items of the Ozer and Bertelsen scales were included to reproduce the scales (SE and PIARES).

Variables

In a democratic system, having a radical point of view on how society should be organized is legitimate, but accepting violence—illegal acts committed to impose one's point of view—is not. Our concern was not so much with assessing whether the students exhibited a profile of social extremism as it was with their relationship to the justification of violence. For this reason, in the present study, the index of social extremism (SE) was taken as an independent variable, and the index of justification of violence and illegal acts (PIARES) as a dependent variable. Political self-positioning and sex were used as moderating variables.

The variables social extremism (SE) and justification of violence-illegal acts (PIARES) were obtained from the sum of the corresponding items of the SE and PIARES scales of Ozer and Bertelsen (2018). Scores were standardized to improve comparability of results. To facilitate the description of both variables, indicators based on percentiles and total scores were calculated. Four level were established: low, medium, high and very high (Table 1).

The variable political self-positioning refers to the participants' placement on the left-right ideological spectrum (A36). In accordance with the specifications set forth by the Centro de Investigaciones Sociológicas (CIS), an ordinal variable was employed, comprising 10 response options. The scale ranged from 1 (extreme left) to 10 (extreme right).

This variable was recategorized into two nominal variables with five categories (A36_5I and A36_5D; Table 2). This subdivision was undertaken with the objective of utilizing the extreme-left positioning (A36_5I) and extreme-right positioning (A36_5D) as reference categories.

Respondents were asked to what extent they perceive aggressive or violent behavior in the following settings: (a) their family environment, (b) their immediate environment, (c) leisure spaces and (d) their school environment.

Instruments

To assess social extremism (SE) and the justification of violence and illegal acts (PIARES), the scales developed by Ozer and Bertelsen (2018) were utilized. The questionnaire was translated and adapted to align with the characteristics of the sample under study. Subsequently, a confirmatory factor analysis (CFA) was conducted. The principal component method was used to extract the factors. A commonality value of <60% was used as the criterion for excluding variables. Items 1.5 (Extr = 0.429) and 1.6 (Extr =

TABLE 1 Indicators of the Extremism Scale (SE), justification of violence-illegal acts (PIARES).

Indicators	Levels	Percentile	Scores
Social Extremism (SE)	Under	P0–P39	14–23
	Medium	P40–P69	24–49
	High	P70–P89	50–77
	Very high	P90–P100	78–98
Justification of violence and illegal acts (PIARES)	Under	P0–P39	8–9
	Medium	P40–P69	10–19
	High	P70–P89	20–34
	Very high	P90–P100	35–56

TABLE 2 Coding of the political self-positioning variable.

A36	A36_5cat	A36_5D
1 Far left	1 Far left	5 Far left
2		
3	2 Left	4 Left
4		
5	3 Center	3 Center
6		
7	4 Right	2 Right
8		
9	5 Far right	1 Far right
10 Far right		

0.591) in the factor "Justification of violence," and items 2.1 (Extr = 0.591) and 2.6 (Extr = 0.578) in the factor "Justification of illegal acts," had extraction values below the established threshold of 60%. In other words, these items did not share sufficient variance with the other items in each factor, which compromised their ability to adequately represent the theoretical dimension being evaluated. Consequently, these four items were removed from the PIARES scale, thereby preserving the test's theoretical meaning and enhancing its statistical fit, with a total explained variance of 65.84%. This improves the instrument's internal consistency and factorial validity (Figure 1). CFA was performed again to verify the good fit of both scales to the sample used (Table 3).

Measurement invariance was tested for both scales: (M1) metric (control of factor loadings), (M2) scalar (control of intercepts), and (M3) strict (control of residuals; Table 4).

Statistical analysis

[H1] Social extremism (Independent variable) has a direct relationship with the justification of violence and illegal acts (Dependent variable).

The association between the two scales was analyzed (δ Somers and Chi-square), followed by logistic regression analysis.

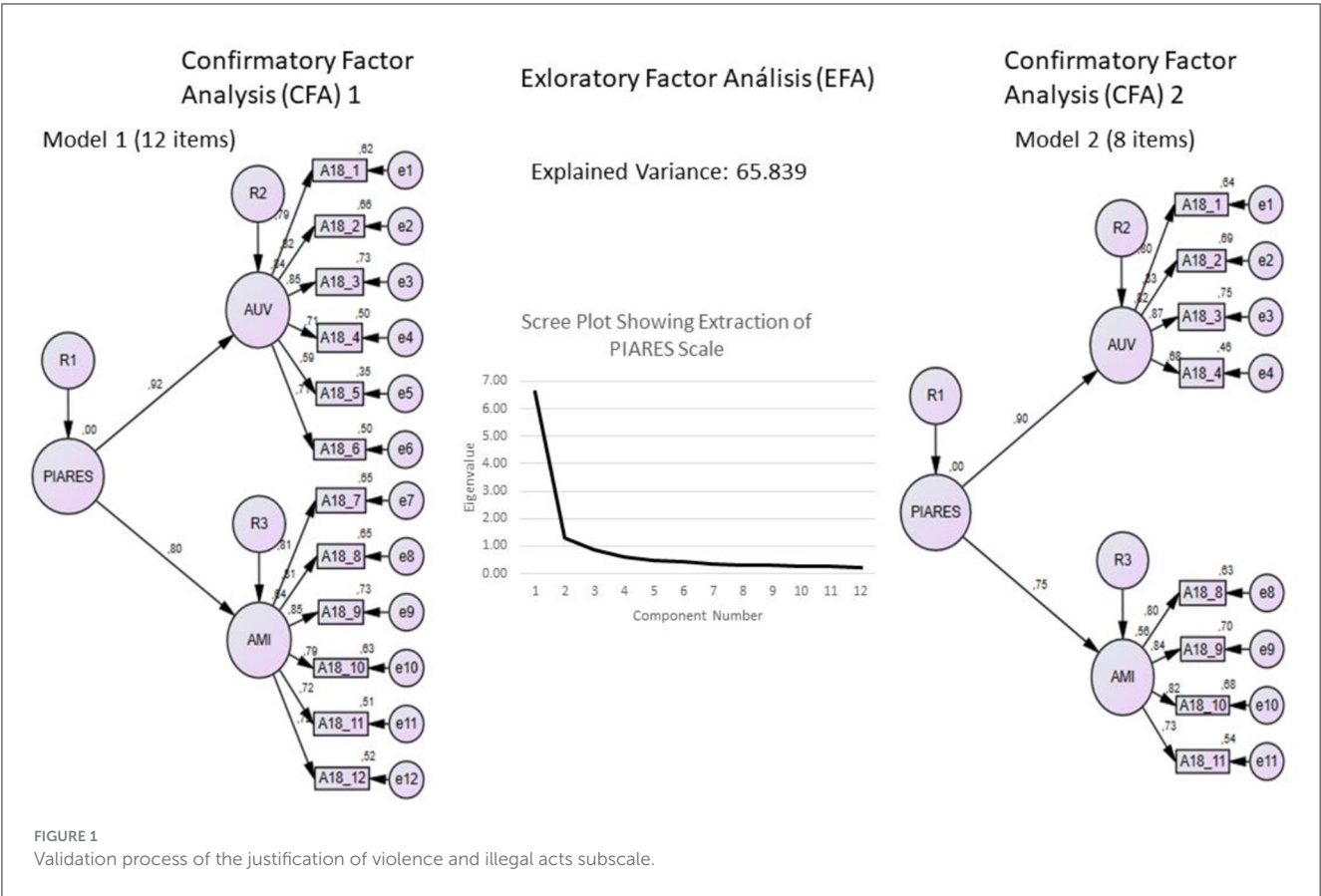


TABLE 3 Fit indices confirmatory factorial analysis.

	SE	PIARES	Cutoff criteria (Hu and Bentler, 1999)
Absolute adjustment ratios			
RMSEA (Root Mean Square Error of Approximation)	0.05	0.05	Excellent fit <0.05 Good fit <0.08
Incremental adjustment ratios			
CFI (Comparative Fit Index)	0.93	0.99	Good fit ≥ 0.90
TLI (Tucker-Lewis Index)	0.92	0.98	Good fit ≥ 0.90
NFI (Normed Fit Index)	0.92	0.99	Good fit ≥ 0.90

*Likert scale 1: Strongly disagree. 7: Strongly agree.

Subsequently, linear regression analysis was carried out taking as dependent variable the typical scores of the PIARES scale (zPIARES) and as independent the typical scores of the Social Extremism scale (zSE).

- [H2] To determine the association between the perception of violent or aggressive behavior in different social settings and political self-positioning, a Pearson correlation was calculated.
- [H3] The influence of the perception of aggressive or violent behavior in different socialization settings on the relationship

- between ES and PIARES was determined using simple moderation analysis (PROCESS model 1).
- [H4] Political self-positioning (Moderator variable) influences the relationship between social extremism (Independent Variable) and justification of violence-illegal acts (Dependent Variable).

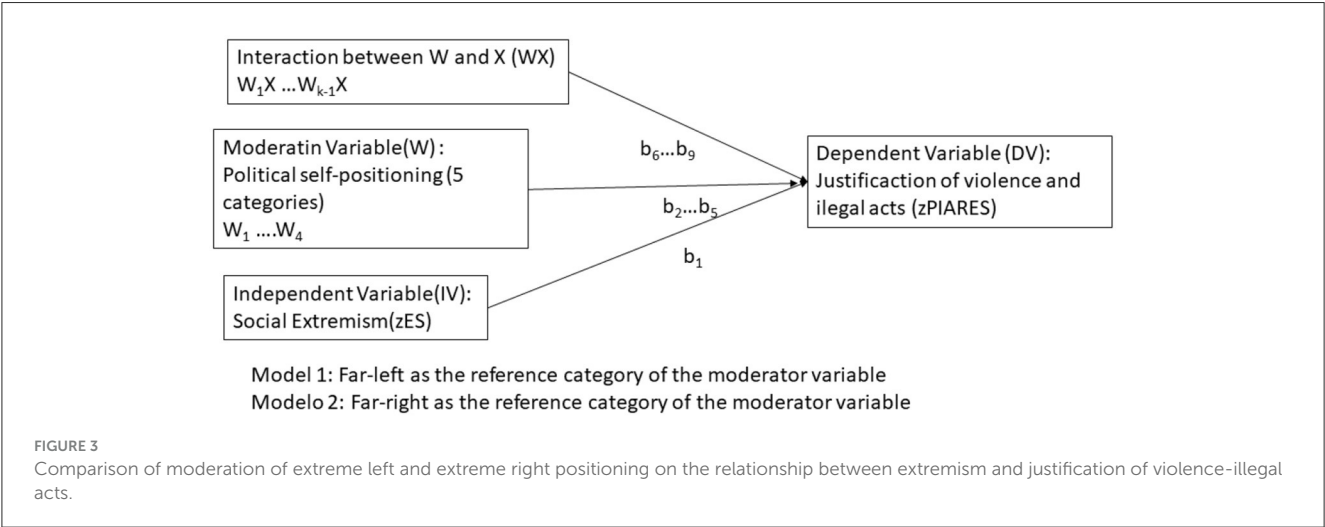
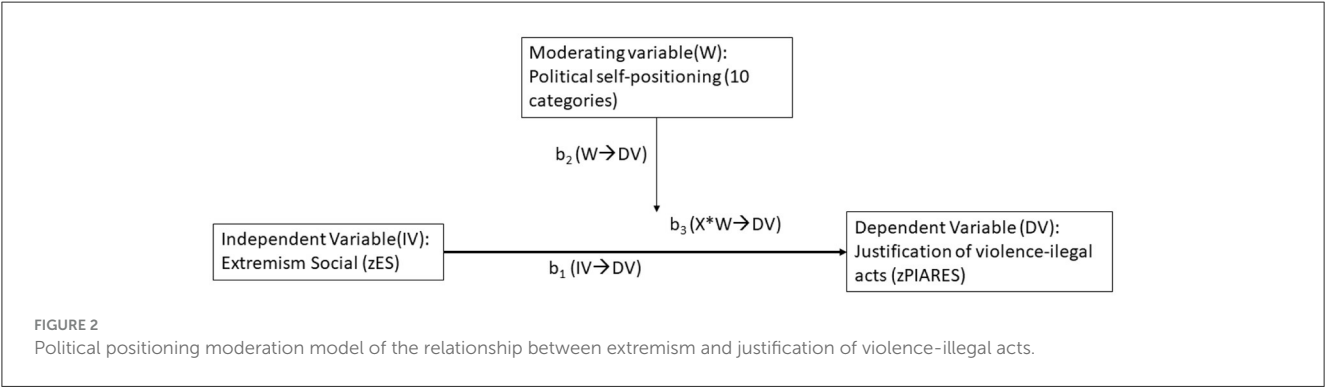
Hierarchical regression analysis was performed using the PROCESS algorithm (Hayes, 2022), taking zPIARES as the dependent variable, zSE as the independent variable, and political self-positioning as a moderator on an ordinal scale with 10 categories, where 1 is extreme left and 10 is extreme right (Figure 2).

- [H5] The political self-positioning of the extreme left differs significantly from that of the extreme right in how it influences the relationship between social extremism and the justification of violence and illegal acts. Following the proposal of Camino (2022), the political self-positioning variable (10 categories) was recoded into five. In the two models, zPIARES was taken as the dependent variable and zSE as the independent variable. In the first model, the extreme left category was taken as a reference, and in the second, the extreme right category (Figure 3).
- [H6] The relationship between political self-positioning and justification of violence and illegal acts is moderated by sex.

The initial step in the sequence of analyses was to ascertain whether there were significant differences in the justification

TABLE 4 Configurational invariance of SE Scale and PIARES with respect to sex variable.

	Scale	IFC	Δ CFI	RMSEA	Δ RMSEA	TLI
M1. Configuration invariance	PIARES	0.98		0.05		0.96
	SE	0.95		0.04		0.94
M2. Metric invariance (M2 vs. M1)	PIARES	0.98	0.001	0.05	0.001	0.97
	SE	0.95	0.001	0.04	0.001	0.94
M3. Scalar invariance (M3 vs. M2)	PIARES	0.96	0.015	0.06	0.009	0.95
	SE	0.94	0.011	0.04	0.001	0.93
M4. Strict invariance (M4 vs. M3)	PIARES	0.93	0.047	0.08	0.014	0.93
	EN	0.93	0.016	0.4	0.002	0.93



of violence and illegal acts between boys and girls. Having verified the relationship between social extremism and justification of violence (H1), we proceeded to investigate whether the sex variable moderated this relationship. Ultimately, given that political self-positioning influenced the relationship between extremism and justification of violence-illegal acts, we deemed it necessary to analyze whether sex moderated the relationship between political self-positioning and justification of violence-illegal acts. A comparison of means with an independent samples *t*-test, a segmented hierarchical regression analysis with the PROCESS algorithm, and an univariate ANOVA were conducted (Figure 4).

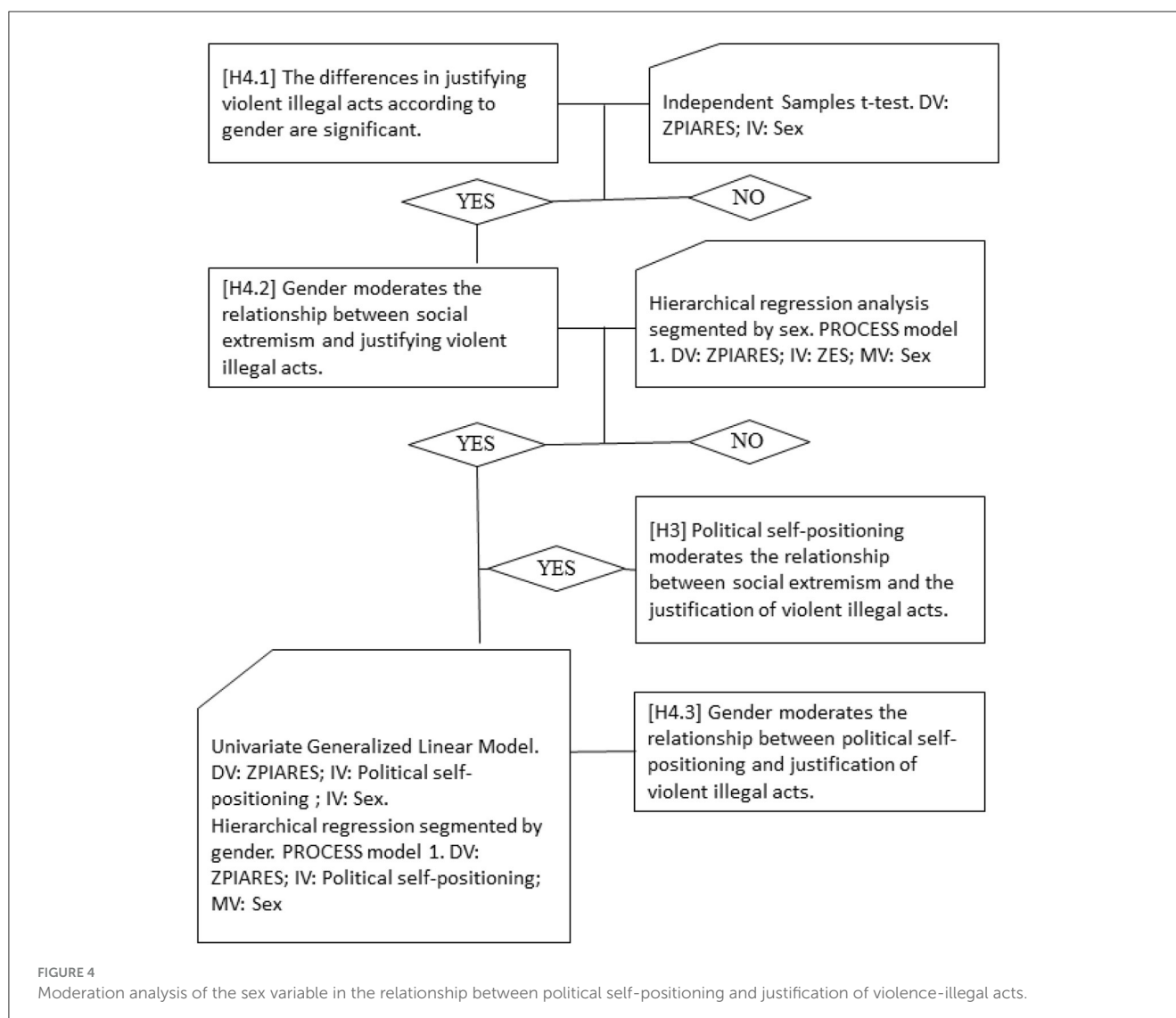
Programs used

The following software programs were utilized in this study: SPSS v. 28 and AMOS v. 28.

Results

Descriptive

In the case of the violent extremism variable, the mean was 38.82 (σ : 14.60), with a minimum of 14 and a maximum of 98.



20.4% (231) showed low levels, 54.6% (620) medium and 25% (284; high or very high). For the variable justification of violence-illegal acts, the mean was 17.19 (σ : 9.73), with a minimum of 8 and a maximum of 56. 20.8% (236) showed low levels, 48.8% (554) low, 23.9% (271) high, and 6.5% (very high).

As for political self-positioning, 135 (11.9%) did so as far left, 200 (17.6%) left, 525 (46.3%) center, 161 (14.2%) right, and 114 (10%) far right.

Regarding the perception of aggressive or violent behavior in different social environments, the following was found: (a) In the family environment, 71% reported nothing, 22.1% reported a little, 5.1% reported quite a lot and 1.4% reported a lot (mean: 1.36, SD: 0.65); (b) In their immediate environment (e.g., the street, neighborhood or town), 33.6% reported nothing, 43.2% reported a little, 19% reported quite a lot and 4.2% reported a lot (mean: 1.74, SD: 0.78); (c) In leisure spaces (e.g., squares, parks or places of entertainment), 27.7% reported nothing, 40.7% reported a little, 24.5% reported quite a lot and 7.7% reported a lot (mean: 1.93, SD: 0.82) 0.5% reported quite a lot and 3.8% reported very much (mean: 1.93, SD: 0.82); and (d) in their school environment (secondary

school), 28.0% reported nothing at all, 41.0% reported a little, 24.2% reported quite a lot, and 6.8% reported a lot (mean: 2.10, SD: 0.88).

[H1] Attitudes about social extremism (independent variable) are directly related to attitudes about the justification of violence and illegal acts (dependent variable).

The relationship between attitudes about social extremism and attitudes about the justification of violence and illegal acts.

A Pearson's Chi-Square value of 216.46 (p -value: < 0.001) was obtained, with δ Somers for justification of violence-illegal acts as the dependent variable of 0.475, and for social extremism as the dependent variable of 0.402. In other words, the two variables are significantly associated in both directions and with a similar magnitude of association (Göktas and Isci, 2011).

Linear regression analysis

A correlation was found between zSE and zPIARES of 0.61 (standardized B), with intercept tending to 0. The R-squared value

of 0.37 indicated that social extremism explained 37% of the variability in the justification of violence-illegal acts. A Durbin-Watson statistic value of 1.97 was obtained, so there is no risk of autocorrelation. That is, the regression equation: $\widehat{zY} = zX \cdot 0.61$. The values of x have to be typed (Equation 1) and the values of zy , transformed into direct scores ($\sigma_y = 9.73$, $\bar{y} = 17.9$) (Equation 2).

$$zX = x - 38.2/14.6 \quad (1)$$

$$\hat{y} = (\widehat{zY} \cdot \sigma_y) + \bar{y} \quad (2)$$

[H2] *The perception of aggressive or violent behavior differs significantly in different social settings and correlates with political self-positioning.*

Pearson's correlation was not significant in any of the socialization settings considered. In the family environment, $r = -0.07$, $p = 0.20$; in close environments, $r = -0.026$, $p = 0.39$; in leisure spaces, $r = 0.034$, $p = 0.25$; and in school environments, $r = 0.036$, $p = 0.23$.

[H3] *The perception of aggressive or violent behavior in different social settings significantly moderates the relationship between social extremism (ES) and the justification of illegal acts of violence (PIARES).*

In the family environment

For the interaction between the independent variable (ES) and the moderating variable (family environment) to explain the dependent variable (PIARES), a coefficient of 0.03 and a p -value of 0.39 were found. This was not significant.

In the immediate environment

For the interaction between the independent variable (ES) and the moderating variable (close environment) to explain the dependent variable (PIARES), a coefficient of 0.06 and a p -value of 0.03 were found, which was significant. Although very small, this was significant.

Leisure environments

For the interaction between the independent variable (ES) and the moderating variable (leisure environments) to explain the dependent variable (PIARES), a coefficient of 0.03 and a p -value of 0.29 were found. This was not significant.

School environment

For the interaction between the independent variable (ES) and the moderating variable (school environment) to explain the dependent variable (PIARES), a coefficient of -0.01 and a p -value of 0.67 were found. This was also not significant.

[H3] *Political self-positioning influences the relationship between attitudes about social extremism and attitudes about justification of violence-illegal acts.*

The correlation between the observed value (zY) and the estimated value (\widehat{zY}) was 0.62, with an R-squared of 0.38, with

$F_{(3, 1,131)} = 235.28$ (p -value: 0.000). That is, the interaction model was significant, obtaining in the unconditional interaction test an R-squared increase of 0.005, with $F_{(1, 1,131)} = 8.070$ (p -value: 0.0046).

Model coefficients ($W, X, XW \rightarrow Y$) were significant, with b_2 (W) = 0.022, p -value: 0.042 [CI 95%: 0.001, 0.042]; b_1 (X) = 0.46 [CI 95%: 0.347, 0.569], p -value: 0.000, b_3 ($W \cdot X$): 0.027 [CI 95%: 0.008, 0.045], p -value: 0.005, b_0 : -0.120 [CI 95%: $-0.235, -0.004$], p -value: 0.04.

For the moderator variable, cut-off points were taken as those corresponding to the 16th (-1σ), 50th (0σ), and 84th ($+1\sigma$) percentiles, which corresponded to 3 (extreme left and left), 5 (center), and 7 (right and extreme right). The effect conditioned by political self-positioning on the relationship between social extremism and justification of violence was statistically significant for all categories of the moderator variable (Table 5).

The general regression equation for the proposed interaction model will be (Anguinis, 2003).

$$\widehat{zy} = b_0 + b_1 \cdot zX + b_2 \cdot W + b_3 \cdot zX \cdot W \quad (3)$$

Grouping terms, we will have:

$$\widehat{zy} = (b_1 + b_3 \cdot W) \cdot X + (b_0 + b_2 \cdot W) \quad (4)$$

Substituting, we will have for $W = 3$ (extreme left-left):

$$\begin{aligned} \widehat{zy} &= [0.458 + (0.0266 \cdot 3)] \cdot zX + [-0.1195 + (0.4580 \cdot 3)] \\ &= 0.538 \cdot zX + 1.25 \end{aligned}$$

For $W = 5$ (center), $\widehat{zy} = 0.591 zX + 2.17$ and for $W = 7$ (extreme right-right), $\widehat{zy} = 0.644 zX + 3.087$.

[H4] *Far-left political self-positioning differs significantly from far-left political self-positioning in how it influences the relationship between attitudes about social extremism and attitudes about justification of violence and illegal acts.*

Political self-positioning with 5 categories was used as a moderating variable. Darlington and Hayes (2017) posited that it is possible to use a categorical variable with k categories as a predictor in a regression model, representing it with $k-1$ variables (Table 6).

The general regression equation relating social extremism (zX), with justification for violence (\widehat{zY}), being moderated by political self-positioning ($W_1 \dots W_4$) would be (Hayes and Montoya, 2017):

$$\begin{aligned} \widehat{zY} &= b_0 + b_1 \cdot zX + b_2 \cdot W_1 + b_3 \cdot W_2 + b_4 \cdot W_3 + b_5 \cdot W_4 \\ &+ b_6 \cdot W_1 \cdot zX + b_7 \cdot W_2 \cdot zX + b_8 \cdot W_3 \cdot zX + b_9 \cdot W_4 \cdot zX \end{aligned} \quad (5)$$

TABLE 5 Conditional effects of violent extremism for categories of political self-positioning.

Categories	Effect	se	t	p	95% CI
3	0.538	0.033	16.218	0.000	[0.473; 0.603]
5	0.591	0.024	24.612	0.000	[0.544; 0.638]
7	0.644	0.027	23.471	0.000	[0.590; 0.698]

TABLE 6 Coding of the moderator variable political self-positioning, for hierarchical regression analysis (Darlington and Hayes, 2017).

Categories	W1	W2	W3	W4
1 (reference)	0	0	0	0
2	1	0	0	0
3	0	1	0	0
4	0	0	1	0
5	0	0	0	1

Grouping terms (intercept and slope):

$$\widehat{zY} = [b_0 + b_2 \cdot W_1 + b_3 \cdot W_2 + b_4 \cdot W_3 + b_5 \cdot W_4] + [b_1 + b_6 \cdot W_1 + b_7 \cdot W_2 + b_8 \cdot W_3 + b_9 \cdot W_4] \cdot zX \quad (6)$$

Reference category: far left

The R-squared value was 0.40, $F_{(9, 1,125)} = 81.56$, and p -value: 0.000. That is, the model was significant and improved the explained variance of the previous model.

Taking as reference category (1: $W_1 = W_2 = W_3 = W_4 = 0$) extreme left, it was observed that the coefficient of justification of violence-illegal acts obtained for W_1 (left with respect to extreme left) was -0.392 (CI95%: $-0.21; 0.13$), not significant, with p -value: 0.656, for W_2 (center with respect to extreme left) of -0.096 (CI 95%: $-0.244; 0.053$), not significant, with p -value: 0.207, W_3 (right relative to extreme left) of -0.045 (CI 95%: $-0.225; 0.134$), not significant, with p -value: 0.623. In the case of W_4 (extreme-right relative to extreme-left) of 0.251 (CI 95%: $0.045; 0.457$), significant, with p -value: 0.017.

Reference category: far right

Taking right-wing extremism as a reference category, we find that the rest of the categories justify less the use of violence-illegal acts and that this difference is significant (Table 7). As for the interactions, all have a negative sign, that is, for the interactions between the variable extremism and the rest of the categories, the justification of violence is also lower than in the case of the interaction extremism with the extreme-right category. In this case, the difference is only significant with the center category (W_2).

Substituting the values into the general regression (Equation 6), we obtained for the extreme-right category (1) with $W_1 = W_2 = W_3 = W_4 = 0$:

$$\begin{aligned} \widehat{zY}_{\text{extreme right}} &= [b_0 + b_2 \cdot W_1 + b_3 \cdot W_2 + b_4 \cdot W_3 + b_5 \cdot W_4] \\ &+ [b_1 + b_6 \cdot W_1 + b_7 \cdot W_2 + b_8 \cdot W_3 + b_9 \cdot W_4] \cdot zX \\ &= [-0.270 - 0.296 \cdot (0) - 0.347 \cdot (0) - 0.290 \cdot (0) - 0.251 \cdot (0)] + [0.712 - 0.018 \cdot (0) - 0.189 \cdot (0) - 0.174 \cdot (0) - 0.098 \cdot (0)] \cdot zX \\ &= -0.270 + 0.712 \cdot zX \end{aligned}$$

TABLE 7 Coefficients in the hierarchical regression model relating social extremism to the justification of violence, moderated by political self-positioning, taking the extreme right as the reference category.

	Coeff (B)	se	t	p	CI 95%
Constant	0.270 (b_0)	0.080	3.360	0.0008	0.113; 0.428
zSE	0.712 (b_1)	0.061	11.609	0.0000	0.591; 0.832
W_1	-0.296 (b_2)	0.101	-2.919	0.0036	$-0.495; -0.097$
W_2	-0.347 (b_3)	0.087	-3.964	0.0001	$-0.518; -0.175$
W_3	-0.290 (b_4)	0.098	-2.955	0.0032	$-0.483; -0.097$
W_4	-0.251 (b_5)	0.105	-2.391	0.0170	$-0.457; -0.045$
$W \cdot zSE_1$	-0.018 (b_6)	0.086	-0.207	0.8356	$-0.187; 0.152$
$W \cdot zSE_2$	-0.189 (b_7)	0.071	-2.661	0.0079	$-0.349; -0.050$
$W \cdot zSE_3$	0.174 (b_8)	0.089	-1.953	0.0511	$-0.349; 0.001$
$W \cdot zSE_4$	-0.098 (b_9)	0.089	-1.106	0.2689	$-0.273; 0.076$

For a right-wing ideological position (2), with $W_1 = 1$, $W_2 = W_3 = W_4 = 0$:

$$\begin{aligned} \widehat{zY}_{\text{right}} &= [-0.270 - 0.296 \cdot (1) - 0.347 \cdot (0) - 0.290 \cdot (0) - 0.251 \cdot (0)] + [0.712 - 0.018 \cdot (1) - 0.189 \cdot (0) - 0.174 \cdot (0) - 0.098 \cdot (0)] \cdot zX \\ &= -0.566 + 0.694 \cdot zX \end{aligned}$$

A center position (3), with $W_2 = 1$, $W_1 = W_3 = W_4 = 0$:

$$\begin{aligned} \widehat{zY}_{\text{center}} &= [-0.270 - 0.296 \cdot (0) - 0.347 \cdot (1) - 0.290 \cdot (0) - 0.251 \cdot (0)] + [0.712 - 0.018 \cdot (0) - 0.189 \cdot (1) - 0.174 \cdot (0) - 0.098 \cdot (0)] \cdot zX \\ &= -0.617 + 0.523 \cdot zX \end{aligned}$$

A left position (4), with $W_3 = 1$, $W_1 = W_2 = W_4 = 0$:

$$\begin{aligned} \widehat{zY}_{\text{left}} &= [-0.270 - 0.296 \cdot (0) - 0.347 \cdot (0) - 0.290 \cdot (1) - 0.251 \cdot (0)] + [0.712 - 0.018 \cdot (0) - 0.189 \cdot (0) - 0.174 \cdot (1) - 0.098 \cdot (0)] \cdot zX \\ &= -0.560 + 0.538 \cdot zX \end{aligned}$$

A far left position (5), with $W_4 = 1$, $W_1 = W_2 = W_3 = 0$:

$$\begin{aligned} \widehat{zY}_{\text{far left}} &= [-0.270 - 0.296 \cdot (0) - 0.347 \cdot (0) - 0.290 \cdot (0) - 0.251 \cdot (1)] + [0.712 - 0.018 \cdot (0) - 0.189 \cdot (0) - 0.174 \cdot (0) - 0.098 \cdot (1)] \cdot zX \\ &= -0.521 + 0.614 \cdot zX \end{aligned}$$

[H5] Sex moderates the relationship between political self-positioning and justification of violence and illegal acts.

To the question of whether the differences in the justification of violence-illegal acts are significant as a function of sex, we found a typed mean of 1.74 (SD: 1.08) for boys and -1.65 (SD: 0.88) for girls. It was possible to assume equal variances, with $F(32.65, p$ -value: <0.001), and mean difference of 0.34 (95%CI: 0.22; 0.45). The sample is similar for boys (554) and girls (581), so the use of the *standardized Cohen's d* effect size estimator (Equation 7) was appropriate, with a value of 0.99 (Baguley, 2012). That is, the difference was significant and with a large effect size.

$$\text{Standardized Cohen } d = \frac{\text{Mean Boys} - \text{Mean Girls}}{\text{Combined standard deviation}} \quad (7)$$

Sex differences moderated the relationship between social extremism and justification of violence, finding an R-squared value of 0.39, with $F_{(3, 1,131)} = 244.47$ (p -value: 0.000), obtaining in the unconditional interaction test an R-squared increase of 0.009, with $F_{(1, 1,131)} = 16.38$ (p -value: 0.0001).

The overall interaction coefficient (ZSE x Sex \rightarrow ZPIARES) of the variable social extremism and sex as predictors of justification of violence was 0.19 (CI 95%: 0.098; 0.282), with $t = 4.05$ (p -value: 0.0001). The conditional effects of social extremism, on the moderator in its prediction of justification of violence-illegal acts was 0.49 (CI 95%: 0.42; 0.56), with $t = 14.15$ (p -value: 0.000) for females, and 0.69 (CI 95%: 0.62; 0.75), with $t = 21.90$ (p -value: 0.000) for males.

For the analysis of how sex moderates the relationship between political self-positioning and justification of violence-illegal acts, we found an R-squared of 0.049, with $F_{(3, 1,131)} = 19.37$ (p -value: 0.000), and an increased R-squared with the interaction of 0.01 (p -value: 0.0004).

The regression coefficients were significant for all components (Table 8).

Discussion

Consequently, attitudes pertaining to social extremism and the justification of violence and illegal acts are interrelated. An increase in attitudes about extremism is associated with an increased probability of justifying violence and illegal acts, and vice versa. The regression model, which considers the level of social extremism as the sole predictor, explains 37% of the variability in justifying violence and illegal acts. The ratio of these two phenomena is 0.61, indicating that for each unit of social extremism, there is an increase of 0.61 units in justifying violence and illegal acts.

With regard to socialization environments, our sample found no difference in the perception of aggressive or violent behavior in the family environment, immediate surroundings, leisure spaces or school environment between those who identify more to the right and those who identify more to the left.

The results revealed that, except for slight moderation in the close environment, perception of aggressive or violent behavior is not significantly associated with political self-positioning. Similarly, when analyzing its moderating role in the relationship between ES and PIARES, only interaction in the close environment reached statistical significance, but with such a small coefficient that its practical relevance is questionable. Based on the available data, it has not been possible to conclude that differential perceptions of aggressive or violent behavior

significantly influence political self-positioning or the relationship between social extremism and the justification of violent or illegal acts.

With regard to the second hypothesis, the moderated regression model yielded statistically significant results. Attitudes toward social extremism exert a significant influence on the justification of violence and illegal acts (b_1 : 0.46), while political self-positioning also has a notable impact on this phenomenon (b_2 : 0.022). Furthermore, the interaction between social extremism and political self-positioning also plays a role in shaping the justification of violence and illegal acts. Notably, the relationship between social extremism and the justification of violence and illegal acts varies depending on the political self-positioning of the individual in question. For individuals with similar levels of extremism, the justification of violence-illegal acts is lower for those with a left-extreme left positioning and higher for those with a right-extreme right positioning (Figure 5).

This aspect is of great importance, since the political self-positioning can be gradually radicalized by the incentives that the group itself receives on social networks for expressing its indignation, and above all by the normalization and celebration of violence as a means of conflict resolution (Love and Sharman, 2024; Rodríguez Martínez et al., 2024).

In our third hypothesis, we postulated that far-left political self-positioning differs significantly from far-right self-positioning in its influence on the relationship between social extremism and the justification of violence and illegal acts.

Reference category: far left

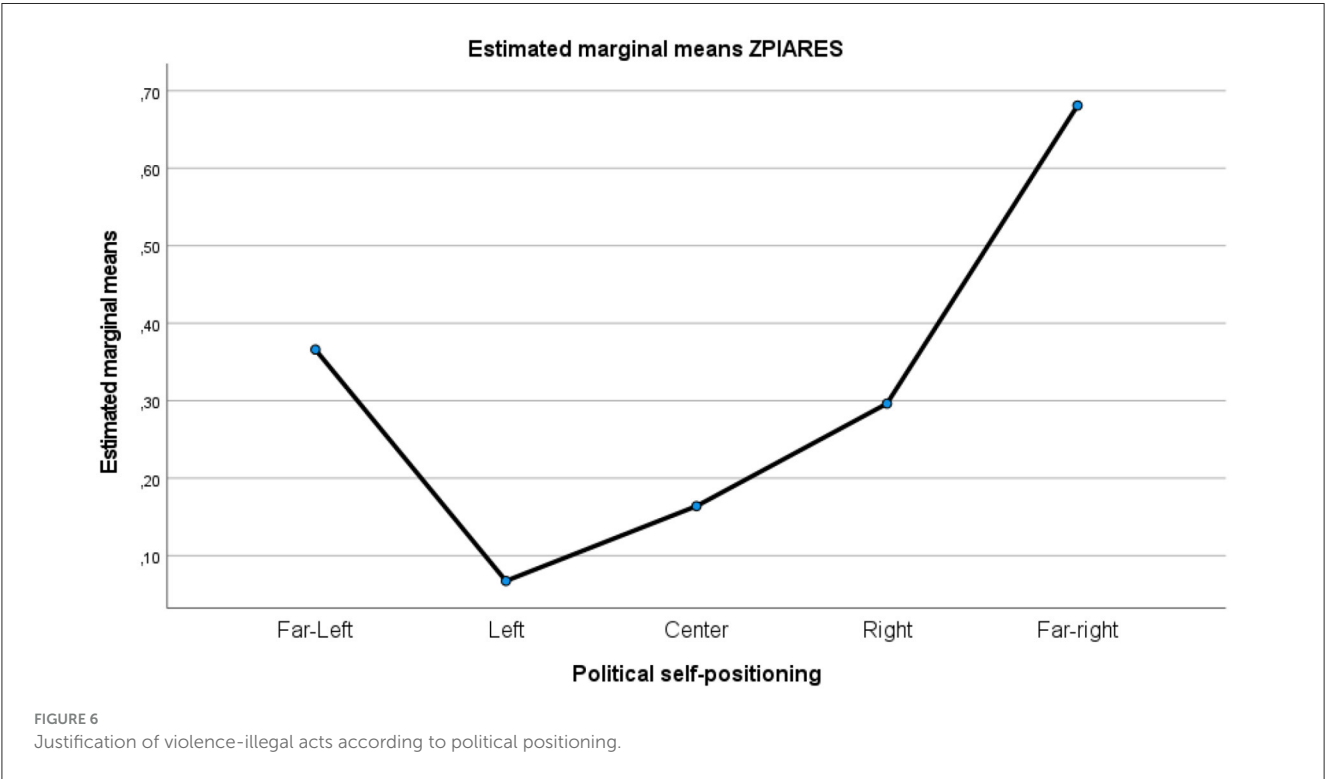
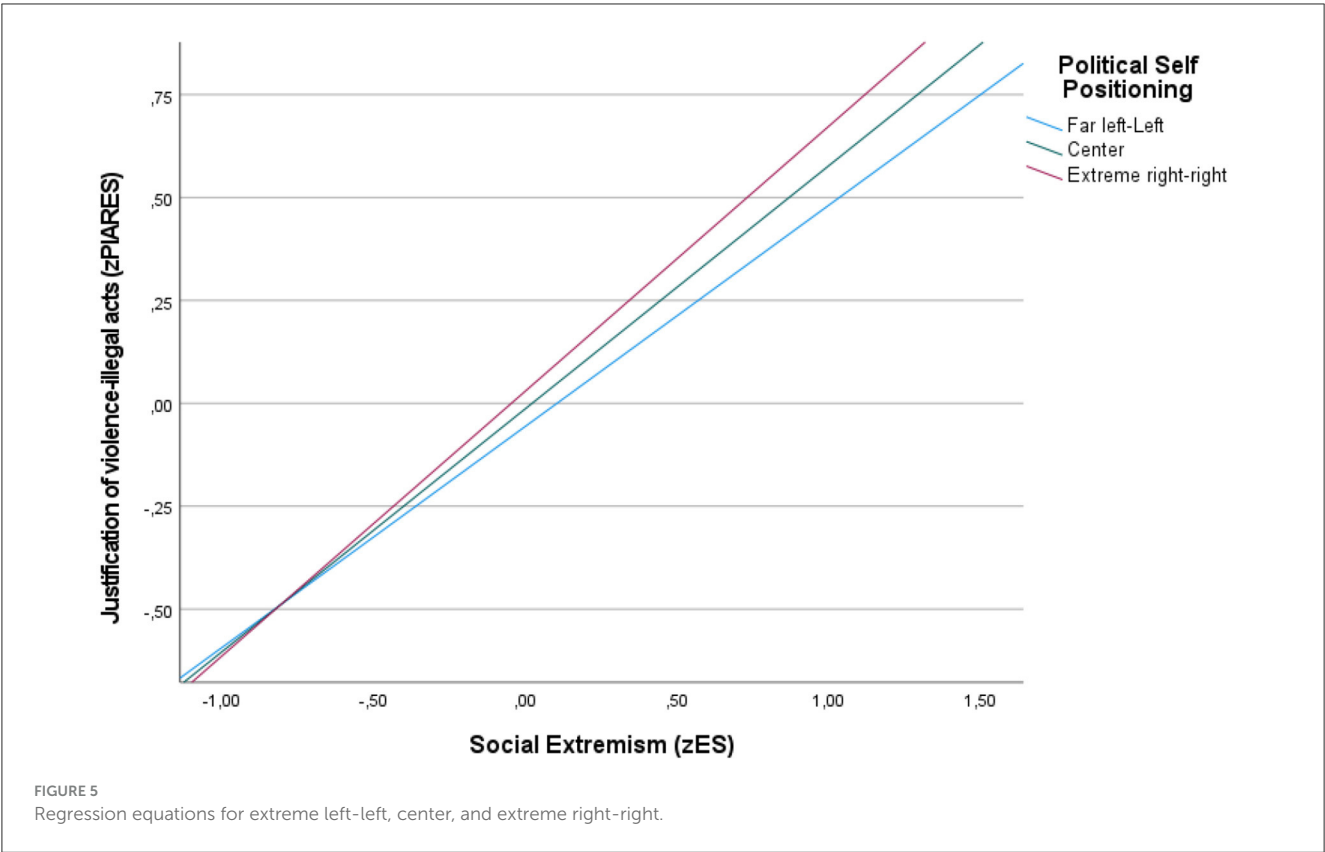
In the regression equation that relates extremism and justification of violence-illegal acts, when taking as a reference a self-positioning of the extreme left, a higher level is observed for this category with respect to the left, the center and the right, although this difference is not significant. However, in the case of the extreme right, it is observed that the extreme left presents a lower level of justification of violence-illegal acts, and that this difference is significant (Figure 6).

Reference category: far right

When the reference category is an extreme right-wing positioning, the conditional effects of the focal predictor (ES) on the values of the moderator variable (political self-positioning) are significant in all cases for the prediction of the justification of violence-illegal acts (PIARES). The regression equations for each

TABLE 8 Sex moderation regression coefficients of the relationship of political self-positioning with justification of violence-illegal acts.

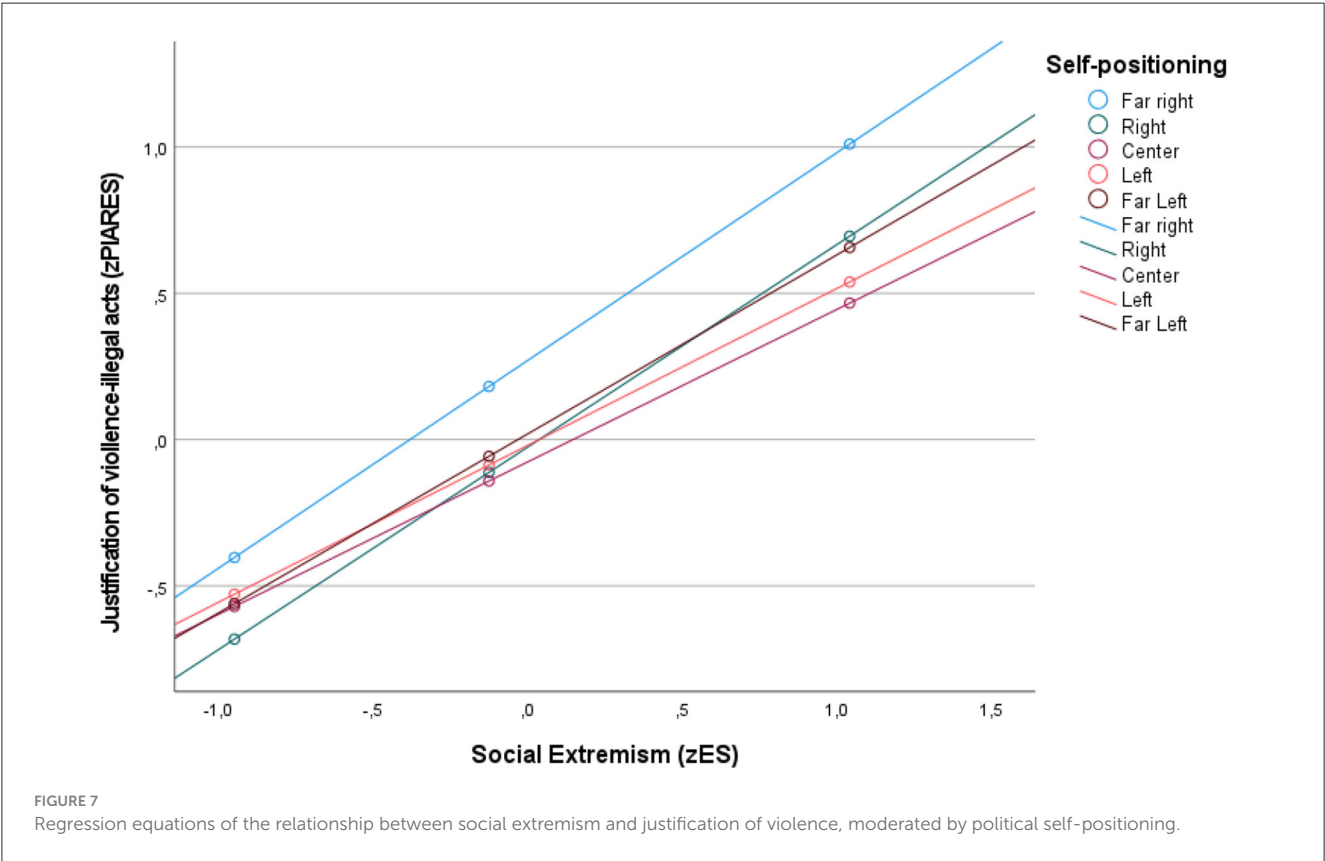
	Coefficient	se	t	p	+CI 95%	−CI 95%
Intercept	0.26	0.088	2.90	0.0038	0.083	0.428
Political self-positioning (Autop.)	−0.09	0.027	−3.26	0.0011	−0.141	−0.035
Sex	0.89	0.176	5.04	0.0000	0.543	1.234
Autop. * Sex	−0.19	0.054	−3.52	0.0004	−0.296	−0.084



category indicate that the intercept corresponding to the extreme right category (-0.270) is greater than those of the other categories (ranging from -0.521 for the extreme left to -0.617 for the center). This means that the extreme right category will exhibit higher levels of justification for illegal acts of violence than the other categories.

TABLE 9 Conditional effects and regression equations.

A36_D	Effect (B)	se	t	p	95%CI	Regression equations
Extr, right (1)	0.7115	0.0613	11.6093	0.0000	0.591; 0.832	$-0.270 + 0.712 \cdot zX$
Right	0.6936	0.0609	11.3848	0.0000	0.574; 0.813	$-0.566 + 0.694 \cdot zX$
Center	0.5222	0.0361	14.4505	0.0000	0.451; 0.593	$-0.617 + 0.522 \cdot zX$
Left	0.5373	0.0648	8.2941	0.0000	0.410; 0.664	$-0.560 + 0.538 \cdot zX$
Extr. left	0.6131	0.0645	9.5114	0.0000	0.486; 0.739	$-0.521 + 0.613 \cdot zX$



As for the slopes (Table 9), the highest (0.712) is for the far-right category. This means that, for the same level of social extremism, the justification of illegal acts will be higher (Table 9).

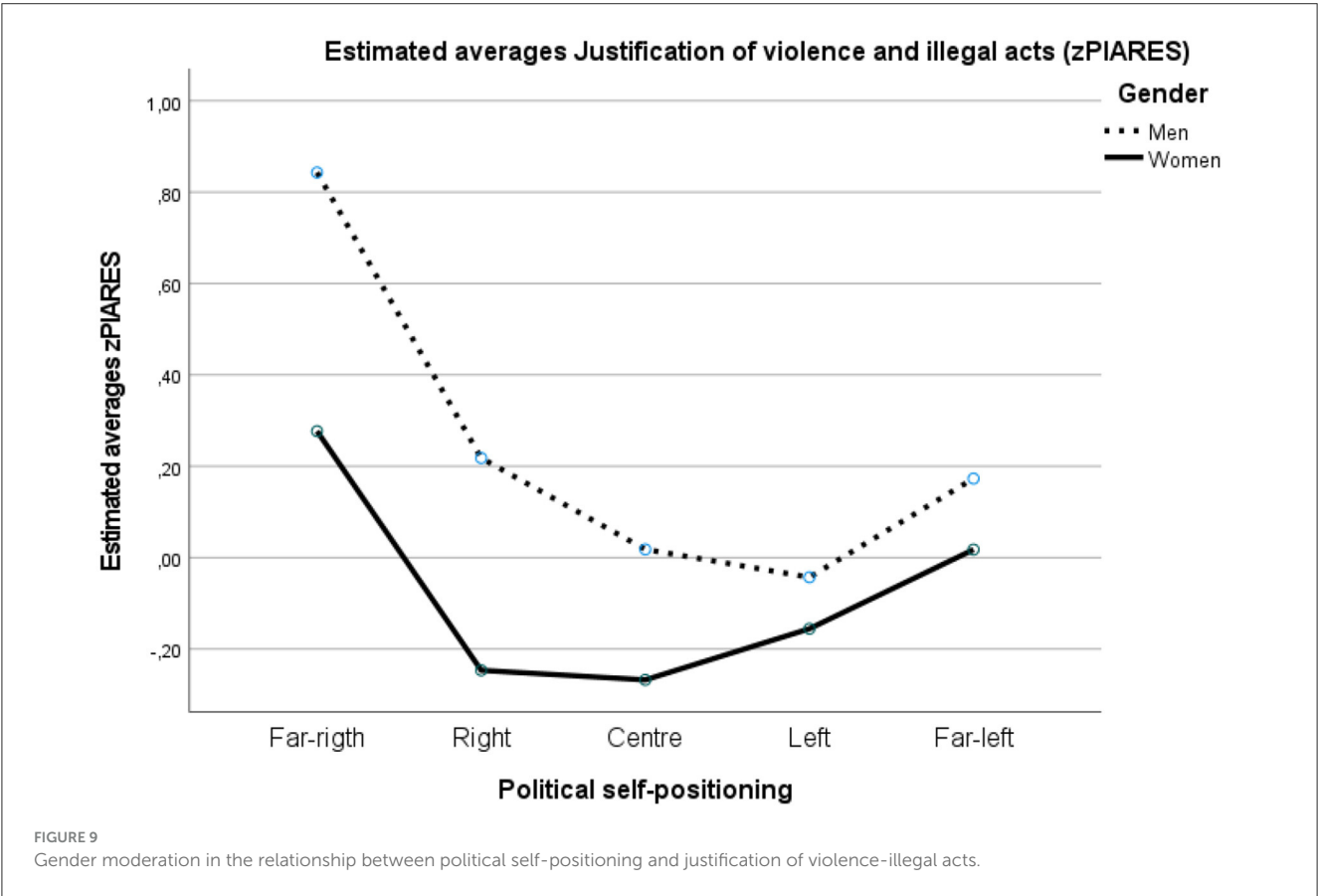
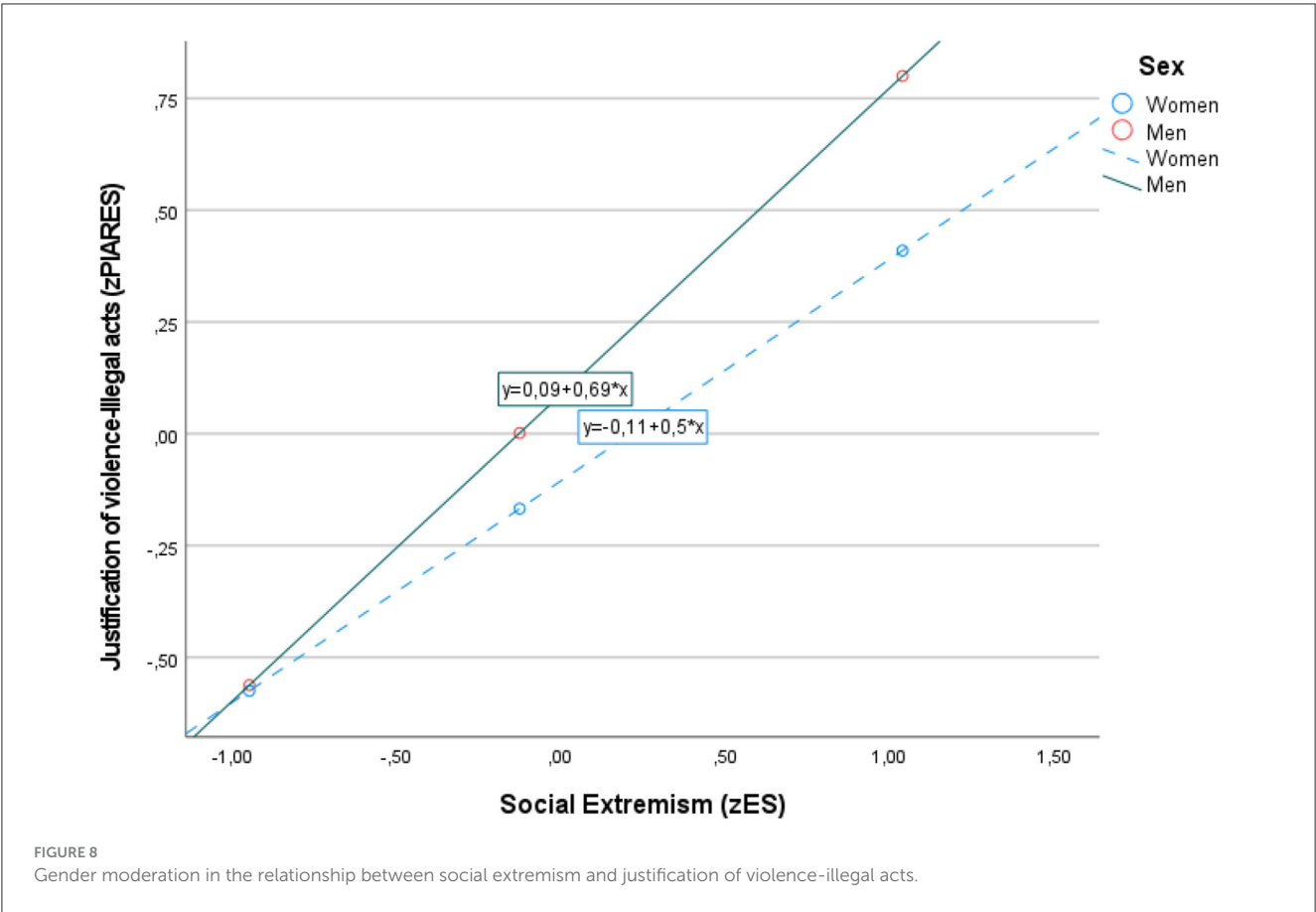
The symmetry property of statistical interactions in moderation analysis implies that if the effect of social extremism on the justification of violence-illegal acts is significant, the effect of political self-positioning on the justification of violence-illegal acts, moderated by social extremism, will also be significant (Montoya, 2016). With regard to justification of violence, the extreme left political positioning is not equivalent to the extreme right. The highest levels of social extremism justifying violence-illegal acts are found among those who self-position themselves on the extreme right (Figure 7).

For the fourth hypothesis, it was confirmed that for similar positions of social extremism, girls justified less violence-illegal acts than boys (Figure 8).

Moreover, that for similar values of political self-positioning, girls justified significantly less violence than boys (Figure 9).

Consequently, the political polarization of adolescents does not manifest in the same manner for those who align themselves with the most radical ideologies on the political spectrum, whether to the left or to the right. The endorsement of pro-violence attitudes is a notable phenomenon, particularly among adolescents who align with the political extreme right. This study corroborates the findings of those who have proposed an alternative approach to the study of political polarization (Twenge, 2023), namely that there is an asymmetric polarization (Hacker and Pierson, 2017), in which a sexist component can be seen, with relevant differences in the legitimization of violence as a means of political action (Frazer and Hutchings, 2014).

Furthermore, gendered socialization persists, with boys exhibiting a significantly higher proclivity for advocating violent attitudes within the context of toxic masculinity (Liu, 2016).



Limitations

The age of the participants, between 12 and 18 years old, without a reference of what happens in the next age bracket, 19–24, generates doubts about the changes in the relationship between the degree of social extremism and the justification of violence-illegal acts to achieve their objectives, as well as the influence of political self-positioning in this relationship.

Future lines of research

It would be beneficial to replicate the procedure longitudinally with the same group of students and to increase the number of participants in order to conduct a more comprehensive study.

This research suggests that youth organizations that self-identify as right-wing extremist may serve as a conduit for the propagation of hate speech. Verification of this hypothesis is necessary, as is characterization of the target groups, as well as the instruments and procedures of generation and dissemination.

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found in the article/[Supplementary material](#).

Ethics statement

The studies involving humans were approved by Comité de Bioética de la Universidad de Almería. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

FV: Funding acquisition, Resources, Visualization, Formal analysis, Validation, Project administration, Writing – original draft, Data curation, Investigation, Conceptualization, Supervision, Writing – review & editing, Methodology, Software. PR: Writing – review & editing, Formal analysis, Resources, Validation,

Writing – original draft, Project administration, Visualization, Funding acquisition, Methodology, Data curation, Supervision, Investigation, Software, Conceptualization. AS: Supervision, Writing – review & editing, Resources, Writing – original draft. LM: Writing – review & editing, Writing – original draft, Investigation.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author(s) declare that no Gen AI was used in the creation of this manuscript.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpos.2025.1616180/full#supplementary-material>

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