



Activism and radicalism modulate sex differences in interpersonal risks: a dual moderation analysis

Javier Salas-Rodríguez^{a,*}, Natalia del Pino-Brunet^b, Luis Gómez-Jacinto^a, Isabel Hombrados-Mendieta^a

^a Department of Social Psychology, Social Work and Social Services, and Social Anthropology, Faculty of Psychology and Speech Therapy, Málaga University, Málaga, Spain

^b Department of Communications Sciences and Social Work, University of La Laguna, Tenerife, Spain

ARTICLE INFO

Keywords:

Risk-taking behaviors
Sex differences
Activism
Radicalism

ABSTRACT

While engagement in risk-taking is highly prevalent during youth, there are individual differences in its expression. Generally, male youth tend to engage in risk-taking more than female youth. However, sex differences in risk-taking behaviors may be modulated by political mobilization processes. The present study analyzed how intentions toward activism and radicalism moderate the relationship between sex and various risk-taking behaviors, including health risks, interpersonal risks, and deviant non-violent behaviors. A total of 496 individuals participated in the study, of which 222 were females (mean age $M = 18.27$, $SD = 2.22$, age range 15–24 years). Results showed an interaction effect between sex and intention toward activism and radicalism for interpersonal risks. Theoretical and practical implications of political mobilization on sex differences in risk-taking are discussed.

1. Introduction

Engagement in risky behaviors continues to be one of the most relevant causes for concern among adolescents and young adults (Willoughby et al., 2021). In this context, it is essential to analyze the factors driving this group to engage in such behaviors. Previous literature shows that sex is a key determinant of individual differences, with evidence suggesting that, in general, men are more involved than women (Byrnes et al., 1999). However, it is crucial to examine the variables that moderate these differences in the manifestation of risk-taking behaviors. This study investigates how attitudes toward political mobilization, expressed through intention toward activism and intention toward radicalism, moderate the relationship between sex and risk-taking behaviors. The aim is to understand whether political mobilization is a key factor in explaining these differences among adolescents and young adults.

This study is based on the Reasoned Action Approach, which explains the relationship between attitudes and behaviors (Conner & Norman, 2022; Fishbein & Ajzen, 2010). According to this model,

behavioral intentions are motivational factors that precede behavior (Fishbein & Ajzen, 2010). For instance, the predictive value of behavioral intentions for the manifestation of various risk-taking behaviors, such as drug use, reckless driving, gambling, or abusive control in intimate relationships, has been already been demonstrated (McEachan et al., 2016; Nardi-Rodríguez et al., 2022; St Quinton, 2021).

In addition to their predictive power, several authors have proposed that behavioral intentions may function as moderators in the relationship between personal variables (such as sex) and behavior (Sheeran, 2002). In fact, previous research shows the moderating role of behavioral intentions in health-related behaviors (Conner et al., 2016; Pfeiffer & Strobach, 2020; Rhodes et al., 2022). These findings suggest the need to examine the potential moderating role of intention toward activism and intention toward radicalism in the relationship between sex and participation in risk-taking behaviors.

Risk-taking behaviors refer to actions whose outcomes are uncertain and may lead to both gains and losses for oneself and others (Trimpop, 1994). It is important to emphasize that in this study, risk-taking is conceptualized as outcomes actively performed by the individual, rather

* Corresponding author at: Department of Social Psychology, Social Work and Social Services, and Social Anthropology, Faculty of Psychology and Speech Therapy, Málaga University, C/ Dr. Ortiz Ramos, 12, 29010 Málaga, Spain.

E-mail addresses: jsalas@uma.es (J. Salas-Rodríguez), ndelpino@ull.edu.es (N. del Pino-Brunet), jacinto@uma.es (L. Gómez-Jacinto), mihombrados@uma.es (I. Hombrados-Mendieta).

<https://doi.org/10.1016/j.actpsy.2025.105371>

Received 11 February 2025; Received in revised form 29 July 2025; Accepted 29 July 2025

Available online 2 August 2025

0001-6918/© 2025 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC license (<http://creativecommons.org/licenses/by-nc/4.0/>).

than as a risk-taking tendency, which refers to an individual's general orientation toward seeking or avoiding risks (Sitkin & Weingart, 1995). Under this approach, risk-taking is understood as a general personality disposition with predictive capacity across various domains of life (Zhang et al., 2018).

In most countries, risk-taking behaviors are more prevalent among youth (Mata et al., 2016). The increased tendency of young people to take risks has been associated with the pursuit and obtention of potential gains (Best & Freund, 2018). In this sense, recent models of risk-taking suggest that these behaviors serve an important adaptive function aimed at addressing challenges related to survival, sociability, and reproduction in young people (Ellis et al., 2012; Lu & Chang, 2019).

Despite its adaptive function, engaging in risk-taking behaviors during youth can lead to negative consequences that can even manifest in later stages of the life cycle (Akasaki et al., 2019). Additionally, risk-taking is associated with antisocial delinquent behaviors, such as aggression, substance abuse, or vandalism (Defoe, 2021). These behaviors have detrimental effects on the individual who engages in them (e.g., unemployment, Carter, 2019), the immediate environment (e.g., victims of bullying, Balan et al., 2023), and society at large (e.g., economic costs, Koegl & Farrington, 2021). Consequently, it is necessary to analyze the underlying factors of engagement in risk-taking in young people.

1.1. Sex

Sex differences have been widely demonstrated in the domain of risk-taking behaviors. In general, males show higher levels of risk-taking than females (Byrnes et al., 1999; Killgore et al., 2010), as well as in theoretically related constructs, such as sensation-seeking (Cross et al., 2013). From the evolutionary perspective of human behavior, sex differences in risk-taking are primarily explained by greater intrasexual competition among males (Archer, 2019). Indeed, despite the consequences on health and one's own life, risk-taking is used by males as a means to increase their reproductive success (Machluf & Bjorklund, 2015). In fact, the higher tendency toward risk in males compared to females goes beyond humans, manifesting even in their closest relatives, chimpanzees (Haux et al., 2023), and in other groups of vertebrates such as fish (Brand et al., 2023). At the same time, due to their role in offspring survival, females tend to be more averse to risky behaviors that would jeopardize their lives and that of their offspring (Benenson et al., 2022; Campbell, 1999).

In contrast to the evolutionary approach, other authors attribute differences between females and males in risk-taking mainly to cultural factors related to gender (Friedl et al., 2020). From the socio-structural perspective, males and females differ in the expression of risky behaviors mainly due to the roles assigned to each gender by society (Eagly & Wood, 2016). Consequently, it is societies that favor males' participation in competitive and risky activities that involve obtaining higher status and power (Eagly & Wood, 2016; Rice et al., 2021). In females, however, risk-taking tends to be sanctioned. In fact, females who are more concerned about not violating femininity standards (i.e., sensitivity to the needs of others, naivety, and compassion) tend to report lower engagement in risky behaviors (Villanueva-Moya & Expósito, 2020). From a socio-structural perspective, it seems that the threat of falling into negative stereotypes increases women's fear, resulting in a lower inclination to take risks compared to men (Villanueva-Moya & Expósito, 2021).

1.2. The variability hypothesis

Although males tend to take more risks than females, the expression of these behaviors is unevenly distributed between sexes. In fact, a meta-analysis found that males showed greater variability in risk preferences compared to females (Thöni & Volk, 2021). From the greater male variability hypothesis, this is explained by evolutionary pressure, which

has been more intense in males (i.e., greater variability in reproductive success), leading them to show greater variability in the expression of traits linked to sexual selection, with risk-taking being one of them (Archer, 2019). Therefore, it is necessary to analyze potential variables that moderate the expression of risk-taking and may influence the magnitude of these sex differences (Archer, 2019).

1.3. Political mobilization: activism and radicalism

Alongside risk-taking, political mobilization is a psychosocial process that emerges and is strongly expressed during youth (Pfundmair et al., 2020; Wong et al., 2019). Political mobilization is an attitude defined as the increase in intentions toward intergroup conflict, which can be legal and non-violent (i.e., activism) or illegal and violent (i.e., radicalism) (Moskalenko & McCauley, 2009). Both forms of mobilization are conceived as two unique and independent dimensions, differentially determining the types of actions justified for political change, as opposed to the conception of radicalism as a more intensified manifestation of activism (Moskalenko & McCauley, 2009; Pavlović et al., 2022a).

The explanation for young people's engagement in political mobilization has been primarily based on socio-structural factors (Wong et al., 2019). Under this approach, the interest in political mobilization among young people arises from their own experiences and interactions within their family and other socialization networks that guide them in this process, such as educational institutions and social networks (Earl et al., 2017; Youniss et al., 2002).

However, beyond socio-structural factors, it has been suggested that political mobilization is shaped by a series of evolutionary challenges that humanity faced in the past and persists today (Petersen, 2022). Among these evolutionary challenges are the search for affiliation (i.e., group belonging) and the pursuit of status (i.e., gaining respect), whose role in the behavior of young people is crucial for accessing important resources (Griskevicius & Kenrick, 2013; Neel et al., 2016). In this sense, it has been found that through activism, it is possible to achieve feelings of belonging to a group and receive social support (Conner et al., 2023), while radicalism is related to gaining status (Bartusevičius et al., 2020).

1.4. Political mobilization and risk-taking

Regarding risk-taking, the effects of the political mobilization elements, activism, and radicalism intentions tend to be counterposed. In general, activism has been negatively associated with various types of risky behaviors. For example, activism has been observed to reduce the risk of gambling problems in young people (Scholes-Balog et al., 2016). Similarly, social activism has been found to act as a protective factor against health-risk behaviors, such as risky sexual practices (Albright et al., 2022). Moreover, individuals classified as strong activists tend to show greater resistance to the use of violence (Pavlović et al., 2022b). Additionally, a positive relationship has been demonstrated between activism and psychological well-being in young people (Costabile et al., 2020).

Contrary to the potential protective role of activism, intention toward radicalism is generally associated with increased engagement in risk-taking behaviors (McCauley & Moskalenko, 2008). For instance, young people's exposure to radical content or radicalization processes can promote substance abuse (Koehler, 2020). Similarly, support for radical stances predisposes individuals to engage in politically motivated acts of vandalism (Williamson et al., 2021).

1.5. Sex differences in activism and radicalism

Males and females differ in their expression of activism and radicalism intentions. Specifically, females tend to show higher levels of activism compared to males (Herzog & Golden, 2009; Lafreniere et al., 2023). Indeed, females demonstrate a greater willingness toward more

peaceful tactics, such as negotiation and compromise, and non-confrontational approaches (Polletta & Chen, 2013; Yablon, 2009). In contrast, males show a greater inclination toward confrontation and radicalism in addressing intergroup conflict compared to females (Clemmow et al., 2023; Schröder et al., 2022). Interestingly, it has been proposed that the tendency of females to be more risk-averse could partially explain their lower inclination to vote for radical parties (Oshri et al., 2023), as it would increase the likelihood of conflict.

From an evolutionary perspective, males' greater tendency toward radicalization primarily arises from the advantages they gain over losses in intergroup conflict (e.g., access to and defense of sexual partners) compared to females, whose costs are higher (e.g., injury or death of oneself or offspring) (McDonald et al., 2012). Indeed, this greater involvement of males in intergroup conflicts compared to females is observed even among social mammals (Smith et al., 2022).

On the other hand, from a socio-structural perspective, differences between males and females in activism and radicalism would arise from different societal expectations for each gender (Eagly & Wood, 2016). From socialization theory, women are generally socialized to be more concerned toward social harmony and social cues, while men are more oriented toward the alteration of the social order (Harteveld et al., 2019). For example, while society assumes males' ability to protect themselves, females are considered more vulnerable (Reger, 2018). As a result, females would be pushed primarily toward non-confrontational tactics (e.g., petitioning and boycotting), while males would exhibit confrontational tactics (e.g., protesting, striking, or occupying buildings) (Dodson, 2015).

1.6. Compatible approaches: proxy and distant level

Traditionally, the socio-structural and evolutionary approaches have been considered opposing and irreconcilable when explaining behavior. However, both orientations address the same object of study but from different levels of analysis (Lewis et al., 2017). Specifically, while the socio-structural perspective analyzes the expression of psychological mechanisms in the immediate sociocultural context (i.e., proximal level), the evolutionary perspective analyzes the adaptive function of these mechanisms (i.e., distal level) (Lewis et al., 2017). As a result, human behavior, as well as individual differences, will be the outcome of both socialization and evolutionary processes (Archer, 2019). Nevertheless, the recognition and influence of evolutionary factors are necessary as a preliminary step to the influence of gender roles (Conway & Schaller, 2002).

1.7. Present study

Previous literature shows that engagement in risk-taking and political mobilization are characteristic elements of youth. Furthermore, differences exist in the expression of these behaviors, as well as in activist and radical attitudes. However, there is scarce research that analyzes how activism and radicalism moderate the expression of risk-taking behaviors between sexes in young individuals. Based on the theoretical framework of reasoned action (Conner & Norman, 2022; Fishbein & Ajzen, 2010), the aim of this study was to analyze in a sample

of adolescents and young adults the moderating effect between sex and intention toward activism and radicalism. As well as their impact on risk-taking behaviors. The findings from this study could help determine if political mobilization is a key element in the differences between the expression of risk-taking behaviors in men and women. Fig. 1 illustrates the proposed theoretical model.

2. Method

2.1. Participants

A total of 496 students (44,8 % female) from secondary, post-secondary, and vocational training centers in the city of Málaga participated in the study. The mean age was $M = 18.27$ ($SD = 2.22$), ranging from 15 to 24 years old. Prior to their participation in the study, written consent was obtained from the parents and/or legal guardians of underage students. All students were informed about the purpose of the study and asked for their consent to participate.

The study was conducted in three public education centers in the city of Málaga. The centers chosen for this study are representative of the social structure of Málaga, as they are located in working-class neighborhoods with middle socioeconomic status. Contact was made with the principals of the centers through phone calls and in-person meetings to ensure institutional collaboration. Three researchers in collaboration with the teachers distributed and explained the questionnaires to the students during class hours, which took approximately 30 min to complete. The questionnaires were completed on paper, and no incentives were offered for participation. All participants signed an informed consent form to take part in the study. Detailed information about the objectives and procedures was provided prior to data collection. No instances of consent refusal were recorded, making it unnecessary to implement specific measures to address this situation. The study was approved by the Ethical Committee on Experimentation from the University of Málaga (CEUMA) (Registry number: 45-2018-H).

2.2. Measures

2.2.1. Activism and radicalism intention scale (ARIS)

This scale (Moskalenko & McCauley, 2009; Spanish version: Trujillo et al., 2016) was used to measure the intention toward activism (i.e., the disposition to engage in legal and non-violent actions) (e.g., *I would join/belong to an organization that fights for my group's political and legal rights*) and the intention toward radicalism (i.e., the disposition to engage in illegal and violent acts) (e.g., *I would attack police or security forces if I saw them beating members of my group*). The scale consists of eight items, with each subscale comprising four items, answered on a 7-point Likert scale (ranging from 1 'Strongly disagree' to 7 'Strongly agree'). An average score was obtained for each participant by summing the scores of the items within each subscale and dividing it by the number of items comprising the subscale. The Cronbach's alpha value for the activism intention subscale was $\alpha = 0.87$, while for the radicalism intention subscale, it was $\alpha = 0.83$.

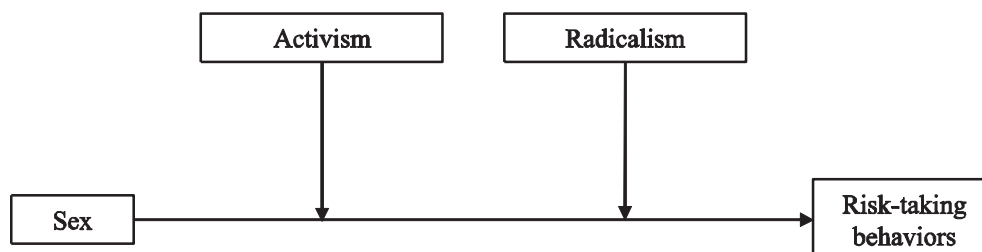


Fig. 1. Theoretical moderation model.

2.2.2. Risky behavior questionnaire (RBQ)

This instrument measures, through 20 items, the level of engagement in a wide variety of risky behaviors in the past twelve months (Auerbach & Gardiner, 2012; Spanish version: Gómez-Jacinto & Salas-Rodríguez, 2018). The items were grouped into three domains of risk behaviors: health risks (six items: substance use, unsafe sexual practices, self-injurious behaviors); interpersonal risks (six items; aggressive and/or violent behaviors); and deviant non-violent behaviors (eight items: illegal and dangerous behaviors). The scale is responded to on a Likert scale with 4 response options (0 = *Never (never)*; 1 = *Almost never (once a year)*; 2 = *Sometimes (two or three times a year)*; 3 = *Many times (every month)*; 4 = *Usually (every week)*). Scores for the three domains of risk behaviors were obtained by summing the scores of all items within each domain and dividing it by the number of items comprising each domain. The internal consistency for the three domains of risk behaviors was adequate: health risks, $\alpha = 0.72$; interpersonal risks, $\alpha = 0.71$; deviant non-violent behaviors, $\alpha = 0.70$.

2.3. Statistical analysis

Descriptive and correlational analyses were conducted on the variables included in the study. Subsequently, *t*-tests were conducted to analyze sex differences in health risks, interpersonal risks, deviant non-violent behavior, activism, and radicalism. *Z*-tests were also used to compare the correlations (Eid et al., 2011; Lenhard & Lenhard, 2014) between males and females.

A total of three moderated regression analyses were performed using the Macro Process (Model 2: dual moderation) (Hayes, 2018). In all the moderated regressions, sex (0: male; 1: female) was included as the independent variable. Intention toward activism and intention toward radicalism were introduced as moderator variables. Health risks, interpersonal risks, and deviant non-violent behaviors were introduced as dependent variables in each of the moderated regression analyses. Age was included as a covariate in all moderated regression analyses. The significance of the interaction effect was tested using a *t*-test for the interaction coefficient within the regression model. In addition, we report the *F*-statistic for the overall model and the adjusted R^2 as an indicator of model fit.

The data that support the findings of this study are openly available in Mendeley at <https://data.mendeley.com/datasets/kwgrfz4t4t/1>.

2.3.1. Alternative analyses

In the present study, risk-taking was conceptualized as an outcome. However, given its potential predictive function, the mediating effect of risk-taking was examined in the relationship between sex and intention toward activism and radicalism. To this end, two multiple mediation

analyses were conducted using Model 4 of the PROCESS macro (Hayes, 2018). In both analyses, sex was introduced as the independent variable, while health risks, interpersonal risks, and deviant non-violent behaviors were included as mediators. In the first model, the dependent variable was intention toward activism; in the second, it was intention toward radicalism.

3. Results

In Table 1, descriptive statistics and correlations of the analyzed variables for male youth and female youth are presented. Descriptive statistics for the full sample, the actual response range, and the observed response range are also presented. As expected, the correlation among the three types of risk-taking behaviors was positive, both in males and females. In males, intention toward radicalism positively correlated with health risks, interpersonal risks, and deviant non-violent behaviors. In females, intention toward radicalism positively correlated with health risks and deviant non-violent behaviors. Likewise, in both sexes, there was a positive correlation between intention toward activism and intention toward radicalism. Table 1 displays the remaining correlations among the variables included in the study.

The results of the *t*-test showed that males engaged in more interpersonal risks compared to females, $t(472) = 5.42, p < .001$, and deviant non-violent behaviors, $t(475) = 5.10, p < .001$. Males also expressed a greater willingness toward radicalism compared to females, $t(485) = 3.68, p < .001$. A significantly higher correlation was found between activism and radicalism in males compared to females ($Z = 3.15, p = .001$) (Table 1). This means that there were differences in the strength of the correlation between activism and radicalism, with a stronger correlation in males compared to females.

The overall moderation model for health risks revealed a statistically significant effect, $F(6, 464) = 6.96, p < .001; R^2 = 0.08$. Females are predicted to show greater engagement in health risks than males. Intention toward activism predicted lower adoption of health risks, while intention toward radicalism promoted higher health risks. The interaction between sex and the two moderating variables (intention toward activism and intention toward radicalism) was not statistically significant (Table 2).

A sensitivity power analysis for a fixed-effects linear multiple regression model examining the increase in R^2 for predictors related to health risks (G*Power; Faul et al., 2009) was conducted. This analysis showed that, with a sample of 471 participants, five tested predictors, and a total of six predictors, the model was sufficiently powered to detect a small effect size of $f^2 = 0.03$ with 80 % power and an alpha level of 0.05. Additionally, the model used in our study produced an observed effect size of $f^2 = 0.09$, exceeding the predetermined sensitivity

Table 1
Descriptive statistics and correlations between the variables from present study.

Variable	1	2	3	4	5	6
1. Health risks	–	0.40***	0.56***	–0.09	0.15*	0.15*
2. Interpersonal risks	0.44***	–	0.62***	–0.06	0.24***	–0.18**
3. Deviant non-violent behaviors	0.56***	0.52***	–	–0.09	0.18**	0.07
4. Activism	–0.03	0.03	–0.08	–	0.60***	–0.11
5. Radicalism	0.16*	0.09	0.24***	0.39***	–	–0.13*
6. Age (years)	0.18*	–0.07	–0.02	–0.11	–0.02	–
<i>M</i> (<i>SD</i>) _{females}	0.96 (0.84)	0.27 (0.40)	0.69 (0.49)	3.54 (1.57)	2.19 (1.19)	18.31 (2.37)
<i>M</i> (<i>SD</i>) _{males}	0.87 (0.79)	0.52 (0.55)	0.95 (0.61)	3.39 (1.58)	2.64 (1.47)	18.24 (2.09)
<i>M</i> (<i>SD</i>) _{full sample}	0.91 (0.81)	0.41 (0.51)	0.83 (0.57)	3.45 (1.58)	2.43 (1.36)	18.27 (2.22)
Actual response range	0–4	0–4	0–4	1–7	1–7	
Observed response range	0.00–3.33	0.00–3.50	0.00–4.00	1.00–7.00	1.00–7.00	15–24

Above diagonal males.

Below diagonal females.

Note.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 2
Moderated regressions analysis for health risks, interpersonal risks, and deviant non-violent behaviors.

Variable	Health risks					Interpersonal risks					Deviant behaviors				
	b	SE	t	p	95 % CI	b	SE	t	p	95 % CI	b	SE	t	p	95 % CI
Constant	-0.22	0.31	-0.76	0.449	(-0.83, 0.37)	1.04	0.18	5.67	0.000	(0.68, 1.40)	0.81	0.21	3.89	0.000	(0.40, 1.21)
Sex	0.15	0.08	2.04	0.042	(0.01, 0.30)	-0.20	0.05	-4.51	0.000	(-0.29, -0.11)	-0.21	0.05	-4.04	0.000	(-0.31, -0.11)
Activism	-0.14	0.04	-3.67	0.000	(-0.22, -0.07)	-0.12	0.02	-5.02	0.000	(-0.16, -0.07)	-0.12	0.03	-4.60	0.000	(-0.18, -0.07)
Radicalism	0.19	0.04	4.43	0.000	(0.10, 0.27)	0.16	0.03	6.42	0.000	(0.11, 0.21)	0.16	0.03	5.39	0.000	(0.10, 0.21)
Sex*Activism	0.10	0.05	1.80	0.072	(-0.01, 0.20)	0.09	0.03	2.73	0.007	(0.03, 0.15)	0.06	0.04	1.66	0.098	(-0.01, 0.13)
Sex*Radicalism	-0.05	0.07	-0.80	0.426	(-0.18, 0.08)	-0.12	0.04	-3.00	0.003	(-0.20, -0.04)	-0.02	0.04	-0.48	0.634	(-0.11, 0.07)
Age	0.06	0.02	3.53	0.000	(0.03, 0.09)	-0.03	0.01	-3.06	0.002	(-0.05, -0.01)	0.01	0.01	0.60	0.55	(-0.02, 0.03)

Note. Health risks (n = 471); interpersonal risks (n = 461); deviant non-violent behaviors (n = 464).

threshold.

For interpersonal risks, the overall effect was statistically significant, $F(6, 454) = 14.74, p < .001; R^2 = 0.16$. Males are predicted to engage in interpersonal risks to a greater extent than females. Intention toward activism predicted lower interpersonal risks, while intention toward radicalism promoted higher interpersonal risks. Intention toward activism and intention toward radicalism interacted statistically significantly with sex when predicting interpersonal risks, $R^2 = 0.14, p < .05$ for the case of intention toward activism, and $R^2 = 0.16, p < .05$ for the case of intention toward radicalism (Table 2). Table 3 displays the conditional effects of sex at different levels of intention toward activism and intention toward radicalism. Specifically, the results showed that males exhibited higher interpersonal risk-taking than females under three conditions: when intention toward activism was low—regardless of whether intention toward radicalism was low, medium, or high; when intention toward activism was medium, and intention toward radicalism was either medium or high; and when both intention toward activism and intention toward radicalism were high (Table 3) (Fig. 2).

A sensitivity power analysis for a fixed-effects linear multiple regression model examining the increase in R^2 for predictors related to interpersonal risks (G*Power; Faul et al., 2009) was conducted. This analysis showed that, with a sample of 461 participants, five tested predictors, and a total of six predictors, the model is sufficiently powered to detect a small effect size of $f^2 = 0.03$ at 80 % power and an alpha level of 0.05. Additionally, the model used in our study yielded an observed effect size of $f^2 = 0.19$, surpassing the predetermined sensitivity threshold.

Regarding deviant non-violent behaviors, the moderated regression analysis showed a statistically significant overall effect, $F(6, 457) = 6.96, p < .001; R^2 = 0.15$. Males are predicted to engage in deviant non-violent behaviors to a greater extent than females. Intention toward activism predicted fewer deviant non-violent behaviors, while intention toward radicalism predicted more deviant non-violent behaviors. Both the interaction between sex and intention toward activism and the interaction between sex and intention toward radicalism were not statistically significant (Table 2).

A sensitivity power analysis for a fixed-effects linear multiple regression model examining the increase in R^2 for predictors related to deviant non-violent behaviors (G*Power; Faul et al., 2009) was conducted. The analysis showed that with a sample of 464 participants, five tested predictors, and a total of six predictors, the model is sufficiently powered to detect a small effect size of $f^2 = 0.03$ at 80 % power and an alpha level of 0.05. Additionally, the model used in our study yielded an observed effect size of $f^2 = 0.18$, exceeding the predetermined sensitivity threshold.

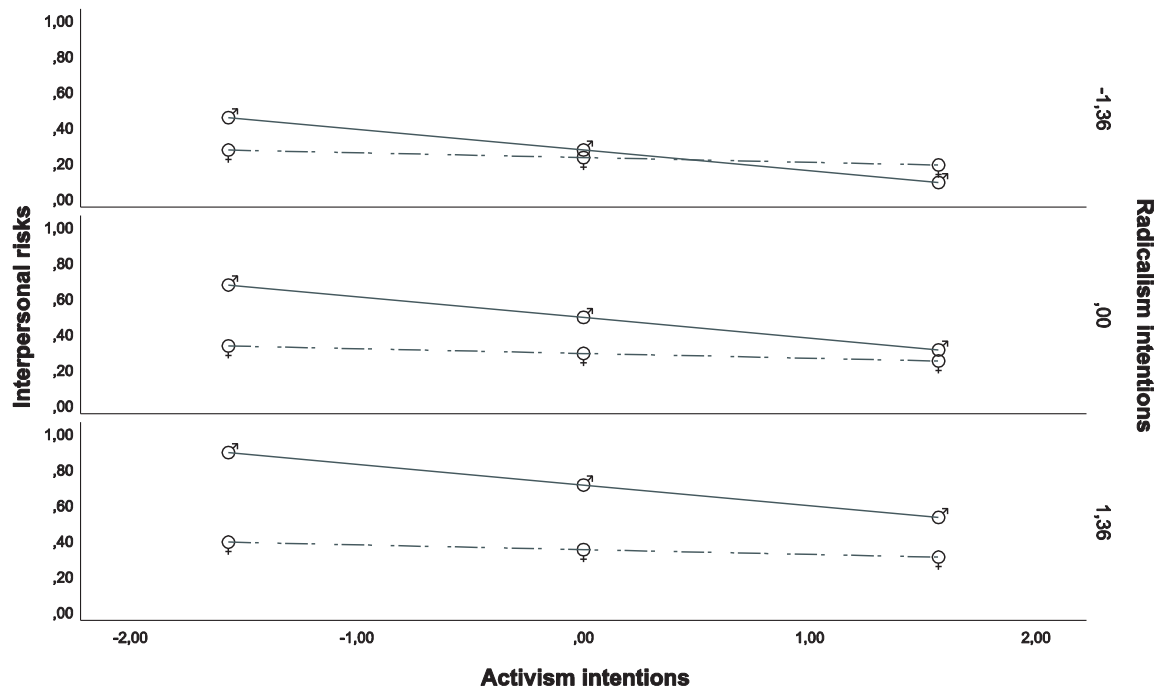
3.1. Alternative analysis

The multiple mediation analysis was conducted to examine whether

Table 3
Conditional effects of sex on interpersonal risks at different levels of the two moderators.

Activism	Radicalism	Interpersonal risks				
		Effect	SE	t	p	95 % CI
Low	Low	-0.18	0.07	-2.69	0.007	(-0.32, -0.05)
Low	Medium	-0.34	0.07	-5.00	0.000	(-0.48, -0.21)
Low	High	-0.50	0.10	-4.89	0.000	(-0.70, -0.30)
Medium	Low	-0.04	0.07	-0.62	0.533	(-0.18, 0.09)
Medium	Medium	-0.20	0.05	-4.51	0.000	(-0.29, -0.11)
Medium	High	-0.36	0.07	-5.04	0.000	(-0.50, -0.22)
High	Low	0.10	0.10	1.00	0.328	(-0.10, 0.29)
High	Medium	-0.06	0.07	-0.91	0.362	(-0.20, 0.07)
High	High	-0.22	0.07	-3.11	0.002	(-0.36, -0.08)

Note. Intention toward activism and intention toward radicalism levels: Low: -1SD; Medium: at the mean; High: +1SD.



Note: ♀: female; ♂: male

Fig. 2. Illustration of the conditional effects of sex on interpersonal risks at different levels of the two moderators
Note: ♀: female; ♂: male.

the relationship between sex and intention toward activism and intention toward radicalism was mediated by health risks, interpersonal risks, and deviant non-violent behaviors. For intention toward activism, the mediation model was not statistically significant, $F(2, 438) = 2.42, p = .09; R^2 = 0.01$. Specifically, there was no significant indirect effect of sex on intention toward activism through the three types of risk-taking behaviors. For intention toward radicalism, the mediation model was statistically significant, $F(2, 436) = 5.78, p < .05; R^2 = 0.03$. Table 4 presents the standardized total and specific indirect effects with 95 % bias-corrected confidence intervals. As shown, the total indirect effect of sex on intention toward radicalism was statistically significant. However, the specific indirect effects through health risks, interpersonal risks, and deviant non-violent behaviors were not statistically significant.

4. Discussion

Engagement in risk-taking behaviors among young people serves a crucial adaptive function (Lu & Chang, 2019). However, such behaviors generate negative effects that may persist even in later life stages (Akasaki et al., 2019). Despite risk-taking behaviors being more common in males, the greater variability of these behaviors in them necessitates an examination of when these differences occur (Archer, 2019). To explore this, the present study analyzed the moderating effect between sex and intention toward activism and radicalism concerning participation in health risks, interpersonal risks, and deviant non-violent

behaviors. The results indicated that intention toward activism and radicalism moderated only the relationship between sex and interpersonal risks. Subsequently, we will discuss the main findings.

The analysis using dual interaction regression showed that the differences between males and females in the expression of interpersonal risks are moderated by the intention toward activism and radicalism. The most significant difference between sexes occurred with high levels of radicalism and low levels of activism. Additionally, the differences between males and females decreased as the levels of intention toward activism increased and the levels of intention toward radicalism decreased. Therefore, these findings demonstrate that intentions toward political mobilization is a key factor in understanding sex differences in interpersonal risks. Indeed, males with more radical intentions and less activism are more willing to engage in aggressive and/or violent behaviors, possibly because the cost-benefit balance is more favorable for them compared to females (McDonald et al., 2012; Smith et al., 2022).

The interaction found for interpersonal risks demonstrates that political mobilization through intention toward activism and intention toward radicalism is a key element in explaining greater male variability (Archer, 2019). Indeed, due to their greater variability in reproductive success, males will exhibit greater variability in their strategies. In this regard, male youth with higher levels of intention toward radicalism and lower levels of intention toward activism exhibit riskier strategies, specifically in interpersonal risks, compared to male youth with lower levels of intention toward radicalism and higher levels of intention toward activism. In fact, the latter did not show differences in interpersonal risks compared to female youth.

On the other hand, intention toward activism and intention toward radicalism did not moderate the effect of sex on health risks and deviant non-violent behaviors. This result may be due to the fact that both health risks and deviant non-violent behaviors are not male strategies in intergroup conflict, which is a key feature of political mobilization (Moskalenko & McCauley, 2009). Consequently, intention toward activism and intention toward radicalism may not account for the differences between sexes in these two types of risk behaviors.

Table 4
Standardized indirect effects of sex on radicalism intention.

Path	Effect	SE	LLCI	ULCI
Total indirect effect	-0.07	0.04	-0.15	-0.00
Sex → Health risks → Radicalism	0.01	0.01	-0.01	0.03
Sex → Interpersonal risks → Radicalism	-0.03	0.03	-0.09	0.02
Sex → Deviant non-violent behaviors → Radicalism	-0.05	0.03	-0.12	0.01

Despite the absence of a moderation effect between sex and health risks and deviant non-violent behaviors, both intention toward activism and intention toward radicalism influenced the expression of these types of risk-taking behaviors. Specifically, intention toward activism reduced participation in these risk-taking behaviors. Therefore, this finding demonstrates the role of activism as a protective element against engagement in health risks and deviant non-violent behaviors (e.g., Albright et al., 2022). Conversely, intention toward radicalism resulted in increased participation in these risk-taking behaviors, acting as a risk factor (e.g., Koehler, 2020; Williamson et al., 2021).

Notably, the prediction of deviant non-violent behaviors by intention toward radicalism aligns with analytical frameworks that conceptualize social deviance as a gradual and multidimensional process, not necessarily involving aggression, but often driven by ideological or moral motives (Saleh, 2024). From this perspective, individuals may engage in socially risky or confrontational actions as expressions of political or ethical commitment, rather than as manifestations of antisocial tendencies. The behavioral dimensions identified by Saleh (2024) complement our interpretation of political radicalism as a precursor to symbolic or interpersonal risk-taking behaviors that challenge prevailing social norms.

4.1. Alternative explanations

The primary objective of the study was to analyze the moderating role of intention toward activism and radicalism. However, due to the potential predictive effect of risk-taking behaviors, an alternative multiple mediation analysis was conducted. This analysis examined the three types of risk-taking behaviors in the relationship between sex and intention toward activism and radicalism. Results indicated an absence of mediation by risk-taking behaviors in the relationship between sex and intention toward activism. This lack of mediation may be attributed to the nature of the risk-taking behaviors included in the RBQ questionnaire (substance use, unsafe sexual practices, aggressive and/or violent behaviors, illegal and dangerous behaviors). These behaviors are antisocial and illegal in nature, while activist intentions are conceptualized as a legitimate and socially acceptable form of political mobilization (Moskalenko & McCauley, 2009).

On the other hand, although no specific indirect effects were found, a total indirect effect of sex on intention toward radicalism through risk-taking behaviors was observed. One possible explanation for this total mediation effect is the existence of a general risk propensity factor (Highhouse et al., 2017). This factor could account for the shared variance among different types of risk-taking behaviors and, more importantly, for the presence of a general disposition toward risk, which is reflected in risk-taking as an outcome.

4.2. Limitations of the study

This subsection outlines the main limitations of the study and discusses their implications for future research. Among the limitations encountered in this study, it is important to mention the use of self-reports. Given that risk-taking behaviors are not socially desirable, participants might not have reported them entirely truthfully. Also, it is essential to highlight that the obtained results are correlational, preventing the establishment of a causal effect in the relationship between intention toward activism and radicalism and risk-taking behaviors. Indeed, the disposition toward risk-taking might influence various forms of political engagement (Oshri et al., 2023). In other words, high-risk individuals are more likely to engage in violence. However, this study focused on analyzing the influence of political mobilization as an attitudinal variable on risk-taking behaviors. In this context, there is considerable evidence supporting attitudes as powerful predictors of individual behavior (e.g., Ajzen, 2014). In this regard, future research could examine the mediating role of intention toward activism and radicalism in the relationship between risk-taking propensity and

engagement in risk-taking behaviors. The results obtained from the mediation analysis suggest a potential indirect effect of risk-taking as a dispositional trait through mechanisms of political mobilization.

Finally, engagement in risk-taking behaviors does not solely depend on political mobilization. Other variables also influence individual differences in risk-taking behaviors, such as peer influence (Gardner & Steinberg, 2005) or low self-control (Liu et al., 2019). Hence, it would be interesting in future studies to develop broader theoretical models that encompass these variables.

4.3. Theoretical and practical implication

Despite the limitations, the results demonstrate that differences between young males and females in their engagement in interpersonal risks were moderated by their levels of intention toward activism and radicalism. These findings reinforce the greater male variability hypothesis (Archer, 2019). Specifically, the greater variability in reproductive success among men compared to women leads them to exhibit different strategies to achieve such success. As shown in this study, political mobilization represents a key factor in the variability observed in risk-taking behaviors, reflecting the expression of different reproductive strategies in male youth.

However, these results can also be explained from a socio-structural perspective. In fact, this greater variability observed in male youth might be due to the encouragement of contemporary society toward new forms of masculinities, promoting new roles for men such as caregiving within the family and a reduced inclination toward risk-taking (Scambor et al., 2014). Nevertheless, it is important to emphasize that the evolutionary and socio-structural approaches don't necessarily stand in opposition but operate at different levels of analysis (Lewis et al., 2017). Therefore, to understand the results obtained in the present study, it is necessary to consider and integrate both perspectives.

Beyond the individual-level implications, the findings also contribute to a broader understanding of how political mobilization processes can influence not only personal behavior but also community-level dynamics. The protective role of intention toward activism suggests that encouraging constructive political engagement may serve as a pathway toward collective resilience and sustainability.

In line with this perspective, recent research has emphasized the importance of grassroots movements in responding to diverse social, environmental, and socioeconomic challenges faced by communities (Alnajem, 2024). These movements contribute to strengthening community cohesion, fostering inclusive decision-making processes, and effectively enabling communities to embrace sustainable practices, which can result in creative and locally adapted solutions. From this standpoint, promoting civic participation among youth may help mitigate risk-taking behaviors while simultaneously reinforcing democratic practices and local solidarity networks.

The obtained results also carry potential practical implications for intervening in risk-taking behaviors among young individuals. Specifically, it would be appropriate for these interventions to consider male youth with lower levels of intention toward activism and higher intention toward radicalism as a priority group, due to their greater involvement in interpersonal risks.

Furthermore, the intervention should aim to promote more prosocial mechanisms of political mobilization, which could reduce the participation of these individuals in aggressive and/or violent behaviors. In line with approaches discussed in recent crisis communication research (e.g., Kadhim, 2023), these interventions may benefit from leveraging digital media and social platforms to disseminate positive narratives and provide real-time educational content. Social media campaigns designed with the support of local influencers or peer leaders could enhance credibility and relevance, helping to reshape attitudes toward radicalism and promote alternative identities grounded in solidarity, justice, and non-violence.

5. Conclusions

In conclusion, findings indicate that intentions toward activism and radicalism play a moderating role in the relationship between sex and the adoption of interpersonal risks. Specifically, young males with a high intention toward radicalism and low intention toward activism show a significantly greater propensity to engage in interpersonal risk-taking behaviors, a difference that tends to decrease as the intention toward activism increases. These results integrate both evolutionary and socio-structural perspectives, suggesting that political mobilization strategies influence risk-taking propensity beyond conventional individual factors. Practically, this evidence highlights the need to direct interventions and preventive programs toward promoting non-violent and prosocial forms of political participation, particularly among individuals considered at high risk for aggressive behaviors. Thus, the study not only expands knowledge in the realm of behavioral psychology and politics but also provides guidelines for designing public and educational policies aimed at reducing aggression and fostering constructive social participation.

CRedit authorship contribution statement

Javier Salas-Rodríguez: Writing – original draft, Methodology, Investigation, Formal analysis. **Natalia del Pino-Brunet:** Writing – original draft, Methodology. **Luis Gómez-Jacinto:** Writing – review & editing, Investigation, Formal analysis, Conceptualization. **Isabel Hombrados-Mendieta:** Writing – review & editing, Funding acquisition, Conceptualization.

Funding

This work was supported by the Ministry of Economy, Industry and Competitiveness (MINECO) [PSI2017-85941- R].

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Isabel Hombrados-Mendieta reports financial support was provided by Ministerio de Economía, Industria y Competitividad (MINECO). If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that support the findings of this study are openly available in Mendeley at <https://data.mendeley.com/datasets/kwgrfz4t4t/1>.

References

- Ajzen, I. (2014). The theory of planned behaviour is alive and well, and not ready to retire: a commentary on Sniehotka, Presseau, and Araújo-Soares. *Health Psychology Review*, 9(2), 131–137. <https://doi.org/10.1080/17437199.2014.883474>
- Akasaki, M., Ploubidis, G. B., Dodgeon, B., & Bonell, C. (2019). The clustering of risk behaviours in adolescence and health consequences in middle age. *Journal of Adolescence*, 77(1), 188–197. <https://doi.org/10.1016/j.adolescence.2019.11.003>
- Albright, C. A., Kimball, D., Brady, J. P., Luna, I., Brown, T. A., Calzo, J. P., ... Blashill, A. J. (2022). Gay community involvement and condomless anal sex among sexual minority men in the USA. *Archives of Sexual Behavior*. <https://doi.org/10.1007/s10508-022-02308-5>
- Alnajem, A. a. Q. I. (2024). The role of grassroots movements in achieve community sustainability. *MEDAAD*, 2024, 15–20. <https://doi.org/10.70470/medaad/2024/003>
- Archer, J. (2019). The reality and evolutionary significance of human psychological sex differences. *Biological Reviews*, 94, 1381–1415. <https://doi.org/10.1111/brv.12507>
- Auerbach, R. P., & Gardiner, C. K. (2012). Moving beyond the trait conceptualization of self-esteem: The prospective effect of impulsiveness, coping, and risky behavior engagement. *Behaviour Research and Therapy*, 50(10), 596–603. <https://doi.org/10.1016/j.brat.2012.06.002>

- Balan, R., Dobrean, A., Balazsi, R., & Cordier, R. (2023). A latent profile analysis of emotional, behavioral, and social problems among victims of bullying. *Psychology in the Schools*. <https://doi.org/10.1002/pits.22998>
- Bartusevičius, H., Van Leeuwen, F., & Petersen, M. B. (2020). Dominance-driven autocratic political orientations predict political violence in western, educated, industrialized, rich, and democratic (WEIRD) and non-WEIRD samples. *Psychological Science*, 31(12), 1511–1530. <https://doi.org/10.1177/0956797620922476>
- Benenson, J. F., Webb, C. E., & Wrangham, R. W. (2022). Self-protection as an adaptive female strategy. *Behavioral and Brain Sciences*, 45, Article e128. <https://doi.org/10.1017/S0140525X21002417>
- Best, R., & Freund, A. M. (2018). Age, loss minimization, and the role of probability for decision-making. *Gerontology*, 64(5), 475–484. <https://doi.org/10.1159/000487636>
- Brand, J. A., Henry, J., Melo, G. C., Wlodkovic, D., Wong, B. B. M., & Martin, J. M. (2023). Sex differences in the predictability of risk-taking behavior. *Behavioral Ecology*, 34(1), 108–116. <https://doi.org/10.1093/beheco/arac105>
- Byrnes, J. P., Miller, D. C., & Schafer, W. D. (1999). Gender differences in risk taking: A meta-analysis. *Psychological Bulletin*, 125(3), 367–383. <https://doi.org/10.1037/0033-2909.125.3.367>
- Campbell, A. (1999). Staying alive: Evolution, culture, and women's intrasexual aggression. *Behavioral and Brain Sciences*, 22(2), 203–252. <https://doi.org/10.1017/S0140525X99001818>
- Carter, A. (2019). The consequences of adolescent delinquent behavior for adult employment outcomes. *Journal of Youth and Adolescence*, 48(1), 17–29. <https://doi.org/10.1007/s10964-018-0934-2>
- Clemmow, C., Rottweiler, B., Wolfowicz, M., Bouhana, N., Marchment, Z., & Gill, P. (2023). The whole is greater than the sum of its parts: Risk and protective profiles for vulnerability to radicalization. *Justice Quarterly*, 1–27. <https://doi.org/10.1080/07418825.2023.2171902>
- Conner, J., Greytak, E., Evich, C. D., & Wray-Lake, L. (2023). Burnout and belonging: How the costs and benefits of youth activism affect youth health and wellbeing. *Youth*, 3(1), 127–145. <https://doi.org/10.3390/youth3010009>
- Conner, M., McEachan, R., Lawton, R., & Gardner, P. (2016). Basis of intentions as a moderator of the intention–health behavior relationship. *Health Psychology*, 35(3), 219–227. <https://doi.org/10.1037/hea0000261>
- Conner, M., & Norman, P. (2022). Understanding the intention-behavior gap: The role of intention strength. *Frontiers in Psychology*, 13, Article 923464. <https://doi.org/10.3389/fpsyg.2022.923464>
- Conway, L. G., & Schaller, M. (2002). On the verifiability of evolutionary psychological theories: An analysis of the psychology of scientific persuasion. *Personality and Social Psychology Review*, 6(2), 152–166. https://doi.org/10.1207/S15327957PSPR0602_04
- Costabile, A., Musso, P., Iannello, N. M., Servidio, R., Bartolo, M. G., Palermi, A. L., & Scardigno, R. (2020). Adolescent psychological well-being, radicalism, and activism: The mediating role of social disconnectedness and the illegitimacy of the authorities. *Journal of Research on Adolescence*, 31(1), 25–33. <https://doi.org/10.1111/jora.12590>
- Cross, C. P., Cyrenne, D. M., & Brown, G. R. (2013). Sex differences in sensation-seeking: a meta-analysis. *Scientific Reports*, 3(1). <https://doi.org/10.1038/srep02486>
- Defoe, I. N. (2021). Towards a hybrid criminological and psychological model of risk behavior: The developmental neuro-ecological risk-taking model (DNERM). *Developmental Review*, 62, Article 100995. <https://doi.org/10.1016/j.dr.2021.100995>
- Dodson, K. (2015). Gendered activism. *Social Currents*, 2(4), 377–392. <https://doi.org/10.1177/2329496515603730>
- Eagly, A. H., & Wood, W. (2016). Social role theory of sex differences. In A. Wong, M. Wickramasinghe, R. Hoogland, & N. A. Naples (Eds.), *The Wiley Blackwell encyclopedia of gender and sexuality studies* (pp. 458–476). Wiley.
- Earl, J., Maher, T. V., & Elliott, T. (2017). Youth, activism, and social movements. *Sociology Compass*, 11(4), Article e12465. <https://doi.org/10.1111/soc4.12465>
- Eid, M., Gollwitzer, M., & Schmitt, M. (2011). *Statistik und forschungsmethoden [statistics and research methods]* (1st ed.). Beltz PVU.
- Ellis, B. J., Del Giudice, M., Dishion, T. J., Figueredo, A. J., Gray, P., Griskevicius, V., ... Wilson, D. S. (2012). The evolutionary basis of risky adolescent behavior: Implications for science, policy, and practice. *Developmental Psychology*, 48(3), 598–623. <https://doi.org/10.1037/a0026220>
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. Psychology Press. <https://doi.org/10.4324/9780203838020>
- Friedl, A., Ponderfer, A., & Schmidt, U. (2020). Gender differences in social risk taking. *Journal of Economic Psychology*, 77, Article 102182. <https://doi.org/10.1016/j.joep.2019.06.005>
- Gardner, M., & Steinberg, L. (2005). Peer influence on risk taking, risk preference, and risky decision making in adolescence and adulthood: An experimental study. *Developmental Psychology*, 41(4), 625–635. <https://doi.org/10.1037/0012-1649.41.4.625>
- Gómez-Jacinto, L., & Salas-Rodríguez, J. (2018). *Motivos evolutivos y conductas de riesgo de los adolescentes y los jóvenes [Paper presentation]*. Cuenca, Spain: III Congreso Internacional de Psicología Social SCEPS.
- Griskevicius, V., & Kenrick, D. T. (2013). Fundamental motives: How evolutionary needs influence consumer behavior. *Journal of Consumer Psychology*, 23(3), 372–386. <https://doi.org/10.1016/j.jcps.2013.03.003>
- Hartevelde, E., Dahlberg, S., Kokkonen, A., & Van Der Brug, W. (2019). Gender differences in vote choice: Social cues and social harmony as heuristics. *British Journal of Political Science*, 49(3), 1141–1161. <https://doi.org/10.1017/S0007123417000138>

- Haux, L. M., Engelmann, J. M., Arslan, R. C., Hertwig, R., & Herrmann, E. (2023). Chimpanzee and human risk preferences show key similarities. *Psychological Science*, 34(3), 358–369. <https://doi.org/10.1177/09567976221140326>
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). The Guilford Press.
- Herzog, H., & Golden, L. L. (2009). Moral emotions and social activism: The case of animal rights. *Journal of Social Issues*, 65(3), 485–498. <https://doi.org/10.1111/j.1540-4560.2009.01610.x>
- Highhouse, S., Nye, C. D., Zhang, D. C., & Rada, T. B. (2017). Structure of the dospert: Is there evidence for a general risk factor? *Journal of Behavioral Decision Making*, 30(2), 400–406. <https://doi.org/10.1002/bdm.1953>
- Kadhim, A. J. (2023). Media in times of crisis: A case study on the impact of media on societal awareness during the COVID-19 pandemic. *MEDAAD*, 2023, 40–44. <https://doi.org/10.70470/medaad/2023/006>
- Killgore, W. D. S., Grugle, N. L., Killgore, D. B., & Balkin, T. J. (2010). Sex differences in self-reported risk-taking propensity on the evaluation of risks scale. *Psychological Reports*, 106(3), 693–700. <https://doi.org/10.2466/pr0.106.3.693-700>
- Koegl, C. J., & Farrington, D. P. (2021). Estimating the monetary cost of risk factors for crime in boys using the EARL-20B. *Psychological Services*, 18(4), 441–453. <https://doi.org/10.1037/ser0000401>
- Koehler, D. (2020). Violent extremism, mental health and substance abuse among adolescents: Towards a trauma psychological perspective on violent radicalization and deradicalization. *Journal of Forensic Psychiatry & Psychology*, 31(3), 455–472. <https://doi.org/10.1080/14789949.2020.1758752>
- Lafreniere, B., Audet, É. C., Kachanoff, F., Christophe, N. K., Holding, A. C., Janusauskas, L., & Koestner, R. (2023). Gender differences in perceived racism threat and activism during the Black Lives Matter social justice movement for black young people. *Journal of Community Psychology*, 51(7), 2741–2757. <https://doi.org/10.1002/jcop.23043>
- Lenhard, W., & Lenhard, A. (2014). Testing the significance of correlations. <http://www.psychometrica.de/correlation.html>.
- Lewis, D. M. G., Al-Shawaf, L., Conroy-Beam, D., Asao, K., & Buss, D. M. (2017). Evolutionary psychology: A how-to guide. *American Psychologist*, 72(4), 353–373. <https://doi.org/10.1037/a0040409>
- Liu, L., Wang, N., & Tian, L. (2019). The parent-adolescent relationship and risk-taking behaviors among Chinese adolescents: The moderating role of self-control. *Frontiers in Psychology*, 10, Article 542. <https://doi.org/10.3389/fpsyg.2019.00542>
- Lu, H. J., & Chang, L. (2019). Aggression and risk-taking as adaptive implementations of fast life history strategy. *Developmental Science*, 22(5), Article e12827. <https://doi.org/10.1111/desc.12827>
- Machluf, K., & Bjorklund, D. F. (2015). *Understanding risk-taking behavior: Insights from evolutionary psychology*. In *Emerging trends in the social and behavioral sciences* (pp. 1–15). John Wiley & Sons.
- Mata, R., Josef, A. K., & Hertwig, R. (2016). Propensity for risk taking across the life span and around the globe. *Psychological Science*, 27(2), 231–243. <https://doi.org/10.1177/0956797615617811>
- McCauley, C., & Moskaleiko, S. (2008). Mechanisms of political radicalization: Pathways toward terrorism. *Terrorism and Political Violence*, 20(3), 415–433. <https://doi.org/10.1080/09546550802073367>
- McDonald, M. M., Navarrete, C., & Van Vugt, M. (2012). Evolution and the psychology of intergroup conflict: The male warrior hypothesis. *Philosophical Transactions of the Royal Society B*, 367(1589), 670–679. <https://doi.org/10.1098/rstb.2011.0301>
- McEachan, R., Taylor, N., Harrison, R., Lawton, R., Gardner, P., & Conner, M. (2016). Meta-analysis of the Reasoned Action Approach (RAA) to understanding health behaviors. *Annals of Behavioral Medicine*, 50(4), 592–612. <https://doi.org/10.1007/s12160-016-9798-4>
- Moskaleiko, S., & McCauley, C. (2009). Measuring political mobilization: The distinction between activism and radicalism. *Terrorism and Political Violence*, 21(2), 239–260. <https://doi.org/10.1080/09546550902765508>
- Nardi-Rodríguez, A., Pastor-Mira, M.Á., López-Roig, S., Pamiés-Aubal, L., Martínez-Zaragoza, F., & Ferrer-Pérez, V. A. (2022). Predicting abusive behaviours in Spanish adolescents' relationships: Insights from the reasoned action approach. *International Journal of Environmental Research and Public Health*, 19(3), 1441. <https://doi.org/10.3390/ijerph19031441>
- Neel, R., Kenrick, D. T., White, A. E., & Neuberg, S. L. (2016). Individual differences in fundamental social motives. *Journal of Personality and Social Psychology*, 110(6), 887–907. <https://doi.org/10.1037/pspp0000068>
- Oshri, O., Harsgor, L., Itzkovitch-Malka, R., & Tuttnauer, O. (2023). Risk aversion and the gender gap in the vote for populist radical right parties. *American Journal of Political Science*, 67(3), 701–717. <https://doi.org/10.1111/ajps.12696>
- Pavlović, T., Moskaleiko, S., & McCauley, C. (2022a). Bifactor analyses provide uncorrelated measures of activism intentions and radicalism intentions. *Dynamics of Asymmetric Conflict*, 15(2), 123–140. <https://doi.org/10.1080/17467586.2021.1980220>
- Pavlović, T., Moskaleiko, S., & McCauley, C. (2022b). Two classes of political activists: evidence from surveys of U.S. college students and U.S. prisoners. *Behavioral Sciences of Terrorism and Political Aggression*, 1–21. <https://doi.org/10.1080/19434472.2022.2064894>
- Petersen, M. (2022). *The evolutionary approach to political psychology*. <https://doi.org/10.31234/osf.io/372cr>. January 31.
- Pfeffer, I., & Strobach, T. (2020). Influence of a planning intervention on physical activity behavior: The moderating role of intentions and executive functions in a randomized controlled trial. *International Journal of Behavioral Medicine*, 27(5), 506–519. <https://doi.org/10.1007/s12529-020-09864-x>
- Pfundmair, M., Paulus, M., & Wagner, E. (2020). Activism and radicalism in adolescence: An empirical test on age-related differences. *Psychology Crime & Law*, 27(8), 815–830. <https://doi.org/10.1080/1068316x.2020.1850725>
- Polletta, F., & Chen, P. C. B. (2013). Gender and public talk. *Sociological Theory*, 31(4), 291–317. <https://doi.org/10.1177/0735275113515172>
- Reger, J. (2021). Gender in movements. In J. Barbara, M. Risman, W. Froyum, & J. Scarborough (Eds.), *Handbook of the sociology of gender* (2.^a ed., pp. 537–548). Springer.
- Rhodes, R. E., Cox, A., & Sayar, R. (2022). What predicts the physical activity intention-behavior gap? A systematic review. *Annals of Behavioral Medicine*, 56(1), 1–20. <https://doi.org/10.1093/abm/kaab044>
- Rice, S. M., Oliffe, J. L., Seidler, Z., Borschmann, R., Pirkis, J., Reavley, N., & Patton, G. (2021). Gender norms and the mental health of boys and young men. *The Lancet Public Health*, 6(8), e541–e542. [https://doi.org/10.1016/S2468-2667\(21\)00138-9](https://doi.org/10.1016/S2468-2667(21)00138-9)
- Saleh, N. S. (2024). Religious rebellion in Ibn Bassam's poetry: An analytical study of the behavioral and moral dimensions. *Holy Quran*, 2024, 100–103. <https://doi.org/10.70470/holyquran/2024/012>
- Scambor, E., Bergmann, N., Wojnicka, K., Belghiti-Mahut, S., Hearn, J., Holter, Ø. G., ... White, A. (2014). Men and gender equality: European insights. *Men and Masculinities*, 17(5), 552–577. <https://doi.org/10.1177/1097184x14558239>
- Scholes-Balog, K. E., Hemphill, S. A., Toumbourou, J. W., & Dowling, N. A. (2016). Problem gambling patterns among Australian young people: Associations with prospective risk and protective factors and adult adjustment outcomes. *Addictive Behaviors*, 55, 38–45. <https://doi.org/10.1016/j.addbeh.2015.12.016>
- Schröder, C. P., Bruns, J., Lehmann, L., Goede, L., Bliessner, T., & Tomczyk, S. (2022). Radicalization in adolescence: The identification of vulnerable groups. *European Journal on Criminal Policy and Research*. <https://doi.org/10.1007/s10610-022-09505-x>
- Sheeran, P. (2002). Intention—Behavior relations: A conceptual and empirical review. *European Review of Social Psychology*, 12(1), 1–36. <https://doi.org/10.1080/14792772143000003>
- Sitkin, S. B., & Weingart, L. R. (1995). Determinants of risky decision-making behavior: A test of the mediating role of risk perceptions and propensity. *Academy of Management Journal*, 38(6), 1573–1592. <https://doi.org/10.5465/256844>
- Smith, J. E., Fichtel, C., Holmes, R. K., Kappeler, P. M., Van Vugt, M., & Jaeggi, A. V. (2022). Sex bias in intergroup conflict and collective movements among social mammals: Male warriors and female guides. *Philosophical Transactions of the Royal Society B*, 377(1851). <https://doi.org/10.1098/rstb.2021.0142>
- St Quinton, T. (2021). A reasoned action approach to understand mobile gambling behavior among college students. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*. <https://doi.org/10.1007/s12144-021-01656-0>. Advance online publication.
- Thöni, C., & Volk, S. (2021). Converging evidence for greater male variability in time, risk, and social preferences. *Proceedings of the National Academy of Sciences USA*, 118, Article e2026112118. <https://doi.org/10.1073/pnas.2026112118>
- Trimpop, R. M. (1994). What is risk taking behavior. *Advances in Psychology*, 107(C), 1–14. [https://doi.org/10.1016/S0166-4115\(08\)61295-9](https://doi.org/10.1016/S0166-4115(08)61295-9)
- Trujillo, H. M., Prados, M., & Moyano, M. (2016). Psychometric properties of the Spanish version of the activism and radicalism intention scale. *Revista de Psicología Social*, 31(1), 157–189. <https://doi.org/10.1080/02134748.2015.1101317>
- Villanueva-Moya, L., & Expósito, F. (2020). Spanish women making risky decisions in the social domain: The mediating role of femininity and fear of negative evaluation. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2020.561715>
- Villanueva-Moya, L., & Expósito, F. (2021). Gender differences in decision-making: The effects of gender stereotype threat moderated by sensitivity to punishment and fear of negative evaluation. *Journal of Behavioral Decision Making*, 1–12. <https://doi.org/10.1002/bdm.2239>
- Williamson, H., De Buck, A., & Pauwels, L. (2021). Perceived injustice, perceived group threat and self-reported right-wing violence: An integrated approach. *Monatsschrift für Kriminologie und Strafrechtsreform*, 104(3), 203–216. <https://doi.org/10.1515/mks-2021-0129>
- Willoughby, T., Heffer, T., Good, M., & Magnacca, C. (2021). Is adolescence a time of heightened risk taking? An overview of types of risk-taking behaviors across age groups. *Developmental Review*, 61, Article 100980. <https://doi.org/10.1016/j.dr.2021.100980>
- Wong, M. Y. H., Khatani, P. V., & Chui, W. H. (2019). Understanding youth activism and radicalism: Chinese values and socialization. *Social Science Journal*, 56(2), 255–267. <https://doi.org/10.1016/j.soscij.2018.08.006>
- Yablon, Y. B. (2009). Gender differences in the consistency of attitudes towards peace. *Womens Studies International Forum*, 32(4), 305–310. <https://doi.org/10.1016/j.wsf.2009.05.009>
- Youniss, J., Bales, S., Christmas-Best, V., Diversi, M., McLaughlin, M., & Silbereisen, R. (2002). Youth civic engagement in the twenty-first century. *Journal of Research on Adolescence*, 12(1), 121–148. <https://doi.org/10.1111/1532-7795.00027>
- Zhang, D. C., Highhouse, S., & Nye, C. D. (2018). Development and validation of the general risk propensity scale (GRiPS). *Journal of Behavioral Decision Making*, 32(2), 152–167. <https://doi.org/10.1002/bdm.2102>