Prior beliefs impair logical reasoning about syllogisms on sexual violence

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Abstract

Belief bias in syllogistic reasoning occurs when individuals' agreement with a conclusion influences their assessment of its logical validity. While this effect has been widely studied in domains such as politics and personality-related reasoning, its role in evaluating arguments about sexual violence remains underexplored. In a pre-registered study, we examined whether participants' sexist beliefs and cognitive reflection influenced their ability to assess the validity of syllogisms related to sexual violence. Participants (N = 104) completed a syllogistic reasoning task with sexism-supportive, sexism-challenging, and neutral syllogisms, as well as the Ambivalent Sexism Inventory and a Cognitive Reflection Test. The results indicate that when evaluating such syllogisms, participants' beliefs play a significant role. People tend to perceive syllogisms as logically valid if the conclusions align with their beliefs and as logically invalid if the conclusions contradict their beliefs. Furthermore, cognitive reflection moderated belief bias effects, but only for sexism-supportive syllogisms. These findings highlight the extent to which reasoning about gender and sexual violence is shaped by preexisting beliefs and suggest that cognitive reflection may help mitigate some bias-driven reasoning errors.

Keywords: syllogism; belief bias; sexism scale; rape myths; cognitive reflection

Introduction

Research on logical reasoning consistently demonstrates that people's ability to assess the validity of arguments is often influenced by their preexisting beliefs and attitudes (Stanovich & West, 2008; Aspernäs et al., 2023;). This phenomenon, known as belief bias, occurs when individuals' agreement or disagreement with the content of a sentence affects their assessment of its logical validity (Boissin et al., 2023; Ellison & Munro, 2013; Klauer et al., 2000). Understanding the relationship between belief bias and cognitive processes is critical for advancing our knowledge on how individuals make decisions, especially regarding topics that can have real consequences in peoples' lives.

Previous studies highlight the role of belief bias in assessing propositions about sexual aggressions. When individuals have higher levels of sexist beliefs, they are more likely to endorse rape myths, which are false beliefs about sexual violence that encourage blaming the victim and exonerating the offender (Bohner et al., 1998; Burt, 1990; Rollero & Tartaglia, 2018). More specifically, beliefs such as "false accusations of rape are common" or "real victims always resist" can lead individuals to incorrectly assess evidence or arguments in support of these myths as valid, even when the reasoning is flawed (Temkin & Krahé, 2008). This bias appears consistently across various societal beliefs, with individuals from different cultural or social backgrounds exhibiting difficulty in correctly evaluating arguments that contradict entrenched rape myths (Smith, 2018).

The assessment of syllogisms, a form of deductive reasoning consisting of two premises and a conclusion that logically follows from the given premises (Johnson-Laird, 2021), provide a valuable framework for investigating human reasoning and decision-making processes, as they require individuals to evaluate logical structures independently of their prior beliefs (Evans, 2019). By presenting premises that lead to a conclusion based on deductive reasoning, syllogistic tasks enable to examine how individuals process information and whether they adhere to formal logical principles or rely on intuitive judgments (Johnson-Laird, 2021). Therefore, the study of syllogisms is particularly relevant in contexts where belief bias may influence judgment (Klauer et al., 2000).

Research on sexist-supportive beliefs have widely used the Ambivalent Sexism Inventory (ASI; Glick & Fiske, 1996) for examining how gender-based attitudes shape reasoning, particularly in contexts involving sexual violence. By distinguishing between Hostile Sexism—overtly negative beliefs about women—and Benevolent Sexism—paternalistic views that reinforce traditional gender roles—the ASI captures the dual nature of sexist ideology and its cognitive impact (Glick & Fiske, 2001). This suggests that ambivalent sexism not only influences social attitudes but also affects logical reasoning, potentially leading individuals to accept or reject syllogistic conclusions based on ideological alignment rather than validity. Investigating this relationship deepens our understanding of the cognitive mechanisms behind biased reasoning and highlights the challenges of promoting objective decision-making in sensitive social domains.

Accordingly, understanding how belief bias operates in syllogistic reasoning can provide insight into broader cognitive mechanisms underlying decision-making,

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particularly in issues of high societal relevance, such as sexual violence. Given that logical reasoning competes with intuitive responses, investigating relevant cognitive skills can further elucidate the mechanisms by which individuals assess the validity of syllogisms involving sensitive topics.

For example, cognitive reflection (Frederick, 2005), the ability to suppress intuitive but incorrect responses in favor of reflective, deliberate reasoning, plays a key role in determining whether individuals can accurately assess the logical validity of an argument, even when it conflicts with their preexisting beliefs (Toplak et al., 2011; Martire et al., 2023). Investigating how cognitive reflection mitigates belief bias can help identify cognitive mechanisms that promote unbiased reasoning, particularly in contexts where rape myths can significantly impact outcomes.

The present study

In a pre-registered study (available at https://osf.io/njt75/?view_only=050aaa5987874c7483ea77beec35d4b4), we investigated belief bias in the assessment of logical validity of syllogisms about sexual violence. To do this, participants completed two main tasks: i) a syllogisms questionnaire comprising 24 inferences about various forms of sexual violence against women; and ii) the Ambivalence Sexism Inventory, standardized for Spanish-speaking population (Cárdenas et al., 2010). We tested the following five hypotheses:

1. Higher ASI scores will lead to a higher probability of correctly assessing *logically invalid sexism-challenging syllogisms*.
2. Higher ASI scores will lead to a lower probability of correctly assessing *logically invalid sexism-supportive syllogisms*.
3. Higher ASI scores will lead to a lower probability of correctly assessing *logically valid sexism-challenging syllogisms*.
4. Higher ASI scores will lead to a higher probability of correctly assessing *logically valid sexism-supportive syllogisms.*
5. There will be no significant effect of individuals' ASI score on a tendency to evaluate neutral syllogisms.

Additionally, participants completed two further tasks, which were used for exploratory analyses. First, participants completed an ad-hoc questionnaire about their level of agreement regarding the conclusions of each syllogism in the main syllogisms questionnaire. We decided to include this questionnaire due to previous research highlighting problematic limitations of ASI. Although it is widely used to assess individuals' sexist beliefs and the version we used was adapted to Chilean population, several limitations suggest it may not fully capture participants' actual attitudes toward sexism. First, the ASI was developed nearly three decades ago, and societal perceptions of gender roles have evolved significantly since then. Some items may no longer reflect contemporary understandings of sexism, potentially leading to discrepancies between the ASI scores and participants' actual beliefs (see Glick & Fiske, 2011). Second, the ASI was designed within a Western cultural context, and research indicates that its factor structure and applicability vary across different populations (e.g., Sakallı-Uğurlu et al., 2007). As a result, individuals from diverse cultural backgrounds may interpret or respond to ASI items differently, affecting the validity of the scale. Third, the ASI focuses primarily on gender-based sexism without explicitly accounting for the intersectionality of other social identities, such as race, ethnicity, or sexual orientation (Collins, 2000). This omission limits its ability to capture the full complexity of sexist beliefs that intersect with other forms of discrimination. Finally, given the increasing societal awareness of sexism and gender equality, participants may be influenced by social desirability bias, modifying their responses to conform to socially acceptable norms rather than expressing their true attitudes (Paulhus, 1991). Considering these limitations, we used this additional measure for a more nuanced understanding of participants' beliefs, complementing the ASI results.

Second, participants completed a Cognitive Reflection Test adapted to Spanish (Teutli Etcheverry & Slisko Ignjatov, 2021). Based on previous research suggesting a key role of cognitive reflection in determining whether individuals can accurately assess the logical validity of an argument when it conflicts with their preexisting beliefs, we explored the effect of an interaction between participants' cognitive reflection and their level of agreement with the conclusions of syllogisms on their tendency to correctly assess the validity of syllogisms in the main questionnaire.

Method

We conducted an online study that investigated whether individuals' assessment of the logical validity of syllogisms about sexual violence was influenced by individuals' level of ambivalent sexism. To do this, we used a within-participants, 2 (Logical Validity of Syllogisms: Valid vs Invalid) by 3 (Sexual Violence Conclusion: Supportive vs Negative vs Neutral) experimental design, and measured individuals' attitudes towards sexism using a Spanish adaptation of ASI (Cárdenas et al., 2010).

Participants

A total of 104 participants (78 females) took part in the study. The mean age of participants was 22.17 years (SD=3.96). In terms of gender, 74 participants identified as women, 26 as men, and 4 as non-binary. Participants were recruited through social media ads. All participants signed informed consent.

Materials and Measurements

Syllogisms questionnaire. We developed 24 syllogisms containing inferences about the permissibility or impermissibility of various forms of sexual violence against women and the attribution of responsibility for such violence (see Table 1). In half of the syllogisms, the conclusions condemned such violence, while in the other half, they

justified it. Additionally, within each of these groups, half of the syllogisms were logically valid, whereas the other half were logically invalid. Thus, we obtained the following types of syllogisms: sexism-supportive valid syllogisms, sexism-supportive invalid syllogisms, sexism-challenging valid syllogisms, and sexism-challenging invalid syllogisms. The materials also included 24 neutral syllogisms that were unrelated to sexism or sexual violence. These syllogisms were taken from Keller et al. (2023) and translated into Spanish. Each syllogism contained a pseudoword, but participants were warned that this was necessary to construct a logical riddle.

Table 1: Examples of the syllogisms (translated from Spanish)

Conditions	Item
Sexism: supportive Validity: valid	All women are yuns. All yuns are aroused by being forced to have sex. Therefore, all women are aroused by being forced to have sex.
Sexism: supportive Validity: invalid	All zuns are rape victims. All those who are partially guilty of rapes are zuns. Therefore, all rape victims are partially guilty of rapes.
Sexism: challenging Validity: valid	All rape victims are mabs. All mabs are innocent of being raped. Therefore, all rape victims are innocent of being raped.
Sexism: challenging Validity: invalid	All cips are women. All those whose sexual pleasure is important are cips. Therefore, all women are those whose sexual pleasure is important.
Sexism: neutral Validity: valid	All tropical birds are lofs. All lofs are colorful. Therefore, all tropical birds are colorful.
Sexism: neutral Validity: invalid	All tuns are brown mice. All small things are tuns. Therefore, all brown mice are small.

Ambivalent Sexism Inventory. The ASI (Glick & Fiske, 1996) was used in its adapted Spanish version by Cárdenas et al. (2010). The adapted version demonstrated adequate internal consistency ($\alpha = .84$ for the total scale; $\alpha = .74$ for benevolent sexism; $\alpha = .85$ for hostile sexism) and was validated for use in Chilean population. The inventory comprised 22 items measuring two dimensions of sexism: hostile sexism (11 items) and benevolent sexism (11 items). Participants' responses to each statement on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). Higher scores indicate stronger endorsement of sexist beliefs. Three items (Item 6, Item 12, and Item 13) were reverse-coded. The total ASI score is computed by averaging all item responses, and subscale scores are calculated separately for hostile and benevolent sexism by averaging the respective items.

Beliefs questionnaire. This set of questions was a series of statements about sexual violence taken from the conclusions of syllogisms (e.g. "All men should avoid pressuring women to have sex"). Thus, participants had to directly express their agreement or disagreement with statements about sexual violence that they had previously encountered in the form of syllogisms. Similar to the ASI, the Likert scale from 1 (strongly disagree) to 6 (strongly agree) was used.

Cognitive Reflection Test. The Cognitive Reflection Test was used in its classic three-question version (Frederick, 2005) translated into Spanish (Teutli Etcheverry & Slisko Ignjatov, 2021). The number of correct answers to the questions was measured, so the Cognitive reflection score could take a value between 0 and 3 for each participant.

Procedure

Participants completed an online session comprising four tasks. First, they completed an online syllogisms questionnaire, where they decided whether each syllogism was logically valid or logically invalid. At this point, we manipulated the validity of syllogisms (Logical Validity of Syllogisms: Valid vs Invalid) and the sexual violence valence of the syllogisms' conclusions (Sexual Violence Conclusion: Supportive vs Challenging vs Neutral). Second, participants completed an online version of the ASI (Sexism).
Additionally, we measured participants' agreement with the beliefs that were presented in the conclusions of the syllogisms (Level of Agreement). Finally, they completed the Cognitive Reflection Test (Cognitive Reflection).

Analyses and Results

Data processing and analysis plan

We coded the syllogisms questionnaire's responses as correct or incorrect (1,0) for each item, creating the dependent variable Accuracy. Regarding the Ambivalent Sexism Inventory, we reverse-coded 1 item and calculated participants' mean for each dimension of the scale (HS, BS, and AS). Finally, a Cognitive Reflection value from 0 to 3 was assigned to each participant based on the number of correct answers to the Cognitive Reflection Test.

We first tested our 4 main hypotheses. To do this, we examined the effect of Logical Validity (Valid vs Invalid), Sexual Violence Conclusion (Supportive, Challenging, and Neutral) and their interaction on Accuracy rates at the trial level, using logistic mixed effects regressions (Barr et al., 2013). For further data analysis, we separated neutral and sexism-related syllogisms, following the approach presented

in Keller et al. (2023) and run two different models for each of the subsets.

Thus, for the sexism-related syllogisms, the model included Accuracy as a dependent variable, and **AS**, Sexual Violence Conclusion (Supportive vs Challenging) and **validity** as fixed effects, along with their interactions (**AS *** Sexual Violence Conclusion and **AS * validity**). To account for variability at the participant and item levels, participant-level random intercept and item-level random intercept were included.

To test the Hypothesis 5, the model included Accuracy as a dependent variable, and an interaction of **AS** and **validity** as fixed effect, with participant-level and item-level random intercepts was run on the neutral syllogisms.

Then, we ran exploratory analyses concerning the effect of Cognitive Reflection and Level of Agreement on the Accuracy, and using mixed effects regressions.

Data were processed and analyses were conducted using R scripts (Version 4.3.1), available https://osf.io/u4akz/?view_only=99495eeb324e4805b9edda48cb10d8db.

Results

The proportions of correct responses were as follows: 68.4% for invalid sexism-supportive items, 54.2% for valid sexism-supportive items, 27.2% for invalid sexism-challenging items, and 95.2% for valid sexism-challenging items. Table 2 presents the results of the generalized linear mixed model analysis for sexism-related syllogisms. As it can be seen, we observed an overall difference between the results for the valid and invalid syllogisms (Estimate = 1.870, se = 0.900, z-value = 2.077, p=0.038). However, no interaction of AS was found with either Logical Validity, or Sexual Violence Conclusion**,** and hence Hypotheses 1-4 were not confirmed. Overall, participants exhibited a moderate level of sexist beliefs, with the following mean scores on the scales: Hostile Sexism = 18.59 (SD = 7.95), Benevolent Sexism = 28.02 (SD = 7.43), and Ambivalent Sexism = 46.61 (SD = 13.11).

Table 2: Results of the generalized linear mixed-effect regression analysis for sexism-related syllogisms

	Estimate Std.	Std. Error	z value	Pr(>|z|)
(Intercept)	-0.022	0.785	-0.027	0.978
AS	-0.001	0.001	-0.921	0.357
Cond_challenging	0.961	0.909	1.057	0.290
Validity_valid	1.870	0.901	2.077	0.038*
AS:Cond_challenging	-0.001	0.011	-0.920	0.357
AS:Validity_valid	-0.001	0.010	-0.052	0.958

Signif. codes: '*'p< 0.05

We also performed a separate analysis for neutral syllogisms. For neutral items, the proportion of correct responses was 27.2% for invalid syllogisms and 92.9% for valid syllogisms. Table 3 presents the results of the generalized linear mixed model. We found a tendency for validity to influence the evaluation of syllogisms (Estimate = 1.752, se = 0.900, z-value = 1.947, p=0.052), but we did not find an interaction with AS. These results are consistent with our prediction in Hypothesis 5.

Table 3: Results of the generalized linear mixed-effect regression analysis for neutral syllogisms

	Estimate Std.	Std. Error	z value	Pr(>|z|)
(Intercept)	0.437	0.653	0.669	0.504
AS	-0.013	0.008	-1.602	0.109
Validity_valid	1.752	0.900	2.077	0.052
AS:Cond_challenging	-0.001	0.011	1.947	0.357
AS:Validity_valid	0.002	0.010	0.165	0.869

Exploratory Analysis

Following the preregistration plan, we conducted an exploratory analysis to examine the potential influence of Level of Agreement and Cognitive Reflection on Accuracy**.** We reused the same model to analyze sexism-related syllogisms**;** however, instead of AS, we incorporated Level of Agreement as a more direct measure of participants' beliefs. Thus, we applied a generalized linear mixed model to predict Accuracy based on the interaction between the fixed effects Level of Agreement * Sexual Violence Conclusion and Level of Agreement * validity. The results (see Table 4) indicate that Level of Agreement had a significant effect (Estimate = -0.482, SE = 0.132, z = -3.637, p < .001), as well as Validity (Estimate = -2.140, SE = 0.241, z = -8.875, p < .001). Additionally, the interaction Level of Agreement × Validity was significant (Estimate = 1.149, SE = 0.081, z = 14.170, p < .001).

Table 4: Results of the generalized linear mixed-effect regression analysis for sexism-related syllogisms (exploratory part)

	Estimate Std.	Std. Error	z value	Pr(>|z|)
(Intercept)	1.429	0.235	6.091	1.12e-09 ***
Level_of_Agreement	-0.482	0.132	-3.637	0.000***
Cond_challenging	-0.584	0.470	-1.242	0.214
Validity_valid	-2.140	0.241	-8.875	0.000***
Level_of_Agreement:Cond_challenging	0.120	0.151	0.794	0.427
Level_of_Agreement:Validity_valid	1.149	0.081	14.170	0.000***

Signif. codes: p<0.001 '***'

Thus, the Level of agreement proved to be a more accurate predictor of beliefs, and as shown in Figure 1, the greater the participant's agreement with the syllogism's conclusion, the more likely they were to correctly identify valid syllogisms, while the less likely they were to identify invalid syllogisms. This influence of beliefs on logical reasoning was observed in both sexism-challenging and sexism-supportive syllogisms.

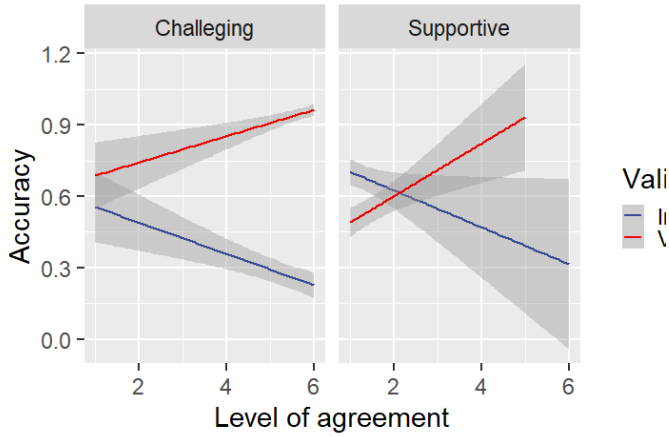

Figure 1. Mean Accuracy as a function of Level of Agreement for sexism-challenging and sexism-supportive syllogisms. Grey area surrounded the linear model represent standard error of the mean.

Next, we aimed to investigate the role of Cognitive Reflection in moderating the influence of beliefs on reasoning. Preliminary analysis (see Figure 1) indicated that this influence might differ for sexism-challenging and sexism-supportive syllogisms. However, to avoid a three-way interaction, we ran the model for sexism-challenging and sexism-supportive syllogisms separately.

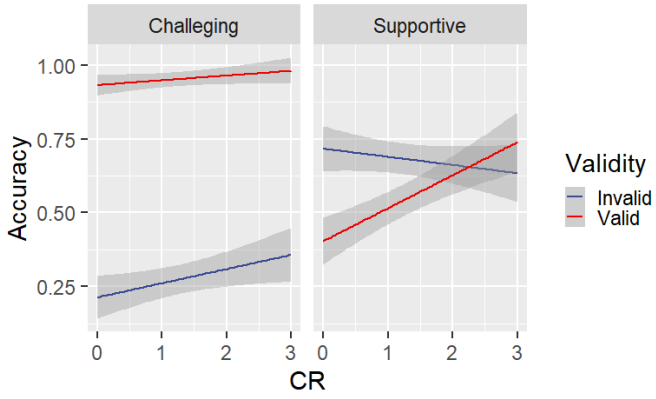

Figure 2. Mean Accuracy as a function of Cognitive reflection for sexism-challenging and sexism-supportive syllogisms. Grey area surrounded the linear model represent standard error of the mean.

The generalized linear mixed-effect model predicted Accuracy based on the interaction between the fixed effects Level of Agreement*validity and CR*validity with participant-level and item-level random intercepts.

For sexism-challenging syllogisms, an effect of Level of Agreement was found (Estimate = -0.363, se = 0.101, z = -3.582, $p < 0.001$), as well as an interaction between Level of Agreement and Validity (Estimate = 0.959, se = 0.227, z = 4.212, $p < 0.001$). However, for the sexism-supportive syllogisms, significant results were found for the Validity (Estimate = -2.5634, se = 0.4050, z = -6.330, $p < 0.001$), Level of agreement (Estimate = -0.3219, se = 0.1696, z = -1.898, $p < 0.001$), the interaction between Level of agreement and Validity (Estimate = 0.8840, se = 0.2313, z = 3.822, $p < 0.001$), and the interaction between Validity and Cognitive reflection (Estimate = 0.6247, se = 0.1544, z = 4.047, $p < 0.001$).

Discussion

The results did not provide significant evidence supporting the hypotheses that ASI scores influence the evaluation of syllogisms. Neither hostile nor benevolent sexism significantly affected accuracy for any syllogism category. The absence of significant interactions suggests that individuals' sexism scores do not systematically bias their logical reasoning about syllogisms with different ideological content. However, we found a significant effect of syllogism validity, such that participants were significantly more likely to provide correct responses when evaluating valid syllogisms. This pattern also emerged as a trend when assessing neutral syllogisms. This finding may be related to the well-documented atmosphere effect, in which individuals tend to agree with a syllogism's conclusion if it contains the same quantifier as the premises (Woodworth & Sells, 1935). Further exploratory analyses were conducted to examine the effect of statement agreement level and cognitive reflection scores on syllogism accuracy.

The effect of syllogism validity remained significant; however, we also observed significant effects of Level of Agreement and the interaction between Level of Agreement and Validity. These results suggest that when evaluating the logical validity of syllogisms containing statements about the permissibility or impermissibility of sexual violence, participants relied on their beliefs rather than solely on their logical reasoning abilities. Our findings indicate that, regardless of whether the syllogisms were sexism-challenging or sexism-supportive, a higher level of agreement with the conclusion was associated with an increased tendency to correctly identify valid syllogisms and a decreased tendency to identify invalid ones. Thus, the more participants endorsed a given belief, the more likely they were to perceive any syllogism whose conclusion aligned with that belief as logically valid. These results align with research indicating belief bias in syllogistic reasoning within the context of social cognition – for example, when

evaluating political (Keller et al., 2024) or personality-related syllogisms (Hadžiahmetović et al., 2024).

Moreover, our study provides limited evidence suggesting that this bias may be partially overcome by participants with high levels of cognitive reflection, or in other words, those with a pronounced analytical cognitive style. Interestingly, the effect of cognitive reflection emerged only when evaluating sexism-supportive syllogisms. Given the characteristics of our sample, specifically the relatively low average level of Ambivalent Sexism, it can be speculated that cognitive reflection was more effective in adjusting judgments about opposing beliefs rather than those that participants personally endorsed. Nevertheless, these findings highlight potential mechanisms for overcoming biases and add to the argument that cognitive reflection facilitates (Martire et al., 2023) rather than hinders (Kahan, 2013) rational thinking.

Our study demonstrates how logical reasoning can take a backseat when deep-seated beliefs about gender and sexuality are involved. We hope that it raises important questions not only about the nature of reasoning but also about the formation of stereotypes and the mechanisms of social polarization.

Limitations and Future Research

It is important to acknowledge several limitations of the present study. First, there was an imbalance in gender representation within the sample, which may be particularly relevant given the nature of the topic. Additionally, recruiting a larger number of participants to increase statistical power for testing a potential three-way interaction would be valuable, as such an analysis could provide a more precise test of the study's hypotheses.

Another limitation concerns the content of the syllogisms, which was relatively straightforward. This may have limited the sensitivity of the materials in distinguishing individuals with more moderate or implicit forms of sexist beliefs. A promising direction for future work could involve increasing the complexity of syllogisms in line with mental model theory, which may yield more nuanced insights into reasoning patterns. Moreover, since CR can be interpreted as an indicator of participant engagement or attentiveness, incorporating an independent measure of attention could serve as an additional control in future studies.

Taken together, these limitations also suggest multiple fruitful avenues for future empirical research, which could help clarify the nature and boundaries of the effect observed in the present study.

References

Aspernäs, J., Erlandsson, A., & ilsson, A. (2023). Motivated formal reasoning: Ideological belief bias in syllogistic reasoning across diverse political issues. Thinking & Reasoning, 29(1), 43–69. https://doi.org/10.1080/13546783.2022.2038268

Cárdenas, M., Lay, S. L., González, C., Calderón, C., & Alegría, I. (2010). Inventario de sexismo ambivalente: adaptación, validación y relación con variables psicosociales. *Salud & Sociedad, 1(2),* 125-135.

Collins, P. H. (2000). Black feminist thought: Knowledge, consciousness, and the politics of empowerment (2nd ed.). Routledge.

Ellison, L., & Munro, V. E. (2013). Telling tales: Exploring narratives of life and law within the (mock) jury room. *Legal Studies, 33(2),* 201–228.

Evans, J. St. B. T. (2019). Thinking and reasoning: A very short introduction. Oxford University Press.

Frederick, S. (2005). Cognitive reflection and decision making. *Journal of Economic Perspectives, 19(4),* 25–42. https://doi.org/10.1257/089533005775196732

Glick, P., & Fiske, S. T. (1996). The Ambivalent Sexism Inventory: Differentiating hostile and benevolent sexism. *Journal of Personality and Social Psychology, 70(3),* 491-512.

Glick, P., & Fiske, S. T. (2001). An ambivalent alliance: Hostile and benevolent sexism as complementary justifications for gender inequality. *American Psychologist, 56(2),* 109-118.

Glick, P., & Fiske, S. T. (2011). Handbook of prejudice, stereotyping, and discrimination (2nd ed.). Psychology Press.

Hammond, M. D., Milojev, P., Huang, Y., & Sibley, C. G. (2020). Benevolent sexism and hostile sexism across the ages. *Social Psychological and Personality Science, 11(3),* 389-397.

Johnson-Laird, P. N. (2021). Mental models and human reasoning. Cambridge University Press.

Keller, L., Hazelaar, F., Gollwitzer, P. M., & Oettingen, G. (2024). Political ideology and environmentalism impair logical reasoning. *Thinking & Reasoning, 30(1),* 79-108.

Kelly, L., Temkin, J., & Griffiths, S. (2006). Section 41: An evaluation of new legislation limiting sexual history evidence in rape trials. *Home Office Research Study 20/06*. London: Home Office.

Klauer, K. C., Musch, J., & Naumer, B. (2000). On belief bias in syllogistic reasoning. *Psychological Review, 107(4),* 852-884.

Paulhus, D. L. (1991). Measurement and control of response bias. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), Measures of personality and social psychological attitudes (pp. 17–59). Academic Press.

Powell, A. J., Hlavka, H. R., & Mulla, S. (2017). Intersectionality and credibility in child sexual assault trials. *Gender & Society, 31(4),* 457–480.

Sakallı-Uğurlu, N., Yalçın, Z. S., & Glick, P. (2007). Ambivalent sexism, belief in a just world, and empathy as predictors of Turkish students' attitudes toward rape victims. *Sex Roles, 57(11–12),* 889–895. https://doi.org/10.1007/s11199-007-9313-3

Smith, O. (2018). Rape trials in England and Wales: Observing justice and rethinking rape myths. Palgrave Macmillan.

Stanovich, K. E., & West, R. F. (2008). On the relative independence of thinking biases and cognitive ability. *Journal of Personality and Social Psychology, 94(4),* 672-695.

Tartaglia, S., & Rollero, C. (2018). Traditional family and women's condition: The reciprocal perception of Turkish and Italians. *Community Psychology in Global Perspective, 4(1),* 85–95.

Temkin, J., & Krahé, B. (2008). Sexual assault and the justice gap: A question of attitude. Hart Publishing.

Woodworth, R. S., & Sells, S. B. (1935). An atmosphere effect in formal syllogistic reasoning. *Journal of Experimental Psychology, 18(4),* 451–460. https://doi.org/10.1037/h0060520

Boissin, E., Caparos, S., & De Neys, W. (2023). No easy fix for belief bias during syllogistic reasoning?. *Journal of Cognitive Psychology, 35(4),* 401-421.

Hadžiahmetović, N., Opačić, G., Teovanović, P., & Kolenović-Đapo, J. (2024). The desirability bias in personality-related syllogistic reasoning. *Scandinavian Journal of Psychology, 65(3),* 394-402.

Toplak, M. E., West, R. F., & Stanovich, K. E. (2011). The Cognitive Reflection Test as a predictor of performance on heuristics-and-biases tasks. *Memory & cognition, 39(7),* 1275-1289.

Martire, K. A., Robson, S. G., Drew, M., Nicholls, K., & Faasse, K. (2023). Thinking false and slow: Implausible beliefs and the Cognitive Reflection Test. *Psychonomic Bulletin & Review, 30(6),* 2387-2396.

Kahan, D. M. (2013). Ideology, motivated reasoning, and cognitive reflection. *Judgment and Decision making, 8(4),* 407-424.