Methods that make us feel safer? Challenging the effect of sexism confrontation and holding measures of violence against women up to scrutiny

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ABSTRACT

This thesis critically evaluates key claims in sexism and violence against women research, addressing the question: 'Are past research methods and measures painting a distorted picture of sexism and its manifestations that uphold violence against women?' This is timely, considering the need for a more robust evidence base post-replication crisis and rising backlash against gender equality, particularly among younger men. We explore three potentially misleading claims: that challenging sexism mitigates its negative outcomes; that women's fear of crime is generally unfounded; that rape myth acceptance is declining. In Chapter 2, in three experimental studies, we examine whether challenging sexism mitigates its negative outcomes. By correcting methodological flaws in previous studies, such as the lack of a non-sexist control and failure to control for baseline sexism, we found that the supposed benefits of challenging sexism disappear. Chapter 3 examines the gender-fear 'paradox', which suggests that women's fears of victimisation are disproportionate to their risk, demonstrated in crime statistics. The study reveals that women significantly restrict behaviours more than men to avoid victimisation, indicating that crime statistics do not represent the true extent of the risks women face. Moreover, both men and women show low trust in police to report crimes. Chapter 4 challenges the narrative of declining rape myth acceptance. We argue that in using the term 'rape', these measures evoke archetypal rape scripts not representative of most cases. In two experimental studies, we replaced the word 'rape' with behaviour-specific descriptions, finding higher scores of rape myth acceptance and stronger correlations with victim-blaming and perpetrator exoneration, compared with the original scale. These findings suggest that societal attitudes may not be improving as previously thought, highlighting the need for more accurate measurement tools.

This thesis underscores the necessity of refining research methodologies to inform effective policies and counteract the illusion that sexist and rape cultures are diminishing.

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Chapter 1

GLOBAL INTRODUCTION

Advancing gender equality in the UK

In the United Kingdom, there have been seismic changes over the years advancing gender equality through legislative reforms and social movements. Traditional gender roles have evolved, with a record high of women in the workforce in 2019 – 2020 (Francis-Devine & Hutton, 2024) and in the UK, 81% of people disagree that a man staying at home to look after his children is ‘less of a man’ (Ipsos, 2019). Women now hold powerful positions, for example, in government (Buchanan et al., 2024). Thanks to the women of Dagenham’s Ford, employers were forced to pay men and women equally under the Equal Pay Act (1970) preventing employers from giving higher salaries to men for the same work. Following this, The Sex Discrimination Act (1975) made it unlawful for women (or men) to be treated less favourably because of their sex. In 2010, The Equality Act took effect, setting out parameters in which women (and men) can seek judicial support if they are not being treated/paid sufficiently. The Equality Act (Gender Pay Gap Information) Regulations (2017) then came into force, stating that employers with 250+ staff had to report salary figures for their male and female employees. A meta-analysis on hiring decisions highlighted the changing landscape of gender bias in hiring decisions for female-typical, gender balanced and male-typical jobs and showed that discrimination had been eliminated over time: women were hired just as often as men, particularly in areas where women had been under-represented in the past (Schaerer et al., 2023). While women in some professions are still paid less than their male counterparts, this has been a declining trend over time (Office for National Statistics, 2023a), and working towards gender equality in science, medicine, and global health has the potential to lead to substantial health, social, and economic gains (Shannon et al., 2019), painting a picture of huge economic strides for women in the UK.

Sexism and its manifestations

Because of these strides, it is easy to believe that sexism is becoming a thing of the past. However, despite these advancements, research has shown that even when women are more represented in stereotypically male professions, discrimination persists, with managers evaluating male employees as more competent and assigning them a higher salary than their female counterparts (Begeny et al., 2020). Evidence also shows that discrimination and bias against women can be expressed by both men and women (Koch et al., 2015), and those who believed that women were no longer facing discrimination in their profession were actually the key drivers perpetuating it (Begeny et al., 2020).

According to social role theory (Eagly & Wood, 2012), sexism and gender inequality are perpetuated by societal expectations regarding the roles people should fulfil based on their gender. These roles are reinforced both individually - through personal beliefs, attitudes, and behaviours - and societally - through cultural norms and institutional structures. Over time, individuals are continually exposed to contextual factors that shape gender-congruent self-perceptions, which in turn guide behaviour and sustain gender differences at the societal level (Eagly et al., 2000).

To better understand how sexism can present in everyday life, the pivotal work by Glick & Fiske (1996) proposed the ambivalent sexism theory to define and measure men's ambivalent sexism towards women. They developed the Ambivalent Sexism Inventory. This comprises two positively correlating ideological representations of sexism: hostile and benevolent sexism. Hostile sexism is characterised as blatant antipathy and contempt towards women. More insidious, however, is benevolent sexism. This is characterised by chivalry, reinforcing traditional gender roles where the man is the dominant provider and romanticising paternalistic

views where men should cherish and protect women. Because of benevolent sexism's supportive nature, it is less likely to be recognised as sexism (Barreto & Ellemers, 2005) and therefore, less likely to be called out when it occurs. However, benevolent sexism serves to keep women dependent, more willing to take instruction and to serve men (Glick & Fiske, 1996). It was also evidenced in a large-scale study across 19 countries that women endorse benevolent forms of sexism as much as men do (Glick & Fiske, 2000). Further, it was also identified that women display both hostile and benevolent sexism towards men and pe to measure this, Glick & Fiske (1999) developed the ambivalence toward men inventory. It was also revealed that right-wing authoritarianism and social-dominance orientation are antecedents of ambivalent sexism, with gender being far less of a predictor (Roets et al., 2012). This thesis focuses on sexism against women – perpetrated by both men and women on an individual level, and on a societal level, due to public discourse forcing its prevalence into the spotlight in more recent years.

Examples of this are the findings of sexism and misogyny on a societal level in various sectors, with reports revealing sexism in healthcare (Topping, 2021c), industry (for written evidence, see UK Parliament. 2024), education (National Education Union & UK Feminsta, 2017), the entertainment industry (Women and Equalities Committee, 2024), policing (Baroness Casey of Blackstock, 2023; Turner, 2024) and the criminal justice system (The Fawcett Society, 2018; Riverlight, 2024).

Both in the public and private sphere, the COVID-19 pandemic shone a spotlight on existing gender inequalities, dubbed a step back for the advancement of women. More women lost their jobs, or were key workers exposed to heightened risk. Women also experienced more disruption to their work-lives because of the increased responsibility for childcare while schools closed, as well as still taking on the lion's share of domestic responsibilities (Borah Hazarika &

Das, 2021; Carli, 2020; Power, 2020; Sevilla & Smith, 2020). With families being locked down together, there was also a global surge in domestic violence, what the United Nations described as a 'shadow pandemic' (Bhalotra, 2020).

There are a myriad of consequences of sexism for women, for example, predicting job satisfaction and mental health (Manuel et al., 2017; Rubin et al., 2019; Sojo et al., 2016; Szymanski & Feltman, 2015), trauma symptomology (Cherry & Wilcox, 2021), mental health distress associated with anxiety and depression (Hackett et al., 2019), limited opportunities such as in education, employment and leadership roles (Office for National Statistics, 2023a; Off et al., 2022) and the undermining of women's self-esteem (Oswald et al., 2012; Swim et al., 2001). One of the key challenges of sexism is how it maintains violence against women and girls. Of course, it is widely understood that whilst women and girls are disproportionately victims of sexual and domestic violence, men, transgender and gender non-conforming individuals experience these too, encapsulated in the term 'gender-based violence' (Sweeney, 2020). Due to the prevalence of women experiencing sexism and gender-based violence, described as an 'epidemic' and 'national emergency' (National Police Chiefs' Council, 2024), this work focuses on sexism and violence perpetrated against women, without negating other experiences.

The link between sexism and violence

Fraser (2015) argued that benevolent sexist ideologies construct women as 'devoid' of agency, leading to the presumption of consent to sexual activity. Furthermore, sexist attitudes are associated with trivialising or minimising violence against women and girls (Guerrero-Molina et al., 2020; Miglietta & Acquadro Maran, 2017).

A powerful viral infographic created by Jenna Chandra & Cervix (2017) is often cited to illustrate how normalising sexist behaviours and attitudes contributes to a toxic environment of

degradation and assault that supports rape culture. This describes how seemingly mild ‘locker room banter’, sexist jokes and catcalling can normalise rape, sexual assault, victim-blaming and shaming.

This is particularly important given the prevalence of violence against women and girls. In 2021, UN Women and YouGov revealed that a study showed that 97% of 18-24 year old women reported having been sexually harassed (Open Access Government, 2021). 1 in 4 adult women have been raped or sexually assaulted (Office for National Statistics, 2023b). Two women per week are killed by a current or ex-partner (Refuge, 2017).

In recent years, public discourse around the prevalence of violence against women has heightened. In 2017, following numerous sexual abuse allegations against film producer, Harvey Weinstein, the #MeToo movement became viral on social media (Carlsen et al., 2018), closely followed by the #TimesUp movement (Thompson, 2018), bringing to the fore the prevalence of sexism, sexual abuse, sexual harassment and rape that permeates society. In 2019, King’s College and Ipsos revealed that sexual harassment, sexual violence, physical violence, equal pay and domestic abuse are now seen as the top issues facing women worldwide (Ipsos, 2019). With public discourse around women’s safety, it was the kidnapping, rape and murder of Sarah Everard in 2021 by a serving Metropolitan Police Officer that was described as a ‘watershed moment’ in the UK, prompting a national outcry that violence against women and girls was not being taken seriously (Zempi & Smith, 2021). This instigated a UK government response with the release of its Violence Against Women and Girls Strategy (GOV.UK, 2021a). The then UK Prime Minister announced that Sarah’s murder had unleashed a wave of public sentiment, leading the government to implement tougher sentences, stronger protections for victims, and a doubling of the Safer Streets fund (GOV.UK, 2021b).

Backlash towards gender equality

With sexist culture having so many negative consequences for women and girls, it is imperative to understand what works in reducing these pervading sexist attitudes, how these change over time and emerging trends. At times in the UK, these issues appear to be minimised with comparisons to other '*more* sexist' countries. For example, in 2014, the UN special rapporteur on violence against women, Rashida Manjoo, stated that "Britain has a pervading 'boys' club' sexist culture" that led to negative perceptions about women and girls. She added that in the UK there was "a more visible presence of sexist portrayals of women and girls" and a "marketisation of their bodies", which was more pervasive than in any other country (Sherwood, 2014). This was met with enormous criticism, with former Conservative Minister, Edwina Currie, engaging in comparisons with countries "where women cannot drive cars". This was later termed as an "embarrassing national display of defensiveness" (Malik, 2021).

More recently, concerning attitudes appear to be increasing in prevalence, both in the UK and globally, particularly emerging in younger men. Nearly half of Britons (47%) think that equal rights for women have gone 'far enough' – a stark increase from the 29% of Brits who said the same as recently as 2019 (Ipsos, 2024). A UK Ipsos poll for King's College London's Policy Institute (Campbell et al., 2024), revealed 'new' and 'unusual' gender divides emerging in attitudes of younger people on gender equality. Almost a fifth of 16 – 29 year old men (the majority compared to all other age groups) agreed that efforts to support gender equality had 'gone too far' and a fifth 'look up to' social media influencer, Andrew Tate, who self-defined as 'absolutely a misogynist' is, at the time of writing, currently charged with human trafficking, rape and sexually exploiting women, charges which he denies. He has famously talked about hitting and choking women. On the day that the National Police Chiefs' Council released its

report describing how violence against women and girls is now an ‘epidemic’, where 3000 incidents are recorded every day in the UK, Deputy Chief Constable, Maggie Blythe raised the issue of ‘influencers’ like Andrew Tate. This has resulted in policing adapting their response to violence against women and girls to be in line with counter-terrorist responses and drawing on tried and tested counter-terrorism methodologies, in recognition of the risks that young, radicalised men pose against women (Gillett, 2024).

Further, a study of 27 European countries also revealed the ‘backlash’ against gender equality, again emerging from younger men, who felt most threatened by the progression of women’s rights (Off et al., 2022). This reflects in a global survey that victim-blaming attitudes towards violence against women are more common amongst men and younger generations, with 18% of men agreeing that violence against women is often provoked by the victim, and a fifth of men agreeing that women often ‘make up’ or ‘exaggerate’ claims of rape/abuse. Further, 1 in ten men agree that it is a woman’s obligation to have sex with a man, even when she does not feel like it (Ipsos, 2022). It is also worth noting here that there has been somewhat of a backlash to accusations levelled at men in the wake of Sarah Everard’s murder, demonstrated in the hashtag #NotAllMen. This hashtag was subsequently reframed in an act of resistance by women as a tool to demonstrate that those using the hashtag focused on the defence of men, rather than critiquing the dominance of misogynistic behaviour and ignoring the fear of being victims of gender-based violence, rape and murder experienced by women and girls (Jones et al., 2022). In light of the apparent evolution of attitudes towards gender equality, it is an important time to re-evaluate past findings on sexist attitudes, and attitudes toward women who have experienced violence.

Scientific research painting a distorted picture of improved attitudes and women's safety?

Besides being needed because of cultural shifts, re-examining past assumptions is critical in light of scientific reliability concerns raised by the replication crisis (Maxwell et al., 2015). It is therefore crucial to examine how scientific research is contributing to our understanding of the prevalence of sexism and its manifestations in attitudes that uphold violence against women, the impact this has on women, and strategies to reduce its occurrence. The replication crisis in psychology and the social sciences calls scientific findings into question and raises doubts about the reliability of research findings. This was empirically demonstrated by the Open Science Collaboration (2015), who attempted to replicate 100 studies from three psychology journals. They found that only around 36% of the replications produced statistically significant results, compared to 97% in the original studies. This means that results of past research may have been false positives – i.e., showing an effect is present where there is none. Contributing factors to the replication crisis include limited samples (Maxwell et al., 2015), but also a number of poor or questionable research practices, fuelled by a culture of pressure to publish $p < .05$ results supporting authors' hypotheses (Frias-Navarro et al., 2020). For example, p-hacking, where statistical decisions and methodological choices manipulate data to indicate statistically significant results, as well as harking; hypothesising after results are known, and cherry-picking; only reporting statistically significant results and ignoring non-significant findings, all symptomatic of the publication culture (Frias-Navarro et al., 2020). If studies' findings cannot be well-replicated, it becomes harder to trust their conclusions. The replication crisis highlights the need for a more robust evidence base and the importance of rigorous research methods. In the context of sexism, this could mean that some research findings may underestimate the effects of sexism and its consequences. On the other hand, it could be that the effects of sexism may have

been inflated and are not *true* effects. If the underlying research is not reliable, it could lead to showing unreliable effects that in turn, inform ineffective or misguided policies that claim to reduce sexist attitudes, and an illusion that sexist culture and rape culture are becoming ‘a thing of the past’. One of the recommended ways to increase transparency, reduce bias and prevent questionable research practices in psychological research is the preregistration of studies (Hardwicke & Wagenmakers, 2023; Nosek et al., 2018) and having increased, well-powered sample sizes (Frias-Navarro et al., 2020). In response to this, we sought larger, well-powered sample sizes, pre-registered all studies and published data and analyses on the Open Science Framework.

The present work

This thesis examines the broad spectrum of sexist culture and its consequences over three empirical chapters, in which we hold up to scrutiny key assertions in the field of understanding sexism and its manifestations that uphold violence against women. Our global research question, therefore, is ‘Are methods and measures in past research painting a distorted picture of sexism and its manifestations?’

In light of the need for a more robust evidence base following the replication crisis, coupled with the changing landscape as seen in the UK and more globally, we critically examine three claims in the field which could be possibly providing a distorted picture of sexism and its manifestations, both on an individual and societal level, that uphold violence against women: that the negative effects of sexism can be mitigated by challenging it; that women’s safety fears are generally disproportionate to the risks they face, and that people are accepting rape myths less. Firstly, we re-examine the assertion that sexism has a number of negative consequences for women, but that challenging sexism acts as shield against the negative effects of being on the

receiving end of sexist comments (Chaney et al., 2015; Gervais et al., 2010; Helwig, 2022; Hyers, 2007; Swim & Hyers, 1999). There has therefore been a call for more research on the effects of challenging sexism as an intervention (Becker et al., 2014; Connor et al., 2017; Drury & Kaiser, 2014). Challenging sexism to reduce its prevalence has been advocated in campaigns such as that by The Council of Europe: (2000), Plan International (2024) and UK Feminista (2024). In light of the emerging increase in negative attitudes towards gender equality and violence against women and girls demonstrated in UK and global surveys, particular in younger men (Ipsos, 2024; Ipsos, 2022; Off et al., 2022), it is important to understand how sexism affects women on the receiving end of it, and if challenging sexism acts as a buffer for the negative consequences that women experience. In chapter 2, in three experiments, we examine the assertion that challenging sexism could mitigate against negative personal and interpersonal consequences for women; their self-esteem, their value of sexual consent, their justification of gender inequality and their endorsement of rape myths.

Secondly, we aim to challenge the gender-fear paradox in light of reported heightened fears amongst women regarding their safety in the aftermath of the murder of Sarah Everard by a serving Metropolitan police officer (Strick, 2024). Sarah's murder was described as a crossroads, where women's fears turned into fury that not enough is being done to protect women. This saw the 'Reclaim These Streets' UK social justice movement in 2021, which called for more to be done to improve women's safety (Strick, 2021). In response, statistics that purport men to be more at risk were cited to quell women's concerns, as well as evidence that women are worrying less about crimes due to rising gender equality and women's empowerment (Pol & Buil-Gil, 2023). In chapter 3, we call into question the gender-fear paradox by examining if women now have less trust in police in the aftermath of what happened to Sarah and the subsequent findings

of the Casey report that concluded that the Metropolitan Police Service, the UK's largest police force, was 'institutionally misogynistic' (Baroness Casey of Blackstock, 2023). This could explain why women might report crime less and therefore, are not always captured in crime statistics. We also explore how women take actions to protect themselves from becoming victims of crime at a cost to their freedoms, which may mean their victimisation and victimisation risk are not captured in official statistics.

Thirdly, we examine how measures of acceptance of rape myths are increasingly skewed towards very low endorsement (Beshers & DiVita, 2021; Bohner et al., 1999; Gerger et al., 2007; Vandiver & Dupalo, 2013), with decreasing construct validity (McMahon & Farmer, 2011). This can suggest a societal shift of awareness that some myths that were prevalent years ago, such as a husband cannot rape their wives, have 'died out'. However, Gerger et al. (2007) argued that what is more likely is that people are becoming more aware of 'political correctness', as well as rape myths having evolved, which are not necessarily captured in previous measures, rendering them outdated. The focus on measuring rape myth acceptance evolved to capture the shifts in culture, leading to a myriad of updated and revised measures to capture rape myth acceptance that draws on more inclusive, modern, gender-neutral language (Fejervary, 2017; Gerger et al., 2007; Johnson et al., 2023; McMahon & Farmer, 2011; Urban & Porras Pyland, 2022). However, the focus on modernising the language of rape myth acceptance scales negates the issue of specificity of terms such as 'rape', as they do not have universal meaning, even in culturally similar groups (Koss et al., 2007). Koss and colleagues called for updated versions of rape myth acceptance scales that draw on behavioural specificity rather than the use of terms such as 'rape'. Fejervary (2017) responded to this call in their doctoral thesis, which demonstrated that rape myth acceptance scores were higher when replacing the word 'rape' with 'sexual assault', a more

broad term. However, it is important to note here that whilst we agree that ‘rape’ is a term that elicits archetypal rape scripts to which rape myths do not apply and people are unlikely to endorse, by replacing the word ‘rape’ with ‘sexual assault’, this methodology is somewhat flawed. In UK law, whilst both rape and sexual assault are serious offences, they differ in definition and severity – with rape carrying higher punitive measures. Chapter 4, therefore, builds on the work of Fejervary (2017). Here, in two experiments, we examine whether low endorsement of rape myths is symptomatic not just as a result of outdated wording, as suggested with revised and updated versions of the most widely used Illinois Rape Myth Acceptance scale (Payne et al., 1999), but rather, the methodological artefact of the use of the socially undesirable and loaded word ‘rape’.

Across all studies in this thesis, we followed the advice of the scientific reform movement in psychology. Each empirical chapter includes well-powered preregistered quantitative studies (Frias-Navarro et al., 2020) with a minimum of 179 participants per study, and a total of 2,710 participants. We also preregistered all hypotheses, materials and analytical plans (Hardwicke & Wagenmakers, 2023; Nosek et al., 2018) and shared data and data analyses on the Open Science Framework:

https://osf.io/j7zph/?view_only=4ba39ad68b324ac0a48adf1e1468ef6a.

Chapter 2

CHALLENGING SEXISM: DOES CHALLENGING SEXIST COMMENTS EMPOWER WOMEN TO VALUE THEMSELVES AND OTHER WOMEN MORE?

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Abstract

Although sexism manifests in negative outcomes for women, literature suggests that challenging it could act as a buffer. It is claimed that challenging sexism is empowering; that it increases women's self-esteem and restores feelings of control and value. However, it is difficult to determine whether it is actually challenging sexist comments that leads to women viewing themselves more positively or whether women who already regard themselves more positively are more likely to challenge. To disentangle these questions, we conducted three studies that examined whether challenging sexist comments could mitigate the expected negative effect of receiving sexist comments on the value women place on themselves (self-esteem; value of sexual consent) and other women (justification of gender inequality; rape myth acceptance). Further, we sought to demonstrate whether challenging is transformative or whether it was pre-existing sexist attitudes that predicted challenging and the value women place on themselves and other women. In studies 1a, 1b and 2, results showed that challenging sexist comments was associated with higher value of sexual consent, lower justification of gender inequality, and lower rape myth acceptance. However, because receiving sexist comments did not have the expected negative effect on those outcomes, we could not fulfil our plans to test whether challenging was the moderating factor mitigating the effect of sexist comments. Further, when we controlled for pre-existing sexist attitudes, these relationships were null, suggesting that women with low baseline sexism predicted those outcomes, and they were not as a result of challenging per se. In our third study, we provide causal evidence that women already lower in pre-existing sexist attitudes prompted challenge and more positive outcomes in their perceptions of themselves and other women's value. These findings question the assertion that challenging is transformative for women and future work should focus on the long-term goal of reducing sexist attitudes.

Introduction

Sexism is a form of prejudice based on stereotypical beliefs about sex or gender (Dovidio et al., 2008). It functions to maintain patriarchy and gender hierarchies that disadvantage women. In more recent years, a spotlight has been shone on sexist culture and how it manifests in violence against women. The #MeToo, #TimesUp – and more recently in the UK #ReclaimTheseStreets (2021) social movements were sobering wake-up calls, highlighting the prevalence of violence against women and girls as a result of sexist and misogynistic culture. And while often small, everyday acts of sexism might seem innocuous, there are a range of negative personal consequences, such as detriment to self-esteem (Swim et al., 2001) and propensity to self-blame following sexual assault (Camp, 2017) – as well as interpersonal consequences in how women are perceived, such as greater acceptance of systemic gender inequalities (Jost & Kay, 2005) and higher propensity to blame victims of rape and sexual assault (Chapleau et al., 2007). With sexist culture being at the root of so many negative and dangerous outcomes for women, reducing the pervasiveness of sexist attitudes is a global emergency and in line with United Nations Development Goals. (United Nations 2024).

While it is clear that the onus is on perpetrators of sexism to address their actions and behaviour in order to reduce sexist culture, there is research to suggest that when women challenge sexism, they perceive themselves more positively. For example, challenging has been found to increase competence, self-esteem, sense of empowerment, and feelings of restored control (Foster, 2013; Foster, 2015; Foster et al., 2021; Gervais et al., 2010; Hyers, 2007). Furthermore, challenging prejudice possibly reduces stereotype use in perpetrators (Czopp et al., 2006) and observers (Rasinski & Czopp, 2010). Such promising findings have led to calls for further research on challenging sexism as an intervention for reducing sexist culture (Becker et al., 2014; Connor et

al., 2017; Drury & Kaiser, 2014). It has also been found that women who hold attitudes more supportive of gender equality are more likely to identify sexism in sexist comments and may be more likely to take self-protective actions by challenging it (Crocker & Major, 1989; Crocker et al., 1991; Landrine & Klonoff, 1997), which may mean they are more likely to benefit from the positive personal outcomes associated with challenging. Certainly, these extant findings on the personal benefits of challenging sexism emphasise the need for more work on replicating personal benefits and extending the research to interpersonal benefits; not just how women see themselves, but also, how they perceive other women in the gender status quo. Therefore, this research aims to evaluate the effects of challenging sexism after exposure to sexist comments on a range of personal and interpersonal outcomes that encapsulate the value women place on themselves and other women in society.

The personal and interpersonal negative outcomes of sexism for women

Although everyday acts of sexism might appear harmless, evidence demonstrates that such behaviours are linked to various negative impacts on how women perceive themselves, referred to here as ‘personal outcomes’. For example, exposure to everyday acts of sexism recorded in daily diaries affected women’s wellbeing and their self-esteem (Swim et al., 2001), as well as inducing anxiety (Spencer et al., 1999), poorer performance on cognitive tasks (Dardenne et al., 2007) and decreased self-efficacy (when comments were perpetrated by a man, Jones et al., 2014). Women who feel that they have been discriminated against on the basis of their gender have a higher prevalence of depression, increased psychological distress, poorer mental functioning, life satisfaction and self-rated health (Hackett et al., 2019). There is also evidence that sexist attitudes may relate to attitudes towards sexual consent, for example, holding negative attitudes towards women predicted greater rape myth acceptance, which affects how

individuals attribute blame to rape and sexual assault survivors (Baugher et al., 2010). Further, holding sexist attitudes is related to the propensity to self-blame following sexual assault (Camp, 2017) as well as related to reducing rape to ‘bad sex’ (Peterson & Muehlenhard, 2004), which is associated with hesitancy in reporting to police (Lorenz et al., 2019).

Exposure to sexism might also shape how women view other women, referred to as ‘interpersonal outcomes’. For example, reading sexist comments online strategically aimed at reaffirming traditional gendered norms and stereotypes, potentially further reinforces the prevalence of gender inequalities (Felmlee et al., 2020). Research also indicates that exposure to sexist stereotypes reinforces negative attitudes towards women and prevents advances in their social status (Heilman, 2001; Romero-Sánchez et al., 2010; Tiggemann & McGill, 2004).

Gender stereotypes that form the basis of sexism (e.g., women should be ladylike) are positively correlated with increased justification and acceptance of systemic gender inequalities in society (Jost & Kay, 2005). Research conducted across 51 countries showed that holding sexist attitudes relates to acceptance of violence towards women (Herrero et al., 2017). Likewise, people with more sexist attitudes are more likely to blame women who are victims of rape and sexual assault and to exonerate the perpetrator – those who score high on sexism are more likely to endorse ‘rape myths’, such as the belief that women who report being raped might have played a part in what happened, or that women lie about being raped to get back at men (Chapleau et al., 2007). Similarly, sexist attitudes attribute blame to women for ‘inviting rape’ perpetuating the myth that not just anyone can be a victim of rape – only those that ‘bring it on themselves’ (Lonsway & Fitzgerald, 1994). This makes it difficult for victims to speak out, with less than 1 in 6 women in England and Wales who have been raped going on to report it to police (Office for National Statistics, 2020).

The extent of these consequences of receiving a sexist comment might depend on the level of sexism that women themselves hold; if women reject sexism, the effects of experiencing sexism themselves may be more severe than in women who endorse sexism – which is not as unusual as one might expect. A large-scale study across 19 countries found that women endorse some forms of sexism as much as men (Glick & Fiske, 1996). An example of this is that women are prepared to incur the costs of being 'undermined in competence, ambition and independence' for the security and protection that a chivalrous male partner will offer her (Cross & Overall, 2018). Furthermore, women are more likely to endorse benevolent sexism when thinking about traditional women (e.g., housewives) and hostile sexism when they are thinking about non-traditional women (e.g., feminists who fight against conforming to gender roles; career women). This endorsement of sexism sustains the societal disadvantages of women (Glick & Fiske, 1996; Jost & Kay, 2005) as well as justifies violence against women (Herrero et al., 2017).

Can challenging mitigate the consequences of sexist comments?

There are perceived costs of challenging sexism that could make it seem 'not worth it', in an attempt to avoid being labelled as "cold" "lacking a sense of humour", and "oversensitive" (Becker et al., 2011). Likewise, women tend to avoid challenging as they are concerned that they will seem impolite and aggressive (Swim & Hyers, 1999; Woodzicka & LaFrance, 2001) and can even adopt a strategy of silence in order to avoid further mistreatment or escalation (Ortiz, 2023). However, there has been a drive to motivate people to challenge sexism when they encounter it as a way to reduce its prevalence (Becker et al., 2014; Drury & Kaiser, 2014; Mallett & Wagner, 2011; The Council of Europe, 2000). Challenging prejudice (in terms of racism) has been found to reduce the likelihood that perpetrators and observers will use negative stereotypes again in the future (Czopp et al., 2006; Rasinski & Czopp, 2010), thus reducing the prevalence of prejudice

in society as a whole. Furthermore, there is even evidence that challenging sexist stereotypes motivates perpetrators to reduce subsequent racial stereotypes, having a far-reaching effect over different stigmatised groups (Chaney et al., 2020).

Challenging sexism might also have personal benefit for the challengers. For example, challenging the perpetrator of a sexist comment in a staged online interaction was positively correlated with increased competence, self-esteem and empowerment for women relative to people who do not challenge (Gervais et al., 2010). However, this study did not have a non-sexist control condition to compare baseline measures, hence being correlational in nature, and difficult to ascertain whether the challenge itself influenced competence, self-esteem and empowerment, or whether these are traits of people that challenge. Furthermore, the ‘challenge’ was not in the form of verbally calling out the perpetrator in the heat of the moment, rather, participants rated the comment’s appropriateness. The sample were also university students with a maximum age of 29 - research shows that younger women are more likely to subscribe to feminist views (Plan International, 2017).

Other benefits of challenging sexism include a feeling of restored control (Hyers, 2007) and women also report less negative affect and greater well-being when they form part of a collective that reject sexist ideology on the internet (Foster, 2013; Foster, 2015; Foster et al., 2021). However, measuring the effects of challenging sexism has been somewhat mixed in findings; Swim & Hyers (1999) found no detrimental effect of sexist comments on self-esteem, nor any positive effect found when women challenged these sexist comments (relative to a non-sexist control condition), and it was also acknowledged that women who are already committed to gender activism predicted the propensity to challenge sexist comments. Here, also, there was a similar limitation as with Gervais et al’s (2010) study described above in that the opportunity to

'challenge' was more of an assessment of the comment than direct confrontation of the perpetrator.

Present research

Based on the current literature, three options are possible regarding the role of challenging sexism. First, it may be that challenging has an effect of its own on women's self-perception and their perception of others, that is additive to the effect of sexism. Second, challenging might have a moderating effect that reduces the effect of sexism. Finally, it is still possible that challenging does not cause changes in women's self-perception and perception of others - rather, being a challenger may relate to specific psychological characteristics. Further research is thus needed to reconcile these possibilities with appropriate experimental and control conditions, more diverse samples, controlling for baseline sexist attitudes and avoiding the pressure of social responsibility by providing a private challenge opportunity as opposed to a public one.

Study 1a

In Study 1a, women received either a series of sexist comments or non-sexist comments (control condition) followed by an opportunity to challenge, before measuring personal and interpersonal outcomes. We compared the responses of women who challenged the sexist comments, those who did not challenge the sexist comments and control participants. This study extends beyond extant research by including a control condition and by broadening the range of variables that may be affected by exposure to sexist comments as well as by challenging them. Past work mostly focused on personal outcomes for women (e.g., self-esteem, competence) but here, in addition to examining personal outcomes, we also examine effects on two variables

related to how women perceive other women in the gender status quo: the tendency to justify systemic gender inequality and acceptance of rape myths.

We hypothesised that:

1) Women exposed to sexist comments during a reasoning task will perform less well in that task and report lower self-esteem, devalued sexual consent, and express greater justification for systemic gender inequality and rape myth acceptance compared to women who receive non-sexist comments.
2) Women who challenge the sexist comments will have higher self-esteem, less justification for systematic gender inequality, place higher value on sexual consent and lower rape myth acceptance, compared to those who do not challenge the sexist comments and we plan to explore how challengers and non-challengers faired relative to control participants.

We also measure sexist attitude, as we expect that this will be negatively related to participants' propensity to challenge the sexist comments, and that women's sexist attitudes will be positively related to justification of systemic gender inequality and rape myth acceptance / negatively related to self-esteem and value placed on sexual consent.

This study was preregistered on As Predicted: https://aspredicted.org/HQV_D92.

Method

Participants

541 participants took part in the study. While we filtered participants to those who registered on the Prolific platform as female, we removed 13 cases where participants did not identify as women, but we retained data from two participants who identified as non-binary and were given the choice to continue given that the study was aimed at women. The analytical

sample therefore included 529 participants which allows capture of a medium effect size of the sexism manipulation on the dependent variables (Cohen's d = .056, alpha = .05 and power = .90). Participants were between the ages of 18 and 82 (M_{age}= 34, *SD* 13.12). This comprised 34% white British, 48% white other, 2% black British, 6% black other, 3.2% Asian British, 5% Asian other and 3.2% other ethnicity.

Design

Participants were randomly allocated to the sexist or non-sexist conditions at a ratio of 77:23 respectively so that we could compare the control participants (23%) to two roughly equivalent groups within the sexist condition: those who challenged and those who did not. We decided on this ratio as we expected around half of participants to challenge the sexist comments, and we were most interested in comparing those that did challenge and those that did not within condition. Such a ratio and expected confrontation rates would provide a sample of 416 participants split in two groups of 208, giving a 90% power to detect a small-medium effect of confrontation (vs. no confrontation) on the outcome variables, d = 0.29.

Materials and procedure

After the consent stage, participants completed a measure of sexism, followed by a cognitive test that featured the sexism manipulation (sexist comment vs. control). Then participants completed measures of self-esteem, justification of gender inequality, value placed on sexual consent and rape myth acceptance (randomly presented to participants) before completing some sociodemographic questions and being debriefed.

Participants were recruited to the study via the Prolific platform and were compensated £2.00 for a median completion time of 16 minutes (an average of £8.00 per hour). They were unaware that the study was aimed at only women. Participants were told that they were taking

part in a study investigating how they see themselves and others and how it impacts performance on a cognitive task to avoid revealing the full nature of the study. Following informed consent, participants were asked for their age and gender. If participants identified as a man, non-binary or other, they received a notification that the study was aimed at those that identified as women, with the option to either opt out or continue for inclusivity (but data of those who identified as a man were filtered out for the analyses). Next, participants were 'introduced' to a male character (John), who portrayed himself as the study lead, via audio instructions recorded for each of the blocks of the study. This was to give participants the perception that subsequent comments were made by a man, in light of past research finding effects on decreased self-efficacy only when sexism was perpetrated by men as opposed to other women (Jones et al., 2014).

Sexist attitudes All participants completed the Ambivalent Sexism Inventory, (Glick & Fiske, 1996), comprising 22 items with two subscales of coexisting ideologies: Hostile Sexism (e.g., "Women seek to gain power by getting control over men" and Benevolent Sexism (e.g., "Women should be cherished and protected by men", see appendix A, α = .88). Participants rated their agreement with the statements using a 6-point scale ranging from 0: *disagree strongly* - 5: *agree strongly*. We created a sexist attitude index using each participant's average score.

Verbal Cognitive reflection test. The virtual research assistant 'John' then introduced the verbal reasoning task, which was 6 items taken from the verbal Cognitive Reflection Test (Sirota & Juanchich, 2018), hereon referred to as the vCRT. To avoid the confounding effects of having difficulty with the questions on self-esteem, we added four multiple choice responses to each question to simplify the task (see appendix B). Correct answers were summed to give each participant a performance score. The average performance for this task was 3.40 (*SD* = 1.85).

Sexism manipulation. The sexist (or control) comments embedded within the verbal Cognitive Reflection Test were either sexist comments or control comments (see table 1). We chose a series of sexist comments that can be characterised as patronising and infantilising, similar to those used in past research (Lamarche et al., 2020). Although these kinds of comments do not fall under the hostile categorisation of sexism, they are still undermining women's sense of competence and autonomy regardless of their alleged 'benevolence'. These comments were pretested on a sample of 109 women who rated sexist vs. non-sexist comments. The pretest confirmed that the sexist comments were more undermining, more sexist and less supportive than the control comments. Full details of the development of these sexist comments and the pretest are available in supplementary materials (SM1).

Table 1*: Sexist comments vs. non-sexist comments embedded in the vCRT*

	Non-sexist version	**Sexist version**
Introduction comment	Participants tend to find verbal reasoning tasks quite tricky, so to assist you, I have included multiple choices, which should help.	**Women** tend to find verbal reasoning tasks quite tricky, so to assist you, I have included multiple choices, which should help.
Interim comment A	Keep going! Try to stay focused. **Participants** can let their emotion get in the way.	Keep going! Try to stay focused. **Girls** can let their emotion get in the way.

Interim comment B	Only three more to go!	Only three more to go **sweetie**!
Concluding comment	You're all done! Good work, **participants** don't usually do well on that task!	You're all done! Good work, **girls** don't usually do well on that task!

Challenge opportunity. After completing the vCRT, participants were provided with an opportunity to leave feedback on the instructions that 'John' gave them throughout the task, which provided participants with the chance to challenge the sexist comments in their own words. This was presented as follows:

"Hi, John here. Thank you for completing the task. Do you have any comments on the instructions given to you throughout this task? If you do not have any comments for me, please state 'none' in the box."

Comments were coded as: 0: Unclear, 1: Positive reaction, 2: Confusion, 3: Respond with joke/sarcasm, 4: Request clarification, 5: Express negative feeling, 6: Points out sexism, 7: Explanatory challenge, 8: Direct challenge. These were given superordinate codes for 'did not challenge' (0, 1) and 'challenged' (2-8).

Following the challenge opportunity, all participants completed four measures encapsulating their perceived value of themselves and other women - or what we refer to as

personal and interpersonal outcomes, which were presented on separate pages and in a randomised order:

Self-esteem The Rosenberg Self-Esteem Scale, (Rosenberg, 1965), α = .85, This is a 10 item, 4-point Likert scale, scoring from 0: *Strongly disagree* – 3: *Strongly agree* (e.g., I feel that I have a number of good qualities, see appendix C). We created a self-esteem index using each participant's mean score.

Value placed on sexual consent The scale measured how much value women placed on sexual consent. We used the 'positive attitude toward establishing consent' subsection from the Sexual Consent Scale (revised) - Subscale 2, (Humphreys & Brousseau, 2010). This consisted of 11 items, with a 7-point Likert scale ranging from 0: *Strongly disagree* – 6: *Strongly agree* (e.g., I feel it is the responsibility of both partners to make sure sexual consent is established before sexual activity begins, see appendix D, α = .91). We computed a value of sexual consent index using each participant's mean score.

Justification of gender inequality (JGI) The Gender-specific System Justification Scale (Jost & Kay, 2005 adapted from Jost & Banaji, 1994), consisted of 8 items scored on a 7-point Likert scale, 1: *strongly disagree* – 7: *strongly agree* (e.g., Most policies relating to gender and the sexual division of labour serve the greater good, see appendix E, α = .71). We created a gender-specific system justification index using each participant's mean score.

Rape myth acceptance We used the Illinois Rape Myth Acceptance Scale short-form (Payne et al., 1999), which comprises 20 items, which we developed into a 5-point Likert scale ranging from 1: *Strongly disagree* - 5: *Strongly agree* (e.g., If a woman is raped while she is drunk, she is

at least somewhat responsible for letting things get out of control, see appendix F, α = .93). We created a rape myth acceptance index using each participant's mean score.

Before answering the sociodemographic questions, all participants had their answers from the challenge opportunity reiterated back to them and they were asked whether they aimed to challenge 'John'. Participants could select from the following three options: *'I tried to express my negative impression to challenge the person running the study'; 'I tried to express my positive impression'* and *'I did not have any particular opinion'.*

We used the coded participant challenges in our analyses but evaluated the validity of these responses with self-reported intention. The consistency between self-report and research assistant coding was good, indicating that the intention of the participants was explicit in their statements (Cohen's kappa .73).

Results

Effect of exposure to sexist comments

We used a MANOVA to test the effect of exposure to sexist comments (exposure vs. control) on personal and interpersonal consequences for women. In contrast with our expectation, we did not find evidence that exposure to sexist comments (vs. control) had an effect on performance in the verbal reasoning task, self-esteem, value of sexual consent justification of gender inequality, or rape myth acceptance, respectively, $F(1,527) = 0.01$, $p = .945$, $\eta_p^2 < .001$; $F(1,527) = 1.30$, $p = .254$, $\eta_p^2 = .002$; $F(1,527) = 0.54$, $p = .463$, $\eta_p^2 = .001$; $F(1,527) = 1.57$, $p = .210$, $\eta_p^2 = .003$; $F(1,527) = 0.04$, $p = .952$, $\eta_p^2 = <.001$.

Link between challenging sexist comments and women's value of self and other women

While exposure to sexism did not have the expected effect on women's perceptions of themselves and other women, many did spot the sexism in the comments and reacted to it. In the sexist condition (n = 401), 40% of participants challenged the sexist comments (e.g., "Do NOT stereotype women like that" and "[the] comments were patronising and sexist towards women"). To test the link between challenging sexist comments and how women perceive themselves and other women, we conducted a MANOVA comparing women who chose to challenge sexist comments, women who chose not to challenge, and women in the control condition, who were not exposed to any sexist comments, and included the four outcome variables as dependent variables [1]. The results globally support the hypothesis that challenging sexism was related to women's perception of themselves and other women (see Figure 1/Table 2). Women who did not challenge the sexist comments actually reported a higher level of self-esteem, compared with those that did challenge the sexist comments, who reported similar levels of self-esteem to women in the control condition.

[1]. The preregistered analyses included first a comparison of the challengers and non-challengers in the sexist condition only, followed by a second ANOVA testing how those two groups related to the control condition. For completeness, we conducted an ANOVA that compared the challenge vs. no challenge in the sexist condition and included the non-sexist control condition. An ANOVA comparing challenge vs.no challenge in the sexist condition only can be found in SM3.

Figure 1: Mean scores of personal/interpersonal outcomes for women as a function of challenging compared to control condition

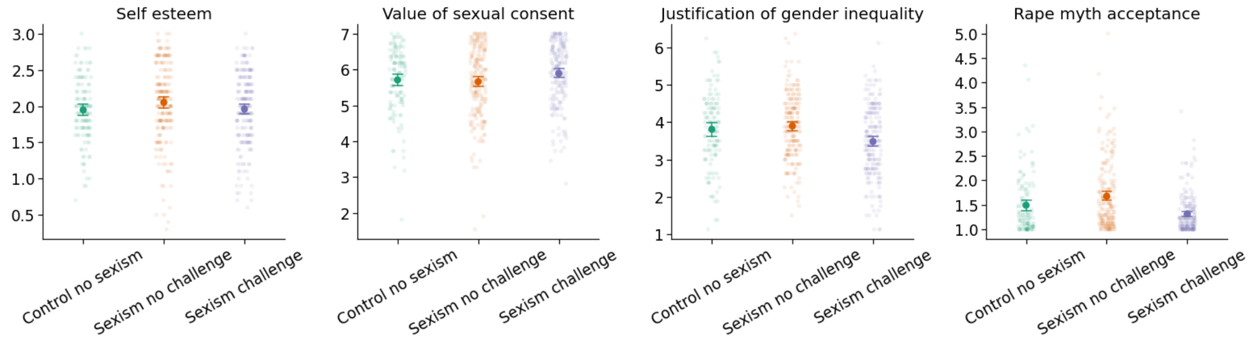

Table 2*: Mean (SD) of personal/interpersonal outcomes for women as a function of their response to sexism compared to non-sexist control condition,* N = 529

	Sexism overall	Sexism challenged (*n*=202)	Sexism no challenge (*n* = 199)	Control condition (*n* = 128)	F(2, 526)	*p*	η_p^2
Personal							
Self-esteem	1.99(0.51)	1.96 (0.50)	2.05 (.55)	1.95 (.45)	2.28	.103	.009
Value of sexual consent	5.76 (0.94)	5.89 (0.87)	5.66 (1.00)	5.71 (.93)	6.33**	.002	.023
Interpersonal							

JGI	3.71 (0.96)	3.48 (0.96)	3.90 (.87)	3.81 (1.01)	10.66***	<.001	.039
Rape myth acceptance	1.49 (0.61)	1.32 (0.39)	1.68 (.69)	1.49 (.61)	19.81***	<.001	.070

Note: Asterisks represent significance level - ***: *p < .001, **: p ≤ 0.01, *: p ≤ 0.05.*

We tested the pairwise comparisons between challenge vs. no challenge, challenge vs. control and no challenge vs. control. As shown in Table 3, women who did challenge the sexist comments had fairly similar levels of self-esteem to those in the control condition, and contradictory to our expectations, women that challenged the sexist comment scored slightly lower for self-esteem than in the no challenge or control groups, though this was not statistically significant. As hypothesised, those that challenged had statistically significantly lower levels of justification for systemic gender inequality, more value on sexual consent and less rape myth acceptance. Interestingly, there was no statistically significant effect of challenging vs. control on perception of self (self-esteem and value of sexual consent), but on challenging was significantly linked to how women perceive other women (justification of gender inequality and rape myth acceptance) (see table 3).

Table 3*: Pairwise comparisons for the effect of challenging sexist comments on personal/interpersonal outcomes for women*

	Challenge vs. no challenge			Challenge vs. control			No challenge vs. control		
	Mdiff	CI	*P*	*Mdiff*	*CI*	*P*	*Mdiff*	*CI*	*P*
Personal									

Self-esteem	-.09	-.21, .03	.169	.01	-.12, -.15	.970	.10	-.03, .24	.162
Value of sexual consent	.23	.01, .45	.037*	.18	-.06, .43	.188	-.05	-.30, .20	.901
Interpersonal									
JGI	-.42	-.64, -.20	<.001***	-.33	-.58, -.08	.006**	.09	-.16, .34	.686
Rape myth acceptance	-.36	- 49, -.22	< .001***	-.18	-.33, -.02	.019*	.19	-.03, .34	.013*

Note: Asterisks represent significance level - ***: $p < .001$, **: $p \leq 0.01$, *: $p \leq 0.05$.

The effect of challenging (vs. no challenging) could have been partially explained by people's sexist attitude. A logistic regression confirmed that sexist attitude was indeed statistically significantly associated with the propensity to challenge sexism, with women scoring higher in sexist attitude challenging less often, χ^2 (1) = 45.02 $p < .001$, Cox & Snell $R^2 = .106$, $\beta = 1.16$, Wald (1) = 39.20, $p <.001$. Sexist attitude was also positively correlated with self-esteem, r = .17, $p < .001$, justification for systemic gender inequality, $r = .49$, $p < .001$ and rape myth acceptance, $r = .63$, $p < .001$, and negatively correlated with value placed on sexual consent, r = -29, $p < .001$.

To evaluate whether sexist attitude could explain the link between challenging and women's attitudes following exposure to a sexist comment, we ran a MANCOVA to control for sexist attitudes in our model, which revealed no effect on all of our dependent variables: self-esteem F (3, 525) = 2.65, $p = .348$, $\eta_p^2 = .004$, and value of sexual consent, support for systemic gender inequality, and rape myth acceptance fell out of significance, F (3, 525) = 1.07, $p = .899$,

$\eta_p^2 < .001$, $F(3,525) = 0.45$, $p = .635$, $\eta_p^2 = 002$, and $F(3,525) = 1.66$, $p = .191$, $\eta_p^2 = .006$, respectively.

The results indicate that while we observe some differences between those who challenged sexist comments and those who did not, the differences were mostly explained by participants' initial level of sexism. Furthermore, unexpectedly, not challenging was associated with greater self-esteem, even after we controlled for baseline sexism levels. This might be the case because the warm undertone of the sexist comments could have boosted self-esteem in women who were unbothered by the sexist nature of the comments (and hence did not challenge). Alternatively, those with higher self-esteem might not have felt the need to address the sexist comments.

Another unexpected result was the null effect of the sexist comments on all dependent variables, which does not support previous findings in the literature. This might be explained by the methodological set-up: the presence of the sexism scale at the onset of the study may have forewarned participants about the topic under investigation and made the subsequent sexist comments appear less genuine. To evaluate this possibility, we extended Study 1 by inviting women from the control condition (and for whom we had already assessed sexist attitude levels) to take part in a new study four months later, where they were exposed to the sexist comments without the sexist attitude measures.

Study 1b

This study follows on from study 1a by re-testing participants of the control condition in the sexist condition, without the sexism measure at the onset of the study. We did this to avoid forewarning participants about the goal of the study with the sexism measure placed before the

sexist comments – while still having the baseline measure of sexism from time 1. The design left enough time between the two experimental conditions for participants not to remember their previous answers and give the possibility to control for initial sexist attitudes.

We therefore had the same hypotheses in study 1a, except that the expected effect of the sexist comment is now considered with participants being tested in the control condition at time 1 (T1), and in the sexist condition at time 2 (T2).

1) In the sexist comments condition at T2, women will perform less well in the reasoning task and report lower self-esteem, devalued sexual consent, and express greater justification for systemic gender inequality and rape myth acceptance, compared to when they received non-sexist comments previously at T1.
2) We expect that women who challenge the sexist comments will have higher self-esteem, less justification for systematic gender inequality, place higher value on sexual consent and lower rape myth acceptance, compared to those who do not challenge the sexist comments.

Sexist attitudes measured at T1 will be negatively related to participants' propensity to challenge the sexist comments, and sexist attitudes will be positively related to justification of systemic gender inequality and rape myth acceptance / negatively related to self-esteem and value placed on sexual consent.

This study was preregistered on As Predicted: https://aspredicted.org/Q3C_33T.

Method

Participants

The study was advertised to the 128 participants that took part in the control condition in

study 1a four months prior on the Prolific platform for one week. From 98 participants who had first clicked to complete the study, 91 did so fully, leaving an analytical sample of 91 female participants aged 18-72 years, M_{age} = 36.30, *SD* = 13.98. We conducted a sensitivity analysis to capture a small to medium effect size of challenging on dependent variables *F* = 0.20, alpha = .05 and power = 0.90). Ethnic origin of participants was 33% White British, 47% White other, 7% other ethnic background, 4% Asian other, 3% Asian British, 4% Black other and 1% Black British.

Design, Materials and Procedure

This was a one-way repeated-measures design (sexist manipulation: time 1 – no sexism / time 2 - sexism), though as before, we treat challenge response (challenged comments vs. did not challenge comments) as an independent variable in our analyses. Participants were paid £1.60 to take part, with an average completion time of 12.38 minutes, therefore participants were paid an average of £ 7.75 p/h.

The retest study was exactly the same as the sexist condition of Study 1a, except that participants did not answer the Ambivalent Sexism Inventory at the onset of the study.

Results

The effects of exposure to sexism

We hypothesised that being exposed to sexist comments would result in poorer performance in the vCRT, lower self-esteem, higher justification of gender inequality, devalued sexual consent and higher rape myth acceptance. We conducted a one-way repeated-measures MANOVA to examine the effect of exposure to sexism (T1 No-sexism T2 Sexism) on vCRT performance, self-esteem, justification of gender inequality and rape myth acceptance. Contrary to our expectations and consistent with results of Study 1a, being on the receiving end of sexism

had no effect on verbal reasoning performance, self-esteem, value of sexual consent and rape myth acceptance (see table 4). The sexist manipulation only had a statistically significant effect on the justification for gender inequality, but in the opposite direction than expected.

Table 4*: Mean (SD) for vCRT performance, self-esteem, justification of gender inequality, value of sexual consent and rape myth acceptance as a function of exposure to sexism (Time 1: non-sexist, time 2: sexist) N=91 (RMA = N=82)*

	Control (T1)	*Sexist (T2)*	*F*	*P*	η_p^2
vCRT (*df* 1, 90)	3.31 (1.81)	3.62 (1.91)	2.31	.132	.025
Personal					
Self-esteem (*df* 1, 90)	1.92 (0.46)	1.98 (0.46)	2.48	.119	.027
Value of sexual consent (*df* 1, 90)	5.75 (0.95)	5.84 (0.91)	2.16	.145	.023
Interpersonal					
JGI (*df* 1, 90)	3.77 (1.04)	3.59 (0.99)	6.95*	.010	.072
Rape myth acceptance (*df 1, 81)*	1.43 (0.48)	1.41 (0.50)	0.32	.574	.004

Note 1: 91 participants were re-tested, however, nine chose not to complete the RMA scale, in which case, N=82 for RMA is reported in the above MANOVA.

Note 2: Asterisks represent significance level - ***: $p < .001$, **: $p \leq 0.01$, *: $p \leq 0.05$.

The effects of challenging sexism

Despite the sexist comments not having the expected effect on our outcome measures, we then tested the effect of challenging sexism (at T2). As before, 40% challenged. Challenging sexism at T2, as expected, had a statistically significant relationship with value on sexual consent, justification of gender inequality and rape myth acceptance, however, we did not observe a statistically significant relationship between challenging and self-esteem (see table 5).

Table 5*: Mean (SD) of the personal and interpersonal perceptions of women as a function of their response to sexism (challenge or no challenge) at T2, N= 91 (N = 82 for RMA).*

	Challenged n=38	*No challenge* n=53	F (1, 89)	P	η_p^2
Personal					
Self-esteem	1.91 (0.54)	2.03 (0.44)	1.31	.255	.015
Value of sexual consent	6.08 (0.96)	5.67 (0.83)	4.80*	.031	.051
Interpersonal					
JGI	3.18 (0.97)	3.88 (0.90)	12.50***	<.001	.123
Rape myth acceptance	1.31 (0.33)	1.50 (0.53)	8.92**	.004	.100

Note: Asterisks represent significance level - ***: $p < .001$, **: $p \le 0.01$, *: $p \le 0.05$.

As with study 1a, the effect of challenging could be partially explained by people's sexist attitudes. Indeed, a logistic regression confirmed that sexist attitude (measured at T1) was

statistically significantly associated with the propensity to challenge sexism at T2, with women scoring higher in sexist attitude challenging less often, χ^2 (1) = 15.41 p < .001, Cox & Snell R^2 = .156, β = -.333, Wald (1) = 12.09, p <.001. Sexist attitudes were also positively correlated with justification for systemic gender inequality, r = .60 , p < .001, negatively correlated with value placed on sexual consent, r = -45, p < .001 and positively correlated with rape myth acceptance, r = .54, p < .001 – but not correlated with self-esteem r = .17, p = .107.

Data from studies 1a and 1b do not support the expectation that receiving sexist comments damages women's personal and interpersonal perceptions of themselves and how they perceive other women in society. However, we found correlational evidence of the link between sexist attitudes and the value women place on sexual consent, their justification for gender inequality, and rape myth acceptance. Finally, when we compared women who challenged sexism and those who did not, we found expected differences in value placed on sexual consent, justification for gender inequality and rape myth acceptance.

Study 2

Study 2 retests hypotheses 1 and 2 from Study 1a, where we compared women's value of themselves and other women, depending on whether they received sexist or non-sexist comments, and whether they chose to challenge sexist comments or not. However, we observed feedback in study 1a that indicated that the presence of the Ambivalent Sexism Inventory at the onset signposted the goal of the study. To mitigate this, study 2 retested participants 4 months later without the presence of the Ambivalent Sexism Inventory, though on a smaller sample size due to retesting those from the control condition of study 1a. We therefore wanted to conduct study 2 without the Ambivalent Sexism Inventory that measures sexist attitudes to avoid

signposting the goal of the study, before exposing participants to sexist comments, with a larger sample to increase statistical power and our ability to detect an effect of exposure to sexism and differences related to challenging.

Therefore, we once again tested these hypotheses:

H1. Women exposed to sexist comments embedded in the verbal reasoning task prior to completing outcome measures will perform less well in the task, report lower self-esteem, devalued sexual consent, and express greater justification of gender inequality and rape myth acceptance, compared to participants who receive the non-sexist comments in the control condition.

H2. We expect that women who challenge the sexist comments will have higher self-esteem, less justification for systematic gender inequality, place higher value on sexual consent and lower rape myth acceptance, compared to those who do not challenge the sexist comments.

We preregistered this study on As Predicted: https://aspredicted.org/WJZ_XFN

Method

Participants

The study was advertised using a snowball sampling method on social media over a period of 4 weeks. From 744 who clicked on the survey link, 383 were removed for < 80% completion. Six stated non-consent, and 28 participants were removed for not meeting the gender requirements for this study. This left a total sample of 327, to capture a medium effect size of challenging on dependant variables $F = 0.04$, alpha = .05 and power = 0.90. 325 participants identified as women, with one participant identifying as non-binary and one stated they would

prefer not to disclose their gender but opted to continue with the study. Participants were aged 18 – 71, *M* = 28, SD = 11.98. The ethnic make-up of this sample was 33% white other, 32% white British, 12% black British, 7% Asian/other, 6% black/other, 6% other ethnic background, 2% Asian British and 2% mixed British/mixed combined.

Design, Materials & Procedure

This replicated Study 1a exactly, except that we did not include the Ambivalent Sexism Inventory. The allocation of participants to the experimental and control conditions was again 77:23.

Results

The effect of exposure to sexism

Once again, we used a MANOVA to test the effect of exposure to sexism vs. no sexism on women's value of themselves and other women. The MANOVA revealed that there was no statistically significant effect of exposure to sexism on any of our dependent variables (see table 6).

Table 6*: Personal and interpersonal consequences for women as a function of exposure to sexist vs. non-sexist comments*

	Control	*Sexist*	*F*	*P*	η_p^2
vCRT (*df* 1, 324)	3.79(1.86)	3.59 (1.69)	0.65	.420	.002
Personal					

Self-esteem *(df* 1, 324)	1.92 (0.43)	1.91 (0.47)	0.002	.960	>.001
Value of sexual consent *(df* 1, 324)	5.84 (0.95)	5.92 (0.85)	0.38	.540	.001
Interpersonal					
JGI (*df* 1, 324)	3.32 (0.86)	3.28 (0.89)	0.08	.777	>.001
Rape myth acceptance (*df* 1, 309)	1.31 (0.31)	1.34 (0.40)	0.16	.260	.001

Note 1: the df was different for RMA because of some people choosing to skip that scale.

Note 2: Asterisks represent significance level - ***: $p < .001$, **: $p \leq 0.01$, *: $p \leq 0.05$.

The effect of challenging sexism vs. control

While again, exposure to sexism did not have the expected effect on personal and interpersonal outcomes for women, we tested the effect of challenging sexism, compared to not challenging and the control condition. In the sexist condition (n = 258), 39% of participants challenged the sexist comments *(n = 100),* which is consistent with our findings from study 1a and 1b.

The results globally support the hypothesis that challenging sexism (vs. not challenging) is linked with the value women place on other women (interpersonal outcomes), with statistically significant differences in justification of gender inequality and rape myth acceptance. However, this was not the case for value women placed on themselves (personal outcomes), with no statistically significant differences in self-esteem and value placed on sexual consent. There was a trend consistent with data from Study 1a and 1b showing that women who challenged the sexist comments actually reported the lowest level of self-esteem, compared with those that did not challenge the sexist comments and women in the control condition, but that trend was not statistically significant.

Table 7*: Mean (SD) of the intra-and interpersonal consequences for women as a function of their response to sexism compared to non-sexist control condition, N = 326*

	Sexism overall	Sexism challenged (*n* =100)	Sexism no challenge (*n* =*158*)	Control condition (*n* = 68)	*F*	*p*	η_p^2
Personal							
Self esteem *df* (2, 323)	1.91 (0.46)	1.83 (0.48)	1.97 (0.46)	1.92 (0.43)	2.70	.069	.016
Value of sexual consent *df* (2, 323)	5.90 (0.85)	6.01 (0.78)	5.85 (0.85)	5.84 (0.95)	1.28	.279	.008

Interpersonal							
JGI *df* (2, 323)	3.29 (0.89)	3.08 (0.88)	3.41 (0.88)	3.32 (0.86)	4.43*	.013	.027
Rape myth acceptance *df* (2, 308)	1.33 (0.38)	1.23 (0.30)	1.40 (0.44)	1.31 (0.31)	6.13**	.002	0.38

Note: Asterisks represent significance level - ***: *p < .001, **: p ≤ 0.01, *: p ≤ 0.05.*

Pairwise comparisons using Bonferroni correction between challenging vs. not challenging the sexist comment vs. the control condition showed that there was a statistically significant difference between challenging vs. no challenge on justification of gender inequality, and on rape myth acceptance – but not a difference relative to the control condition (see table 8).

Table 8: *Pairwise comparisons for the effect of challenging sexist comments on perceived value of women*

	Challenge vs. no challenge			Challenge vs. control			No challenge vs. control		
	Mdiff	CI	*p*	*Mdiff*	*CI*	*P*	*Mdiff*	*CI*	*p*
Self-esteem	-.05	-.26, .09	.692	.05	-.11, .21	>.999	-.13	-27, .01	.062
Value of sexual consent	.17	.15, .49	.617	.01	-.29, .30	>.999	.16	-.10, .42	.421

JGI	-.24	-.57, .09	.257	.09	-.21, .40	>.999	-.33	-.60, -.06	010*
Rape myth acceptance	-.08	-.23, -.06	.520	.09	-.05, .22	.345	-.17	- 29, -.05	> .002**

Note: Asterisks represent significance level - *** = $p < .001$, ** = $p \leq 0.01$, * = $p \leq 0.05$.

Consistent with Study 1a and 1b's results, Study 2 data indicate that exposure to sexist comments did not alter women's value of themselves and other women. Furthermore, we found that while we observe some differences between those who challenge sexism and those that did not in terms of how women perceive themselves and other women, there was no difference relative to a control (no sexist comment) group, suggesting that the differences observed were predicting women's challenging behaviour rather than resulting from it.

Study 3

To disentangle the role of challenging from the psychological attributes of a challenger, we conducted a study conceptually similar but using an alternative experimental design and a different set of sexist comments. In studies 1a, 1b, and 2, we compared participants who challenged and those who do not challenge the sexist comments prior to answering the personal/interpersonal outcome measures, whilst controlling for sexist attitudes. In this study, we build on this by also comparing women who challenge to a third group: women who want to challenge but were not given the opportunity to do so before answering the outcome measures. Some environments, like the workplace, may discourage or suppress confrontation (Petzel & Casad, 2023). Lazarus & Folkman (1984) argued that coping strategies that do not resolve stress

following a transgression would likely lead to brooding, repetitive negative thinking and rumination, as there had not been the opportunity for the target to take back control and re-establish a sense of fairness. This led Hershcovis et al. (2018) to posit the argument that challenging allows targets to regain control, and that challenging interrupts the rumination process following exposure to sexist comments. As rumination has been found to have multiple negative consequences, including magnifying and prolonging negative mood states (Watkins & Roberts, 2020), we expect that those who are able to challenge immediately will report better outcomes than those who want to challenge, but are supressed from doing so and therefore have the opportunity to ruminate following exposure to sexism. In this experimental design, all of the participants were exposed to sexist comments. Half of the participants were given the possibility to challenge right after the sexist comments and then complete the outcome variable measures. The other half of participants were restricted from challenging straight away and answered the outcome variables *before* being able to challenge. Hence, we can differentiate between being a challenger and actually challenging and how both might affect women's value of themselves and and other women.

H1: We expect that women who challenge immediately after the sexist comment in the challenge opportunity condition will report higher self-esteem, have less support for systemic gender inequality, value sexual consent more and accept rape myths less, in comparison to women who we given the opportunity to challenge but preferred not to.

H2: Women who hold more sexist views, as measured with the Ambivalent Sexism Inventory (Glick and Fiske, 1996), will be less likely to challenge sexism when it occurs.

H3: We expect that wanting to challenge sexism but not being given the possibility to do so straight away may adversely affect self-esteem, support for systemic gender inequality, value of sexual consent and rape myth acceptance.

This study was preregistered on As Predicted: https://aspredicted.org/VPV_HZR.

Method

Participants

Women were recruited via snowballing methods on social media (i.e., Facebook) as volunteers, and through the departmental student recruitment platform for course credits. 387 people began the study, of those, 198 participants were removed for completing less than 98% of the study and 10 were removed for not meeting the study requirements of identifying as a woman, leaving a final sample of 179 self-identifying women. Participants in this study were between the ages of 18 and 75 (M_{age}= 32, *SD* 14.39). Of these women, 50% were students at a UK university, with the remaining non-students. This comprised 57% white British, 23% white other, 6% other, 5% black British, 4% black other, 3% Asian British and 2% Asian other. The study required a minimum of 196 participants to yield 80% power to detect a medium effect (F2 = 0.0625), though we completed the study early due to the closure of the university due to COVID-19 prevention measures.

Design

The design comprised a 2 (challenge immediately/challenge delayed) x 2 (challenged/did not challenge) between-subjects design. Participants were randomly allocated to the challenge immediately or challenge delayed conditions at a ratio of 70:30 respectively. This

was because we expected around half of the participants in the challenge immediately condition to challenge and half not to, which would mean a 35%/35%/30% split (challenge immediately: challenge, vs. did not challenge vs. challenge delayed). This ratio was due to our intention to primarily focus on the challenge immediately condition and whether challenging has a positive effect on the outcome variables, though we also wanted to explore the timing of their challenge (i.e., whether it was straight away or delayed). This may be important because in the latter case, challenging would not influence the outcome variables.

Materials and Procedure

All participants completed the study online via Qualtrics software and were advised that the goal of the study 'Investigated how you see yourself and others in society and how this impacts your performance on a cognitive task'. Following informed consent, as with studies 1a, 1b and 2, an audio clip of a male researcher introduced himself as 'John', who provided instructions for each of the blocks in the study. 'John' then introduced the Ambivalent Sexism Inventory (ASI) (Glick & Fiske, 1996), $\alpha = .85$, to assess baseline sexist attitudes. This was followed by the next block, as before, 6 items taken from the vCRT (Sirota & Juanchich, 2018), each with four multiple choice answers. For each of the six items, feedback was given according to whether participants answered each question correctly or incorrectly. This was to control for the effect of correct answers on self-esteem (see table 9 for types of feedback).

Table 9*: All feedback for correctly and incorrectly answered questions*

Feedback for items (Sexist: 1, 2 and 4)	
Item 1	
Correct answer	Good answer, **clever girl**!!
Incorrect answer	This is not correct. Keep focused, you're a **clever girl** so don't let your nerves get the better of you.

Item 2	
Correct answer	That's right! **Smart girl**!
Incorrect answer	This is not right. Don't worry, you are a **smart girl**, keep this in mind.
Item 4	
Correct answer	You're right! **Smart girl**!
Incorrect answer	Sorry, this is not right. You are a **smart girl** but this was a tricky one.
Feedback for items (non-sexist: 3, 5 and 6).	
Item 3	
Correct answer	Smart!
Incorrect answer	Sorry, this is not right.
Item 5	
Correct answer	Clever!
Incorrect answer	Sorry, this is not right.
Item 6	
Correct answer	Well done! That was a tricky one.
Incorrect answer	That is not correct, but that was a tricky one.

This was used as a guise so that participants would feel that we were only interested in assessing their performance in this task, rather than to have another motive of using the task to deliver sexist and non-sexist written feedback, seemingly from the assistant, John. However, to ensure that good or poor performance was not an extraneous variable that affected self-esteem, we summed participant's correct scores to include in our analyses. Participants were then randomly split whereby 70% were designated to a 'challenge opportunity' condition. Firstly, participants were asked a filler question given to disguise the aim of the study; '*We are looking for some feedback on what you thought of the cognitive reasoning task. Overall, can you tell us*

what you thought?' before being given a clear opportunity to challenge 'John' on the sexist feedback that they received by asking "*Could you please describe your thoughts in detail on the feedback that I gave you? For instance, "Well done, smart girl!"* This provided a clear opportunity for participants to challenge (though we expected half of participants in this condition not to). Both questions were set to force a response, so participants could not move on until they had input a response. We later coded the responses to determine who challenged and who did not, for instance, if participants put words to the effect of 'the feedback was fine', this would not be deemed as a challenge response.

To examine how the opportunity to challenge had an effect on personal/interpersonal outcome measures, participants then completed measures of self-esteem $\alpha = .78$, justification for systematic gender inequality $\alpha = .73$, attitudes towards sexual consent, $\alpha = .90$ and rape myth acceptance, $\alpha = .87$. For the remaining 30% of the participants, they had no opportunity to challenge the sexist feedback immediately after the sexist comments. To assess if they would have actually challenged the sexist feedback or not, we still provided an opportunity to challenge, but after they had completed all of the measures, so that the challenge would not affect their scores. Finally, participants answered a series of sociodemographic questions before being debriefed. Participant responses in the feedback box were coded as a challenge or not by two research assistants that reached a good agreement, Cohen's $\kappa = .598$, $p < .001$.

Results

The effect of challenging sexist comments

Of the 109 participants in this condition, 65% of participants challenged the sexist comments - considerably higher than in study 1a, 1b, and 2, which may be attributed to the fact

that in this study, we specifically asked participants to provide their thoughts on the comments, (for example, “well done, smart girl”) ,as opposed to providing the opportunity for general comments. To test H1, we examined the effect of challenging vs. not challenging the sexist comments on self-esteem, value of sexual consent, justification of gender inequality and rape myth acceptance using a MANOVA. The analysis showed that challenging was linked to lower justification of gender inequality, higher value of sexual consent and lower rape myth acceptance (see table 10). There was no statistically significant effect of challenging on self-esteem.

Table 10: *The effect of challenge decision on personal and interpersonal outcomes in the challenge opportunity condition*

	Challenged	*Did not challenge*	*F (1, 107)*	*P*	η_p^2
Self-esteem	2.33 (0.43)	2.28 (0.41)	.369	.548	.003
Justification of gender inequality	3.90 (1.23)	4.84 (1.10)	15.54***	<.001	.127
Value of sexual consent	5.86 (0.94)	5.41 (1.02)	5.48*	.021	.049
Rape myth acceptance	1.36 (0.46)	1.56 (0.52)	12.28***	<.001	.103

Note: Asterisks represent significance level - ***: $p < .001$, **: $p \leq 0.01$, *: $p \leq 0.05$.

Sexist attitudes and challenging sexism

We conducted a logistic regression to examine H2, that sexist attitudes would predict challenging the sexist comments. Across both the challenge opportunity and delayed challenge conditions, 72% of participants challenged the sexist comments and 28% did not. Sexist attitudes

did indeed statistically significantly predict challenging, Wald (1, 178) = 21.02, $p < .001$, Cox & Snell R square - .14. B = -1.7 (.366).

To test whether sexist attitudes had an effect on all participants that challenged the sexist comments in either the challenge immediately/delayed challenge conditions, we added sexist attitude as a covariate in the MANOVA. Adding sexist attitude as a covariate meant the effects seen as a function of challenging the sexist comments dropped out of significance: self-esteem F (1, 105) = 1.59, $p = .210$, $\eta_p^2 = .015$, value of sexual consent F (1, 105) = .07, $p = .850$, η_p^2, < .001, justification of gender inequality F (1, 105) = 1.47, $p = .228$, $\eta_p^2 = .014$ and rape myth acceptance (1, 105) = 1.79, $p = .185$, $\eta_p^2 = 017$.

Finally, we wanted to further assess whether challenging could have a transformative effect for women, or whether those that challenge are already more invested in gender equality. We therefore wanted to look at 'challengers' who challenged before answering the outcome variables and challengers who only challenged after they had already completed all measures, because we denied them the opportunity straight after the sexist comments. We conducted a MANOVA examining the effect of challenge timing (before DVs or after DVs on all four outcome variables). The analysis showed that being able to challenge straight away was not linked with any of the dependent variables – there was a null effect of challenge timing responses of women, which supports the idea that those who challenged already placed more value on women, and challenging itself was not transformative. However, it is worth noting that of those that challenged, justification for gender inequality was only just out of statistical significance and trended in line with our expectations – that women had lower support for gender inequality because they challenged than if they wanted to challenge but were not able to (see table 11).

Table 11*: Mean (SD) of the personal and interpersonal outcomes for women as a function of challenge timing (opportunity before DV measures or delayed until after DV measures) to examine the effect of 'challenging' having a transformative effect*

	Challenged Overall	Challenged before DVs (*n*=71)	Challenged after DVs (*n* =58)	F(1,127)	*P*	η_p^2
Personal						
Self-esteem	2.34 (0.44)	2.33 (0.44)	2.35 (0.46)	0.58	.810	<.001
Value of sexual consent	5.85 (.93)	5.86 (0.94)	5.83 (0.92)	0.45	.832	<.001
Interpersonal						
JGI	4.09 (1.25)	3.90 (1.23)	4.32 (1.24)	3.69	.057	.028
Rape myth acceptance	1.27 (0.37)	1.26 (0.38)	1.28 (0.35)	0.94	.760	.001

Discussion

Literature suggests that sexism manifests in negative outcomes for women, but that challenging sexist comments could mitigate these outcomes, leading calls for more research on the effects of

challenging (Becker et al., 2014; Connor et al., 2017; Drury & Kaiser, 2014). We ran three studies, the first two focused on examining the relationship between receiving sexist comments on cognitive performance, self-esteem, value of sexual consent, justification of gender inequality and rape myth acceptance, encapsulating women's personal and interpersonal perceptions of themselves and other women in society. We found that across both studies, there was a null effect of the receiving sexist comments on all personal and intrapersonal outcomes for women. We acknowledge that this could be because of the positive nature of the benevolently sexist comments, and indeed, many responses to the comments noted that they found them to be encouraging in nature. Further, when considering the impacts of sexism, we refer to the work of Helwig (2022), noting their argument that prejudice is pervasive and persistent over time. The fact that we did not elicit an effect of sexism exposure is not demonstrative of the cumulative effects for women on the receiving end of insidious, systematic and prolonged sexism.

Next, we found that the act of challenging was linked with lower support for gender inequality, more value placed on sexual consent, and lower rape myth acceptance but there was no relationship between challenging and a boost in self-esteem across all of our studies. In study 1 (1a and 1b), we also controlled for baseline sexist attitudes. When this was included as a covariate, the relationships between challenging and all personal/interpersonal outcomes became null. This suggests that the differences observed in women who challenged the sexist comments were predicted by their existing attitudes towards women, rather than as a result of challenging the comments. We also found that baseline sexist attitudes were positively correlated with propensity to challenge, supporting the findings of Swim and Hyers (1999) in that women who are already committed to gender activism were most likely to call out sexism.

To further test whether the act of challenging had transformative effects on personal/intrapersonal outcomes for women, or whether the case was that women who challenged already possessed attitudes that value women, study 3 once again tested the effects of challenging sexism. We gave an opportunity for women to challenge immediately after the sexist comments, compared to delaying the opportunity to challenge the comments until after they had completed all outcome measures. Once again, this showed that women who challenged placed high value on sexual consent, had lower justification for gender inequality and lower rape myth acceptance than those that did not challenge. Again, when adding sexist attitudes as a covariate to the MANOVA, the effects disappeared. To double down on whether the challenge itself could have transformative effects, we examined all of those who challenged in the challenge opportunity condition vs those who had their challenge delayed before completing all personal/intrapersonal outcome measures. This showed a null effect – that there was no difference in personal/intrapersonal outcomes for women when they had an opportunity to challenge straight away vs. those who wanted to challenge but were not given the immediate opportunity to do so (but did later).

These findings throw caution to the claims that challenging sexist comments have transformative benefits on self-esteem and how women value themselves and other women. Instead, our findings reveal the importance of pre-existing sexist attitudes – women with lower sexist attitudes are naturally more likely to challenge sexism when they encounter it and already place high value on other women. We do not, however, propose that women should not continue to challenge sexism. Rather, we highlight that more work needs to be done to enhance the benefits of challenging, and to address deep-seated sexist attitudes. The implications of our

findings are relevant for public awareness campaigns, education and training, as well as potentially for future policy-making.

Limitations

We take note that in having a sexist attitude measure at the very start of study 1a and study 3, it is likely to have signposted what our goal was when we later delivered the sexist comments as part of a reasoning task. To mitigate this, we retested those in the non-sexist condition of study 1a in study 1b, and omitted the measure altogether in study 2 to focus on comments appearing 'out of the blue' to elicit a more natural response. It is also noted that the sexist comments were benevolent in nature, and were seen as encouraging by some women, therefore, the fact that there was no effect of exposure to these comments on personal and interpersonal outcomes may have been because the comments were not perceived as sexist; women that hold attitudes more supportive of gender equality are more likely to identify sexism and may be more likely to take self-protective actions by challenging it (Crocker & Major, 1989; Crocker et al., 1991; Landrine & Klonoff, 1997). This may mean they are more likely to benefit from the positive personal outcomes associated with challenging. Furthermore, we note that in all three experiments, women that challenged could not see the benefits or costs of their challenge. Helwig (2022) found that challenge benefits to psychological wellbeing are dependent on whether the challenge was deemed effective or ineffective. Future work on challenging sexism should ensure controls for baseline sexist attitudes, examine outcomes of challenging more hostile sexist comments and examine whether effectiveness of the challenge moderates the challenge effect.

** Author's note: In study 1, we used a 9 point Likert for JSI which was reduced to 7 pt in study 2 onwards as it was too wide for participants to see in full on Qualtrics, which meant the upper end was cut off.

Chapter 3

CHALLENGES TO THE GENDER-FEAR PARADOX IN LIGHT OF THE MURDER OF SARAH EVERARD IN THE UNITED KINGDOM

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Abstract

The murder of Sarah Everard in the UK by a serving Metropolitan Police officer in 2021 sparked a national outcry, highlighting the dismissal of the daily risks faced by women and girls by those responsible for reducing violence against them (Bows, 2021; End Violence Against Women Coalition, 2021a; Strick, 2021; Topping, 2021a, GOV.UK, 2021b). Often evoked are statistics to reassure women that men are the ones that are at risk of violent crime and murder on the streets, and that women are indeed ‘safe’ – commonly referred to as the ‘gender-fear paradox’ (Hale, 1996). Public discourse referred to a mood shift in the UK, where women purport to feeling unsafe; their fears turning to fury and the recognition that public trust in the

police to protect women had been eroded. Nevertheless, there are surprisingly few empirical studies that include gendered comparisons on how women adapt their behaviours to feel safer, how much they trust the police when reporting a crime, and their confidence in the police to take appropriate action. We conducted a single study with 772 participants to examine gendered differences in how safe people feel in their locality, trust in police, and how they adapt their behaviours in order to feel safe. We found that women continue to report that they feel less safe than men when out at night. Unexpectedly, we did not find that women are less likely to report crime to police, or have less trust in police to take appropriate action to that report than men, though we did find that both men and women have low trust in police. Finally, of 19 possible restrictions to their behaviour to make themselves feel safer, we found that women were more likely to adopt these restrictions than men in every instance. This, we argue, shows that by protecting themselves from experiencing crime, the gender-fear paradox is not paradoxical at all, and further evidences that the risks women face are not accounted for in crime statistics purporting men to be more at risk of violent crime.

Introduction

Women's safety in the spotlight: over-reaction or legitimate concerns?

In recent years, there has been a renewed spotlight on the prevalence of violence against women and girls, sparking heightened safety concerns. The kidnap, rape and murder of Sarah Everard by a serving Metropolitan police officer in 2021 saw the outcry and demands for action ramped up, prompting protests and debates. This watershed moment was described in the media as 'a crossroads', where women and girls' fears have turned to fury, brought on by the collective perception that the risks they face are not taken seriously enough (Bows, 2021; Topping, 2021a; O' Callaghan & Ingala Smith, 2021). Public safety figures, including local councillors, described

the efforts to target women's safety by way of better street lighting as 'jumping on the bandwagon', insisting women are safe, the streets are safe and that the chances of being targeted were far greater for men (The Stratford Observer, 2021). This demonstrates how demands for action to prioritise women and girls' safety is often criticised as illegitimate, framing campaigning women as 'overreacting' (Bows, 2021).

The main argument that is often cited to quell women's concerns for their safety is that according to (some) statistics, men are actually more likely to be the victim of personal and violent crime on the streets than women (Hale, 1996; Sutton & Farrall, 2005; Ministry of Justice, 2022). This was echoed following Sarah's murder in a Sky News report asking "Are women safe on our streets?" (Keay & Borrett, 2023), which reiterated the argument that statistically, men are more likely to be murdered or be the victims of violent crimes and attacks perpetrated by strangers. This paints women's heightened fears and reaction to perceived threats to their safety as somewhat irrational, even hysterical. However, crime statistics purporting men to be more at risk may not reflect the real level of risk women experience and endure and we argue that they are frequently used to delegitimise women's fears for their own safety.

Decades of research shows that women are more afraid of being victimised than men (Cops & Pleysier, 2011; Hale, 1996; Stanko, 1995). This trend is consistently found across countries, cultures, and ethnic groups (Warr, 1994). This gives rise to the term 'the gender-fear paradox' – conflicting perceptions of safety between men and women, as crime statistics suggest that men face a higher risk of encountering violent crimes on the streets, whilst women often report heightened fears for their personal safety. In light of this recent high-profile spotlight on women's safety in the UK, this work aims to challenge the so-called gender-fear "paradox" and whether it is paradoxical at all. We explore two factors that may explain the discrepancy between

crime statistics purporting women to be safer than men, and women's heightened experiences of feeling unsafe: 1) Women's lack of trust in police to report crime to 2) Women routinely adopting restrictive safety behaviours to protect themselves from crime.

Accounts for the gender-fear "paradox"

In an effort to understand the gender-fear "paradox", a number of explanations have been presented, for example, some accounts focus on biological gender differences, such as the fact that women are physically less strong than men, hence their ingrained fear that they will be less able to defend themselves (Killias, 1990; Smith et al., 2001). The gender-fear paradox may also seem apparent because of how fear of victimisation is measured, for example, men downplaying their own fears in self-report surveys (Hopkins-Doyle et al., 2019; Sutton & Farrall, 2005; Sutton et al., 2011). Other accounts focus on the statistics being compared and suggest that women worry more about crimes where they are more often victimised than men (e.g., rape, sexual assault) and not about crimes for which men are more often victimised (Ferraro, 1995; 1996). Official crime statistics purporting men being more victimised by violent crime than women tend to be extremely restrictive and do not reflect the true picture of crimes that disproportionately affect women, such as sexual crimes and domestic abuse. These are usually quantified separately in England and Wales; firstly, due to the apparent under-reporting of sexual crimes, they are not included as part of centralised crime statistics (it is estimated that 5 in 6 women who are survivors of sexual assault by rape or penetration did not report it to the police (Office for National Statistics, 2020)). Secondly, according to national crime recording standards, reported domestic abuse offences are recorded as 'incidents' (or non-crimes) unless police determine that a criminal act has taken place (around 41% of the time). These 'incidents' are consequently not included in centralised crime statistics (Office for National Statistics, 2018a). This follows

efforts to address the ‘wholly unacceptable’ findings that many violent crimes were not properly recorded by police, many of which include sexually violent crimes (HMIC, 2014), and it is noted in published crime statistics that sexual offences and domestic abuse crimes recorded by police are not a reliable measure of trends related to these types of crime because of questionable recording practices (Office for National Statistics, 2020).

Of course, further to not being included in central reported crime statistics, most of the crimes in which women are disproportionately victimised will not be reported to police at all, and women are also more likely to be victimised in private by male partners – a ‘hidden’ form of victimisation (Bilsky & Wetzels, 1997), rarely captured in official statistics. These hidden forms of victimisation going unreported actively contribute to the belief that women’s fears are unfounded (Britton et al., 2017; Hollander, 2001).

Trust in police to protect women

The police may bear some responsibility for downplaying women’s fears. This was demonstrated in the words of Metropolitan Police chief at the time of Sarah Everard’s murder, Cressida Dick, who focused on how low the risks are instead of how intolerable those odds are for women: “[It is] incredibly rare for a woman to be abducted from our streets” (O' Callaghan & Ingala Smith, 2021) and “There is an occasional bad’un [in the Metropolitan Police force]” (Topping, 2021b). This was met with harsh criticism – that minimising the risk of violence, rape and murder women face is a failure to take it seriously, thus perpetuating the problem. In the same year, the Home Office released record low charge and conviction rates for rape. Figures showed that in 2021, just 1.6% of reported rapes resulted in a charge, let alone a conviction (Barr & Topping, 2021). What followed Sarah’s murder by a serving Metropolitan Police officer was the unravelling of “entrenched misogyny” and a culture of “institutional sexism” in the UK’s

largest police force, resulting in a spate of high-profile revelations about violent sex abusers who were serving police officers. This prompted a high-profile inquiry into the force, revealing that the Metropolitan Police are institutionally racist and sexist (Baroness Casey of Blackstock, 2023). Further, Police Scotland's outgoing Chief Constable, Sir Iain Livingstone, has recently admitted that his force is institutionally racist, sexist, misogynistic and discriminatory (Brooks, 2023). In 2023, lack of trust in the police was further compounded with the sentencing of former Metropolitan Police Officer, David Carrick, who used his position of power to perpetrate at least 48 rapes on at least 12 victims over a 17-year period. Unsurprisingly, this has led to a decline in trusting police to protect women – almost half of women say that they have less trust in police after Sarah's murder and one in 10 women would be less likely to report a sexual assault (End Violence Against Women Coalition, 2021a). That said, the University of Essex recently revealed that only 42% of people in the East of England trust the police, though women trust police more than men (Pickering et al., 2024). It is important, therefore, to consider whether this most recent decline in trust could mean women are less likely to report incidents of victimisation to police, considering there are already low reporting rates for crimes that disproportionately affect women, such as sexual and domestic violence.

Precautionary behaviours to reduce victimisation

Another reason why the gender-fear paradox might not be paradoxical is that women's victimisation statistics might be lower for some crimes because they often engage in an extensive range of everyday precautionary behaviours that men typically do not, routinely engaging in precautionary behaviours to avoid victimisation compared to men (Roberts, 2019; Stanko, 1990). This can include avoiding certain areas, especially after dark; carrying protective devices like rape alarms; keeping doors and windows locked; not walking home alone and restricting their

presence in public spaces (Stanko, 1990; Beebeejaun, 2017; Madriz, 1997; Roberts, 2019; Tandogan & Ilhan, 2016). This has been found to be the case particularly for women in public spaces at night, when they will avoid quiet streets, empty parks/woods and the subway, with 98% reporting that fear of crime restricts their freedom (Tandogan & Ilhan, 2016). Certainly, it appears, that being out in night-time venues like bars, pubs and clubs, is of major concern to women, with a YouGov poll on 18-24 years olds who frequent these establishments in the UK showing that 79% of women expect inappropriate comments, touching and behaviour on a night out towards them or their friends (Greater London Authority, 2019). This figure does not include those who will avoid such establishments altogether because of this threat of harassment.

What is a true paradox here is that women's concerns for their safety leads them to restrict their behaviour (more than men), at a cost to their liberty, which reduces their victimisation rates. But this also gives ground to critique that their fears are unfounded and do not need to be taken seriously, giving credence to the gender-fear paradox.

The present study

In this work, we aim to reappraise and further challenge the supposed mismatch between potential victimisation and safety fears – or the 'gender-fear paradox' during a high-profile climate of safety concerns for women living in the UK following the murder of Sarah Everard by a serving police officer in 2021. We do this in two ways: Firstly, in light of findings that almost half of women (47%; and 40% of men) trust police less since Sarah's murder, and are less likely to report crime. We empirically compare men and women's likelihood to report crime and their trust that police will appropriately action that report. Secondly, we seek to build on Roberts (2019) findings that women adopt a greater range of precautionary behaviours to protect themselves from crime compared to men, and empirically test this assertion given the current

climate of increased perceived risk to women's safety. These actions may reduce their victimisation, which is likely why women continue to take these measures, but are at a cost to their liberty. The implications of this are that women may be avoiding becoming part of the crime statistics so frequently cited to demonstrate that women are at low risk of victimisation, but have to considerably restrict their lives in doing so.

We therefore hypothesise that:

H1. Women will feel less safe, both during the day and in the evening/night, compared to men.

H2. Women will report feeling unsafe in more places, compared to men.

H3. Women will alter their behaviour more in order to feel safe, compared to men.

H4. Women will be less willing to report crime to police, compared to men.

H5. Women will have less faith that the police will take appropriate action on reported crimes.

This study was preregistered on As Predicted: https://aspredicted.org/6HC_KQ9.

Method

Participants

We used snowballing methods on social media to advertise our study on how safe people feel in a large English county. It is estimated that this county has 1.8 million residents, with an average age of 41 years (Plumplot, 2019). To maximise responses, we searched for every main city, town and village within this county on Facebook to post the study on their crime/neighbourhood watch and/or community page, with a request to forward to others following completion.

Overall 1,410 people started to complete the study, which was open for exactly one month. Of those, 607 responses did not complete the study to a minimum of 95% and were hence removed from the sample. Despite pre-registering that we would compare women and and other vulnerable groups (non cis-gender), only 28 respondents reported non-cisgender. Because this sample was so small and comprised of those that identified as non-binary, trans men and trans women, we were unable to make meaningful comparisons as the groups were so small compared to the 637 respondents that identified as women. Therefore, regrettably, these data were not included in the main analyses. This left an analytical sample of 775 participants, aged between 18-82 years (M = 46.05, SD =15.14). Of this sample, 82% identified as women (n = 637), 18% identified as men (n = 138). Sexual orientation of respondents was 87% heterosexual, 2% gay/lesbian, 6% bisexual, 1% other sexuality and 4% preferred not to say. Respondents reported living at 68 postcodes out of the 72 possible across the county, indicating reasonable county-wide representation (see Appendix G for full location breakdown). The ethnic background of respondents was fairly representative of the ethnic population within the county (see Appendix H), with 87% of respondents being white British, 10% white other, 2% mixed/multiple ethnicity/other, 1% Asian British and 1% Black British.

Design

All participants took the study in the same way, but for analytical purposes, we split the sample between-subjects to examine the responses of women compared to men.

Materials and Procedure

The study was advertised as ‘How safe do you feel in Essex?’ and had a link to the study on the Qualtrics platform. Participants first read an information sheet and completed informed consent to participate. Median completion time for the survey was 9 minutes.

The questionnaire consisted of three blocks presented in a fixed order: 1) Sense of safety 2) Adopting precautionary behaviour 3) Trust in the police. The first block of the study addressed how safe people felt in their locality. Firstly, respondents rated how safe they felt when they were out 1) during the day 2) during the evening/night 3) specifically in bars, pubs and clubs on a 5-point Likert scale ranging from 1: *Extremely unsafe* – 5: *Extremely safe* (the last question being optional, for those who frequented the night time economy). Respondents then selected where they had felt unsafe from a list of 12 places: At work, travelling on public transport, restaurants, bars/pubs, nightclubs, educational facility (e.g., school, college, university), on campus, at home, gyms, on the streets and parks/outdoor spaces. Participants could also add extra places in a text box, or select that they had never felt unsafe in the county. Finally for this block, respondents rated 'To what extent do you agree/disagree that there is currently enough being done to keep people safe during evening/night socialising in the locality?' Respondents answered on a Likert scale ranging from 1: *Completely disagree* – 5: *Completely agree*.

The second block was designed to examine the extent in which people modify their actions and behaviour in order to feel safer (reliability excellent, Cronbach's $\alpha = .92$). Participants answered 'If you were planning a night out in the local area, which of the following would you do regularly to ensure you feel safe?' 19 statements were rated on a 5-point Likert scale, 1: *Never* – 5: *Always*, with a '*not applicable*' option. Examples of these statements are 'When I am out, I curb my alcohol intake to keep myself aware of potential dangers around me', and 'I try to dress modestly so as to not attract unwanted attention'.

For the third block of the study, we assessed participants' trust in the police to provide support for different types of incidents. Firstly, participants rated how much they would report

six incidents (presented in random order): e.g., 'you realise that you purse/wallet has been stolen from you'; 'you think someone has spiked your drink' (reliability good, $\alpha = .79$). Items were rated on a 5-point Likert scale ranging from 1: *I definitely would not report* – 5: *I would definitely report.* Participants then rated how confident they were that the police would take appropriate action following reporting of these same incidents, (reliability excellent, $\alpha = .90$). rated on a 5-point Likert scale ranging from 1: *Not confident at all* – 5: *Very confident*.

The final block of the study took relevant sociodemographic details including age, the gender in which they identify, ethnicity and sexual orientation, before respondents were debriefed.

Results

Women feel less safe than men

Firstly, in order to shed light on gendered differences in feeling safe, we tested how safe respondents felt when they are out in the locality during the day and during the evening/night as a function of their gender. A MANOVA showed that women felt slightly less safe than men during the day, although this difference was not statistically significant, $M_{women} = 4.46$, $SD = 1.45$, $M_{men} = 4.63$. $SD = 1.53$, $F(1,771) = 1.41$, $p = .24$ $\eta_p^2 = .002$. However, at night, the perception of safety was strongly shaped by respondents' gender; women felt more unsafe compared to men, $M_{women} = .2.57$, $SD = 1.45$, $M_{men} = 3.54$, $SD = 1.78$, $F(1,771) = 46.01$, $p < .001$, $\eta_p^2 = .06$. Furthermore, we asked participants who engaged with the night-time economy how safe they felt in bars, pubs and clubs. The results show that women who frequented these establishments felt less safe there than men $M_{women} = .3.16$, $SD = 0.96$, $M_{men} = 3.54$, $SD = 1.08$, $t(687) = 3.86$, $p < .001$, *Cohen's d* = 0 .38.

Most of the respondents reported that they had felt unsafe in at least one place from a range of 12 places listed, but this was especially the case for women, with 94% of women

compared to 72% of men reporting having felt unsafe in at least one place in their local area. The top three places that women said that they felt unsafe were: on the streets, parks/outdoor spaces, and on public transport (see Table 11). From the 12 places that participants could select as a place they have felt unsafe (or had never felt unsafe), summed scores showed that women reported feeling unsafe in more places than men. This difference between men and women was statistically significant, $t(773) = -4.51$, $p < .001$, Cohen's d = -0.42.

Table 11

Places that respondents have felt unsafe in their local area

	Men (*n*= 138)	Women (*n*= 637)
Average no. of places felt unsafe	2.30 (2.21)	3.14 (1.91)
On streets	64%	86%
Parks/outdoor spaces	51%	68%
Public transport	32%	51%
Bars/pubs	30%	38%
Nightclubs	18%	25%
At home	12%	13%
Other	4%	7%

At work	4%	7%
Gyms	3%	6%
Educational facility	5%	6%
On campus	3%	5%
Restaurants	6%	5%
Total % that selected at least one place	72%	94%

Trust in the police to keep people safe

Contrary to expectations in light of the recent expressions of mistrust towards police by women following high profile cases of violence against women and girls, and findings of institutional misogyny in the police, t-tests revealed that women were statistically significantly more likely to report crimes to police than men (see table 12). When we asked how much trust they had in police to take appropriate action if they reported a crime - again, unexpectedly, there was a trend that women had more trust in police to take appropriate actions than men, though a t-test showed this to be not statistically significant. However, what appears clear here is that whilst women would be more likely to report if they were victims of crimes, the trust that both men and women had in police to take appropriate action on that report was low (less than the middle point 3 on a 5-point scale). Finally, both men and women agreed that not enough was being done to keep people safe on a night out, with women slightly agreeing more than men that

not enough was being done, though the difference between men and women was again, not statistically significant.

Table 12*: Mean (SD) trust in police to keep women safe*

	Men	**Women**	**t(df)**	***p***	**Cohen's d**
Likelihood to report crimes to police	3.93 (0.85)	4.09 (0.80)	2.06 (733)	.040	-0.19
Trust in police to take appropriate action	2.36 (1.14)	2.51 (0.99)	1.53 (733)	.125	-0.14
Agreement that enough is being done to ensure people's safety on a night out	2.49 (1.23)	2.35 (1.04)	1.37 (733)	.172	0.13

Adopting restrictive safety behaviours

Respondents rated how often they adopted 19 restrictive safety behaviours on a night out. The self-report shown in Table 13 revealed that women adopted all 19 restrictive safety behaviours more frequently than men. A t-test comparing the average response across the 19 restrictive behaviours showed that women statistically significantly adopted those behaviours more often than men, $M_{women} = 4.03$, $SD = 0.61$, $M_{men} = 3.04$, $SD = 1.04$, $t(771) = -15.03$, $p < .001$, *Cohen's d* = -1.42.

Table 13*: More women reported that they used 19 restrictive behaviours 'often' or 'always' compared to men.*

Restrictive safety behaviour	**Men**	**Women**

I try to stay indoors once it gets dark	38%	57%
I arrange to go out in groups so that I am not alone	29%	80%
I arrange to meet others at home/their home so that I do not have to travel to a venue alone	22%	58%
When I am out, I curb my alcohol intake to keep myself aware of the potential dangers around me	41%	64%
I ensure that I do not leave my drink unattended	62%	93%
I dress modestly so as to not attract unwanted attention	30%	70%
If someone is acting rowdy or very drunk near me, I will move to avoid the situation	66%	90%
I avoid taking public transport to get home from a night out	46%	73%
I avoid walking home from a night out	44%	82%
I avoid alcohol so I can drive myself home	42%	44%
There is normally a designated driver that avoids alcohol in our group to drive everyone home safely	45%	51%
I avoid taking a taxi alone	19%	43%
I avoid dark, quiet routes home	51%	91%
I ensure that I know who is behind me by glancing over my shoulder when I am walking in quiet places	62%	92%

I make a telephone call when I am on my own as I feel it would deter potential attackers	21%	49%
I hold something in my hand to protect myself when I am on my own	27%	64%
I avoid certain establishments that have poor safety reputations	56%	80%
I ensure that I have told someone where I will be	51%	88%
If I meet a stranger, I ensure that we meet in a public place	55%	91%

Discussion

The aftermath of the high-profile murder of Sarah Everard in the UK saw ramped up fury that not enough is being done to address the widespread risk of violence that women and girls face and this has very quickly been an evolving situation. Oftentimes, the police and other figures in positions of power have conveyed that women's heightened fears are unfounded, citing crime statistics demonstrating that men are much more likely to be victims of violent crime, or be attacked on the street – the so-called 'gender-fear paradox'. In this paper, we reappraised the safety concerns of men and women in light of the recent media spotlight on the police's apparent failures to protect women from crime as well as undermining their concerns. Further, we challenge the gender-fear paradox by identifying two reasons why statistics measuring women's victimisation rates might only be the tip of the iceberg and cannot demonstrate the risks that women face. Firstly, because women might trust the police less and be less likely to report crimes and secondly because women adopt a greater range of precautionary behaviours to protect

themselves from crime.

Confirming the previous literature from more recently to up to 30 years ago (Cops & Pleysier, 2011; Hale, 1996; Stanko, 1995), we found that women continue to report feeling less safe in their local communities at night compared to men. As safety campaigns tend to target areas where women are known to feel unsafe, such as parks, streets and the night-time economy, we added locations, such as 'at work', 'at home' 'in educational facilities' and 'in the gym' to demonstrate that targeted safety measures need to be much further reaching. The fact that women feel unsafe in so many more places than men supports the work of (Farah & Farah, n.d.), who found that even seemingly innocuous places evoke more fear for safety in women than men. However, this work was not statistically tested, and we add strength to this by showing that women statistically significantly have more concerns for safety in more places than men.

Clearly, women continue to feel unsafe. However, following Sarah Everard's murder by a serving Metropolitan Police officer and the subsequent spotlight on police intuitional sexism and misogyny, the End Violence Against Women Coalition (2021) found 47% of women and 40% men trust police less since Sarah's murder, and 1 in 10 women would be less likely to report if they had been raped. In light of the high-profile assurances by police that women are comparatively much safer than men on the streets, it was important to re-evaluate whether women felt less trust in the police than men do, and are therefore even less likely to report crimes, thus being excluded from the crime statistics. We found that trust in the police was very low for both men and women. Although we expected that a decline in trust in police the 2021 following the murder of Sarah Everard (End Violence Against Women Coalition, 2021) would reflect in low reporting rates for women compared to men, this was not the case. We found women reported greater likelihood to report crime to police, and more trust that they would

appropriately action those reports. This supports the Crime Survey England and Wales 2018-2020 findings, along with Pickering et al.'s (2024) findings that women had greater confidence in police than men.

However, our findings may go some way to explain high attrition rates following police reporting. Record numbers of victims are reporting but then withdrawing complaints: 45% of violence against the person cases, 43% of rape cases, and 34% of sexual assault cases had victims that withdrew their support for prosecution (Victim's Commissioner, 2021). Of course, it goes without saying that many of the published statistics showing that women are less likely to be victimised by violent crime than men are not inclusive of the crimes that people have been the victim of, but perhaps withdrew their complaint, or their case did not reach prosecution and/or conviction, which appears to be particularly prevalent for crimes where victims are over-represented by women (End Violence Against Women Coalition 2021b).

To further challenge the argument that women's fear of crime compared to actual victimisation is "paradoxical", we argue that published crime statistics that purport men to be more at risk of violent attacks simply do not adequately represent the level of threat to women, particularly if women did not adopt excessive routine restrictive behaviours in order to prevent themselves from becoming victims of crime. In our study, we found that women continued to adopt these restrictive precautionary behaviours more so than men in every instance, further supporting extant findings in a UK context (i.e., Roberts, 2019; Farah & Farah, n.d.). This is particularly concerning given that when women do become victims of crime, their own level of responsibility for not taking precautions is frequently called into question, e.g., 'she was wearing revealing clothing', 'she was really drunk', 'she walked home on her own at night' (Chapleau et al., 2007). It is little wonder, therefore, that 'embarrassment' is cited as the top reason why

women do not report crimes like rape and sexual assault to police (Office for National Statistics, 2020). The findings that women so routinely and frequently adopt constraining and limiting precautionary behaviour to avoid victimisation then presents a very obvious question: would women be victims of violent crime as much as men in published statistics if they were not adopting these behaviours? What is clear, however, is that adopting such behaviours limits women's lives, their presence, their voices and restricts their social mobility (Keane, 1998).

Limitations

Despite our efforts to obtain a balanced sample, only 18% of our sample were men. As the study was advertised to be about personal safety, this could be an indicator that men felt that the survey did not apply to them. Further, it is known that women are more likely to take part in online surveys (Smith, 2008). This study was shared online and taking part was voluntary, which did not give us the opportunity for quota sampling. Future work should consider quota sampling to provide a better balance between men and women. Moreover, we did not specifically ask participants about those crimes known to disproportionately affect women, such as rape, stalking and domestic abuse. This should certainly be further explored in future research, as both lack of trust in police to believe victims and take appropriate action have been cited as some of the main reasons that women do not report rape (Office for National Statistics, 2020). It would be beneficial, therefore, for future studies to further explore gendered trust in police to report to and action these crimes that disproportionately affect women. This would help to build a bigger picture of the crimes that women fear more than men, whether lack of trust in police in dealing effectively with those crimes results in lower reporting rates and whether women adopt even further restrictive behaviours to prevent victimisation of those crimes. Furthermore, future

research should seek to consider participants' prior experiences as victims of violence and reporting this to the police. This exploration could shed light on the impact of these experiences on future trust in the police and uncover how individuals who are repeatedly victimised are even less likely to report to the police, contributing to the exclusion of repeat victims from crime victimisation statistics and highlighting the ongoing safety threats that fall on women in particular.

This study contributes to the growing literature that women's heightened fear of crime is not 'irrational'– that the published crime statistics cannot possibly take into account the level in which women are 'hidden' from crime statistics that report men are more likely to be victimised.

Chapter 4

THE LIVED-EXPERIENCED RAPE MYTH ACCEPTANCE SCALE (LERMA): THE EFFECT OF USING ALTERNATIVE TERMINOLOGY OF RAPE IN MEASURING RAPE MYTH ACCEPTANCE

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Abstract

Recent research indicates a decline in endorsement of rape myths on standardised scales over the years, though it remains unclear whether this decline reflects changing attitudes or whether people have become more aware of the social undesirability of endorsing rape myths. However, qualitative evidence suggests that rape myth acceptance remains prevalent. We propose that as part of heightened awareness of the social undesirability of endorsing rape myths, decreasing scores arise from the word 'rape' on these scales, which evokes narrow, archetypal rape scripts, to which rape myths do not apply and people are unlikely to endorse. These archetypal rape scripts rarely reflect real-life experiences of rape. To assess whether the use of the word 'rape' impacts the measurement of rape myth acceptance, we modified the short-form Illinois Rape Myth Acceptance scale (IRMA-SF) and developed a new scale, the Lived-Experience Rape Myth Acceptance scale (LERMA), where the word 'rape' was replaced with a description of rape (e.g., 'having sex against her will'). We conducted two studies where participants completed either the IRMA-SF or the LERMA. In both studies, we found that rape myth acceptance scores were higher among participants completing the LERMA, compared to the IRMA-SF. As predicted, the LERMA elicited strengthened relationships for all predictors/outcomes and statistically significantly predicted victim blame (positively) and perpetrator blame (negatively). We argue that these findings demonstrate the need to reconsider the use of the word 'rape' in rape myth acceptance measures in order to avoid evoking 'archetypal rape' and better capture these harmful attitudes that are known to predict rape proclivity, and are arguably responsible for extremely low reporting and prosecution rates of rape and sexual assault.

Introduction

In recent years, there has been keen interest to understand the impact of rape myth acceptance in society, with a recent survey by the Crown Prosecution Service (2024) finding that despite some progress over the years, rape myths remain 'deeply rooted' in society, particularly among young people. However, research that draws on the use of standardised scales measuring rape myth acceptance report skewed findings of rape myth acceptance being very low (Gerger et al., 2007; Vandiver & Dupalo, 2013; Beshers & Devita, 2021), with deteriorating construct validity (McMahon & Farmer, 2011). This may be due to increased rape myth awareness programmes, with the endorsement of rape in any way being extremely 'socially undesirable' (McMahon & Farmer, 2011; Fejervary, 2017). In this paper, we argue that skewed scores may be partly down to a methodological artefact in the wording of the scale items.

What are rape myths?

Rape myths are inaccurate beliefs that blame rape and sexual assault victims and hold them (at least partly) accountable instead of the perpetrators e.g., 'She led him on'; 'she shouldn't have been drinking' (Chapleau et al., 2007). While there are rape myths that are specific to men and boys (e.g., Javaid, 2015, 2016; Reitz-Krueger et al., 2017)they predominantly target and rationalise violence against women and girls (Gray & Horvath, 2018), likely because of its higher prevalence. It is therefore argued that the primary function of most rape myths is to deny and justify male sexual aggression against women (Lonsway & Fitzgerald, 1994), further upholding that men have a right to sex and women have a duty to provide it (Durán et al., 2011). In England and Wales alone, one in five women over the age of 16 report having been sexually assaulted or raped (Office for National Statistics, 2018b; Travis, 2018). Rape myth acceptance is a strong predictor for participants' justifying date rape scenarios

(Basow & Minieri, 2011), blaming the victim whilst rationalising the behaviour of the perpetrator (Frese et al., 2004), rape proclivity (Bohner et al., 2013; O'Connor, 2021) and propensity for males to offend (Camp, 2017; Powers et al., 2015).

Rape myth acceptance is also particularly problematic for the criminal justice system (The London Rape Review, 2021), and lawyers, barristers, judges and police officers have shown evidence of rape myth acceptance (Murphy & Hine, 2019; Parratt & Pina, 2017; Sleath & Bull, 2017; Temkin, 2000; Temkin & Krahé, 2008). This is thought to have considerable consequences, for example, fewer than one in six report their rape/sexual assault to the police (Office for National Statistics, 2020), with research consistently attributing rape myths that are so prevalent in society and within the judicial system as an explanation for this (Angiolini, 2015; Stanko & Hohl, 2018). These attitudes held within the criminal justice system may also impact victim attrition rates (Angiolini, 2015; Stanko & Hohl, 2018) and increased victim self-blame (Camp, 2017). Further, studies that have a sample of mock jurors in mock rape cases have found that individuals with higher rape myth acceptance showed higher levels of victim-blaming, and more leniency towards the accused perpetrators (Eyssel & Bohner, 2011; Sleath & Bull, 2012; Süssenbach et al., 2013). This is even the case when mock jurors are subjected to rape myth-confirming or rape myth-debunking information during mock cases (Klement et al., 2019). Further, specific training programmes given to police officers about sexual violence and consent did not result in lower agreement with rape myths than those that had not had the training (Fávero et al., 2022; Kinney et al., 2007). With such far-reaching consequences, it is recognised that rape myth acceptance should be one of the main targets in preventative programmes to reduce sexual violence and improve attitudes towards victims (Bohner et al., 2010).

Measuring rape myth acceptance

To understand social attitudes pertaining to rape myths, research draws on quantitative rape myth acceptance scales. The most cited and adapted is the Illinois Rape Myth Acceptance scale (IRMA), and the short form version (IRMA-SF), developed by Payne et al. (1999). The measure includes seven sub-facets: ’she asked for it’, ‘she lied’, ‘she wanted it’, ‘he didn’t mean to’, ‘rape is a deviant event’ ‘rape is a trivial event’ and ‘it wasn’t really rape’.

The IRMA has inspired many updated versions to fit evolving societal attitudes, particularly as early rape myth acceptance scales that were previously skewed towards high endorsement e.g., Burt (1980); Feild (1978), have, over the years, skewed toward low endorsement (Gerger et al., 2007; Vandiver & Dupalo, 2013). Gerger et al. (2007) suggested that these skewed distributions may not necessarily indicate decreased endorsement of rape myths, but instead, reflect people’s growing awareness of ‘political correctness’ or the evolution of rape myths themselves. To capture this growing awareness and how rape myths have evolved, measures based on the IRMA have been adapted, for example, McMahon & Farmer (2011) updated the IRMA (the uIRMA), which responded to the fact that current measures of rape myth acceptance have been called into question for being outdated, failing to capture myths about less stereotypical rapes and draw upon language that is heavily loaded rather than reflective of the complexities of rape and sexual assault.

Archetypal rape scripts

There is also evidence that whilst quantitative measures may, on the surface, appear to capture declining attitudes in rape myth acceptance, this may not be the case when presented with more nuanced scenarios that respondents do not believe meet the legal definition of rape

that some qualitative methods can capture. Importantly, the legal definition of rape is not often known by respondents, or respondents may have experiences that they do not consider rape, but which meet the legal definition (Maxwell & Scott, 2014; Peterson & Muehlenhard, 2004; LeMaire et al., 2016).

For example, rape myth acceptance in police officers is low on quantitative measures, e.g., in The Victim Credibility Scale. However, in qualitative interviews, police still view certain victims and certain scenarios (e.g., individuals involved in prostitution, assaults lacking witnesses) as ‘illegitimate' (Dellinger Page, 2008, 2010; Gekoski et al., 2023; Page, 2007; Venema, 2016). Police officers who endorsed more rape myths were less likely to believe victims who did not adhere to the archetypal ‘genuine victim’.

It is evident that what is considered as an archetypal ‘genuine victim’ has been recognised as a bias in quantitative rape myth acceptance measures, and attempts to adjust the wording of the scale have been made, for example, (Fejervary, 2017) questioned the construct validity of the McMahon & Farmer’s updated IRMA scale, pointing out that the use of the word ‘rape’ will evoke rape schemas (Eyssel & Bohner, 2011) – archetypal rape scripts portraying rape as being perpetrated by a delinquent male stranger on an unsuspecting female walking alone at night. If the word ‘rape’ evokes a limited conceptualisation of what rape *means,* it is not capturing people’s attitudes to what typical rapes actually reflect. Fejervary replaced the word ‘rape’ with ‘sexual assault’ on the scale to create the revised IRMA (rIRMA), which elicited greater rape myth acceptance scores in comparison to those that took the IRMA. While this is an important finding, it is prudent to remember that sexual assault is considered, by UK law, as a lesser offence than rape, and sentencing guidelines reflect this (Crown Prosecution Service,

2022). It is therefore important to consider Koss and colleagues' (2007) call for updated measures that use behavioural specificity to elicit responses, rather than the use of general terms such as 'rape'.

We argue that the low endorsement of rape myths in recent years is due to a methodological artefact in the wording of the items. People do not endorse rape myths on the rape myth acceptance measure because the use of the word 'rape' in the items evokes an extreme, narrow and unrepresentative script of what rape is. It is well- known that different types of rape elicit different levels of victim blaming, yet, rape myth acceptance scales, in asking about 'rape' implicitly focuses on a single type of rape that we describe here as archetypal.

Archetypal rape scripts give rise to rape myths

We argue that there are three ways in which the word 'rape' departs from women's experiences of rape. The first is that the word rape evokes archetypal 'rape scripts'; a specific, narrow idea of what rape is - a stranger rapist, a surprise attack, the use of extreme force and extreme resistance from the victim (Ryan, 2011). Ergo, a rape that lacks these characteristics, or where the victim-survivor engaged in 'risky behaviours' (e.g., intoxication, dressing provocatively, flirting), are not included in people's image of rape. In fact, contrary to typical rape scripts, many rape and sexual assault cases do not use overt force or violence, but instrumental violence, with just over half of rape or attempted rape survivors (54%) reporting that physical violence was involved. Also, only a minority of the reported rapes are actually committed by strangers (15%), while a large majority are raped by someone they knew, often a current or ex-partner (44%) (Office for National Statistics, 2020).

Archetypal rape-scripts that lead to myths have important implications for allegations that deviate from the typical script. For example, “rapes are violent acts committed by criminals” leads to rejecting allegations that deviate from that script, and give rise to rape myths such as ‘husbands cannot rape their wives’, ‘women enjoy rape’, ‘women asked to be raped’ and ‘women lie about being raped’ (Edwards et al., 2011). Secondly, research has also shown that women who hold archetypal rape scripts who then experience rape are less likely to acknowledge their own experience as such, a term called ‘unacknowledged rape’ (Bondurant, 2001; Kahn et al., 1994). In a meta-analysis of unacknowledged rape, up to 60% of those who meet the legal definition of having been raped used more benign terms to describe their experiences, such as ‘bad sex’ and ‘miscommunication’ (Wilson & Miller, 2016). However, these women nonetheless experience the same psychological consequences as those that acknowledge their assault, such as increased anxiety and depression (Newins et al., 2018). This suggests that unacknowledged rape does not serve a protective function (i.e., buffers against the anxiety associated with an assault) and instead puts these women at further risk of not seeking support for their trauma. Furthermore, women that accepted the rape myth ‘if women don’t fight back, it’s not rape’ and whose experiences corresponded to this myth (i.e., they had not fought back during their assault), were less likely to acknowledge their experience as rape (Peterson & Muehlenhard, 2004). Thus, the belief that rape involves high levels of violence may lead victims to label their personal experience of a relatively non-physically violent assault as something other than rape. Finally, most rapes do not have a perpetrator who is found guilty in court. We know rape myth acceptance is associated with lower rape conviction, but situations where someone who has not been found guilty (yet) or where there is a lack of formal accusation and trial altogether, create

the space where rape myths occur (Sinclair & Bourne Jr, 1998). In other words, a rapist is prescribed by the court's guilty verdict.

We argue that when people are asked about 'rape' in quantitative rape myth acceptance scales, they focus on a very extreme and exclusive definition of what a rape is. Therefore, we propose that there is a need to remove the word 'rape' from rape myth acceptance measures to draw out rape myths that people hold when a rape does not fit into narrow archetypal scripts.

Present research

Building on Fejervary's (2017) doctoral research, we posit that people score low on rape myth acceptance scales, not because they do not endorse rape myths but because the scale wording implicitly focuses on archetypal rapes that do not typically evoke rape myth endorsement. In two preregistered studies, we assessed whether replacing the word 'rape' from IRMA-SF items with a generic description of the term would elicit higher rape myth acceptance scores that better reflect people's actual beliefs. We compared the classic version of the Illinois Rape Myth Acceptance Scale short-form (IRMA-SF), the most commonly used measure of RMA (cited 1,735 times on Google Scholar), and the basis of many revised versions of the scale, to the same scale but where the word rape was replaced by alternative terminology, e.g., forced sex, which we refer to as the Lived Experiences Rape Myth Acceptance Scale (LERMA).

Furthermore, men endorse rape myths more than women, whereas people with higher educational attainment, and younger people have been found to be less likely to endorse rape myths (Dellinger Page, 2010; Hayes et al., 2013; Kassing et al., 2005). Conservatism positively correlates with rape myth acceptance (Aosved & Long, 2006; Manoussaki & Hayne, 2019). We therefore expect that these relationships will be strengthened for participants completing the

LERMA, compared to the IRMA-SF. Finally, to examine whether being exposed to rape-myth debunking training would have an impact on rape myth acceptance – which it did not in Klement et al.'s (2019) study, we also reappraise whether participants have taken part in consent training in school as part of the curriculum, or more formally.

Study 1

We developed a new measure and tested its performance against the IRMA-SF

We posit the argument that people score low on rape myth acceptance scales, not because they do not endorse rape myths but because the scale wording implicitly focuses on archetypal rapes that do not typically evoke rape myth endorsement. We therefore expect that by replacing the word 'rape' with alternative terminology that describes rape, but does not label it as such, true to typical rape experiences, we will elicit more nuanced responses, and higher rape myth acceptance compared to the original IRMA-SF.

Hypotheses

H1: We expected that the IRMA-SF and the LERMA will have the same factorial structure.

H2: We expected that participants completing the LERMA will score higher for rape myth acceptance than those who completing the IRMA-SF.

H3: We expected that for both versions of the scale, participants' rape myth acceptance would be positively related to being a man, holding more conservative beliefs and being older and negatively related to having a higher level of education and having previously taken part in informal or formal consent training. We expected that by eliciting higher rape myth acceptance scores in the LERMA, these relationships will be strengthened, compared to the IRMA-SF.

This study was preregistered on As Predicted: https://aspredicted.org/SJ3_D4D.

Method

Participants

Participants were recruited via snowball sampling on social media via a team of undergraduate student researchers at the University of the first author. Of the 593 participants who started the study, 151 were removed from the analytical sample for not completing the study to at least 95% (i.e., until the sociodemographic section at the end), and 14 were removed for not giving full consent. This resulted in a final sample of 428 participants, powered to capture a medium effect size (*Cohen's d* = 0.28, alpha = .05 and power = .90 in an independent samples t-test). The sample age ranged from 18-84 years (*M* = 30.13; *SD* = 14.22). This comprised 71% women, 27% men, 0.2% trans men, 0.2% trans women, 1% non-binary and 0.2% other. Ethnic composition was 59% White British, 10% white other, 8% Asian other, 7% Asian British, 6% black other, 6% black British and other 5%. The study was subject to a full risk assessment, and we provided a trigger warning at the start of the information sheet, detailing that the study asked about sexual encounters that participants might not feel comfortable answering and that they could close the study at any point. This study was granted ethical approval: ETH2122-0174.

Design

Participants were randomly assigned to complete either the short form of the Illinois Rape Myth Acceptance Scale (IRMA-SF, Payne et al., 1999) (*n* = 207), or an alternative version of the same scale but where the word 'rape' was replaced by descriptions of what transpired (*n* = 221; see Table 14 for replacement phrasing). We refer to the scale with the changed terminology as the Lived-Experience Rape Myth Acceptance Scale (LERMA).

Materials and Procedure

The study was advertised as 'attitudes towards interpersonal sexual encounters' via social media outlets, and participants completed the study online (median completion time: 5 min). Participants provided informed consent after reading a rape trigger warning. Participants then completed a rape myth acceptance scale using either the 17 items of the originally 20-item IRMA-SF (Payne et al., 1999) – for which we removed three redundant foil items, or the LERMA ($\alpha = .87$). We replaced all of the occurrences of the word rape with one of three phrases depending on the best fit within the item: 'having sex against her will', 'having sex she didn't want' 'forced/forcing into sex'. The five items from the IRMA-SF that use the word 'rape' were kept as-is in the LERMA, meaning 12 items were adapted of the 17 items (5 identical items between both scales). These adaptations are detailed in bold in Table 14.

Participants rated their agreement with the items using a five-point Likert scale (1 = *Strongly disagree,* 5 = *Strongly agree)*. We created a rape myth acceptance index using participant's mean responses across the 17 items, with higher score meaning greater rape myth acceptance.

Having completed either the IRMA-SF or LERMA, participants completed a short sociodemographics section including age, level of education, gender, a single-item sliding scale measure of conservatism and whether the participants had taken part in any kind of consent training. Finally, participants were debriefed and a victim support URL link was provided.

Table 14*: Versions of the Illinois Rape Myth Acceptance Scale-SF with and without the word rape as used in study 1 and 2*

Illinois Rape Myth Acceptance Scale – Short form (Payne, Lonsway & Fitzgerald, 1999) (with the word 'rape')	**Lived Experiences Rape Myth Acceptance scale (without the word 'rape')**
Subscale 1: *She asked for it*	
If a woman is **raped** while she is drunk, she is at least somewhat responsible for letting things get out of control.	If a woman was drunk and **had sex against her will,** she is at least somewhat responsible for letting things get out of control.
A woman who ''teases'' men deserves anything that might happen.	Unchanged.
When women are **raped**, it's often because the way they said ''no'' was ambiguous	When women **have sex they didn't want to have**, it's often because the way they said ''no'' was ambiguous
A woman who dresses in skimpy clothes should not be surprised if a man tries to force her to have sex	Unchanged.
Subscale 2 : *She wanted it*	
Although most women wouldn't admit it, they generally find being physically forced into sex a real 'turn-on.'	Unchanged.
Many women secretly desire to be **raped.**	Many women secretly desire to **have sex against their will.**
Subscale 3: *Rape is a trivial event*	

If a woman is willing to ‘‘make out’’ with a guy, then it’s no big deal if he goes a little further and has sex	Unchanged.
Women tend to exaggerate how much **rape** affects them	Women tend to exaggerate how much **having sex that they didn’t want to have** affects them
Subscale 4: *Not really rape*	
If a woman doesn’t physically fight back, you can’t really say that it was **rape.**	If a woman doesn’t physically fight back, you can’t really say that she **had sex against her will.**
If the **rapist** doesn’t have a weapon, you really can’t call it a rape	If a **man** didn’t have a weapon, you can’t really say **he forced someone to have sex.**
Subscale 5: *Rape is a deviant event*	
Men from nice middle-class homes almost never **rape.**	Men from nice middle-class homes almost never **force women to have sex with them**.
It is usually only women who dress suggestively that are **raped.**	It is usually only women who dress suggestively that **end up having sex that they didn’t want to have.**
Rape is unlikely to happen in the woman’s own familiar neighbourhood.	**Sex against her will** is unlikely to happen in the woman’s own familiar neighbourhood.
Subscale 6: *She lied*	
Rape accusations are often used as a way of getting back at men.	**Accusing someone of forcing them to have sex** is a way of getting back at men.

A lot of women lead a man on and then they cry **rape.**	A lot of women lead a man on and then say that **sex was against their will.**
Subscale 6 : He didn't mean to	
Men don't usually intend to force sex on a woman, but sometimes they get too sexually carried away	Unchanged.
Rape happens when a man's sex drive gets out of control	**When a man has sex with a woman who doesn't want to have sex**, it is because the man's sex drive gets out of control.

Factorial structure of the IRMA-SF

We assessed the factorial structure of the Illinois Rape Myth Acceptance scale to see whether it yielded the same structure as when the scale was developed in the 1990s. We used the 17 items of the 20-item measure (excluding three foil items) with orthogonal rotation (varimax). The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .78. Bartlett's test of sphericity (136) = 811.75, $p < .001$, indicating that the correlation structure was adequate for factor analyses. We used a maximum likelihood factor analysis cut-off point of .5 and the Kaiser's criterion of eigenvalues > 1.

The analysis yielded six factors, mostly consistent with the seven factors found in Payne et al's (1999) exploratory factor analysis (five out of seven factors were consistent with the original exploratory factor analysis of the IRMA, with two factors appearing to have redistributed – 'rape is a trivial event' and 'not really rape'. The six factors accounted for 62.29% of the variance (from highest to lowest variance explained): 1. Not really rape (three items), 2.

She lied (three items), 3. She wanted it (three items), 4. He didn't mean to (two items), 5. Rape is a deviant event (two items), 6. And a new factor, "shared blame" (two items, e.g., 'If a woman is raped while she is drunk, she is at least somewhat responsible for letting things get out of control'). For full breakdown of the exploratory factor analysis, see SM4.

Confirmatory factor analysis

To evaluate whether removing the word 'rape' and replacing it with a descriptive equivalent term affected the factorial structure of the scale, we conducted a confirmatory factor analysis and examined the structure of the LERMA compared to the factorial solution found on the EFA conducted on the IRMA. We used an oblique rotation (direct oblimin) and the Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .86, Bartlett's test of sphericity (136) = 1299.39, $p < .001$, indicating that the correlation structure was adequate for factor analyses. The maximum likelihood factor analysis had a cut-off point of .5 and Kaiser's criterion of eigenvalues greater than 1. The six-factor solution covered the same themes as the IRMA but the items were not always included in the same factors, showing the thin boundary between concepts covered by the LERMA (e.g., she asked for it and she wanted it), as well as the importance of scale wording.

The six factors accounted for a similar variance as for the IRMA (69.85%) and covered five of the six original themes (from highest variance explained to lowest): 1. She asked for it (three items), 2. She wanted it (two items), 3. Not really rape (four items), 4. He didn't mean to (two items), 5. A new factor – shared blame (two items), and 6. She lied (one item). The items within each theme varied, with nine items out of 18 falling within the same factor for the IRMA and the LERMA. For full breakdown of the confirmatory factor analysis, as well as factor loadings for both the exploratory and confirmatory factor analyses, see SM5 and SM6.

Given the consistency in the themes they cover and the inconsistency in the nature of the items within each factor, we focus our subsequent analyses on the overall RMA score, rather than on sub-facets.

Results

Overall, level of rape myth acceptance across both scales was pretty low ($M_{IRMA\text{-}SF}$ = 1.34, SD = 0.35 ; M_{LERMA} = 1.49, SD = 0.49; possible range 1-5). However, as shown in Figure 2, participants who completed the LERMA scored higher on rape myth acceptance compared to those who completed the IRMA-SF. An independent t-test showed this difference between scores was statistically significant, t (1, 426) = -3.59, $p < .001$. Thus, consistent with the primary aim of the study and our hypothesis, people who were presented with a description of a behaviour (LERMA) rather than the word ‘rape’ (IRMA-SF) scored higher for acceptance of rape myths.

We had pre-registered a multiple regression analysis to examine the relationships between rape myth acceptance (1= LERMA, -1 = IRMA-SF) and rape myth antecedents. This analysis showed that gender, political conservatism, and education level were all significantly associated with rape myth acceptance on both scales. There was also a strengthened relationship with rape myth acceptance and age and having had formal consent training for participants who completed the LERMA, but not the IRMA-SF, though this was just out of statistical significance (see multiple regression analysis results in supplementary materials SM7). Exploring these relationships further, a correlation analyses indicated that, as expected, being a man and being more conservative were positively related with rape myth acceptance on both scales. In contrast, being older, having a higher level of education and having had informal/formal consent training were not statistically significantly related to rape myth acceptance on either scale. We also assessed whether the correlations differed based on the terminology used in the scale. We found

that replacing the word rape increased the magnitude of the correlation for age, gender and conservatism, but the differences between correlations were not statistically significant (see Table 15).

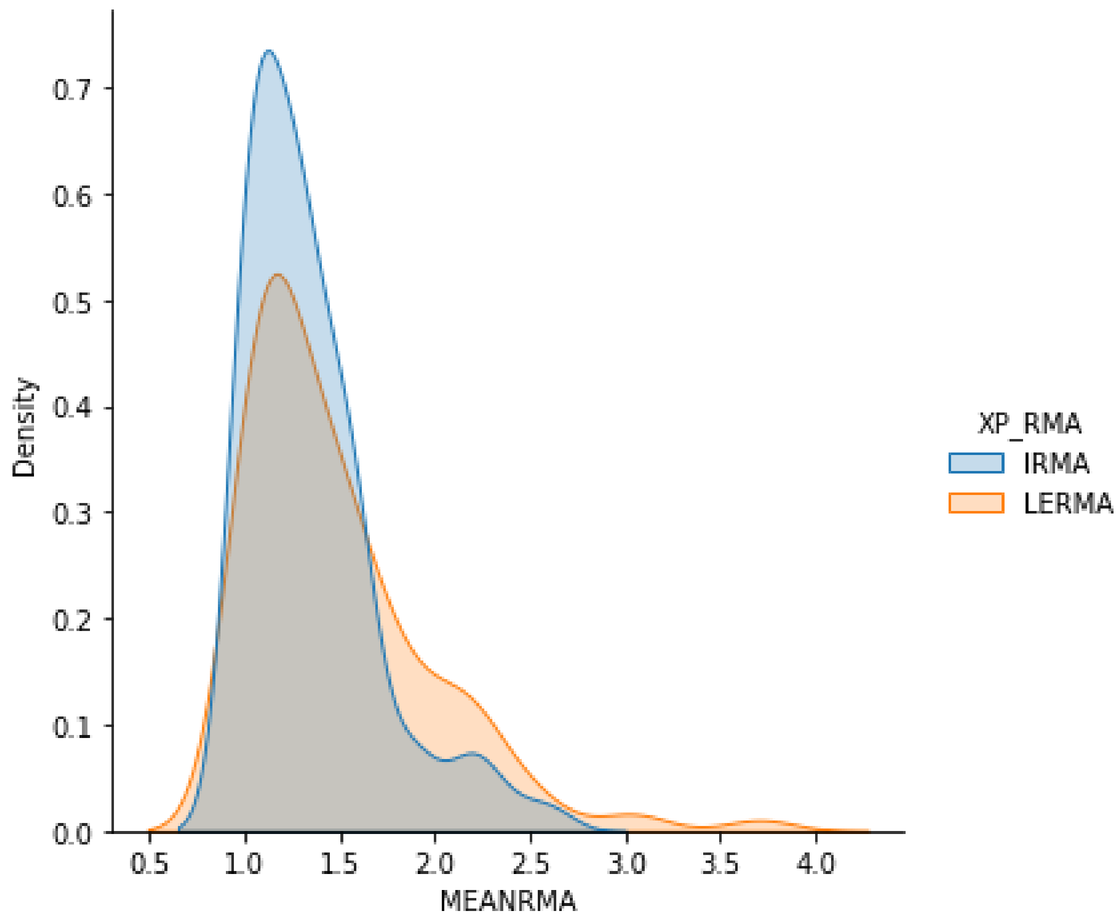
Table 15*: Zero order correlation between Age, gender, conservatism, education, consent training and overall RMA, and RMA as a function of completing either the IRMA (SF)-with the word 'rape' or the LERMA- without the word 'rape'*

	Overall RMA (*N* =428)		IRMA (*n* =221)		LERMA (*n* =207)		Coeff comparison	
	r_s	*P*	r_s	*P*	r_s	*p*	Sobel	*p*
Age	.07	.170	.02	.775	.11	.117	-.93,	.177
Gender (men=0,women = 1)	-.24	<.001***	-.22	.001**	-.24	.001**	.21	.417
Conser-vatism	.26	<.001***	.24	<.001***	.29	.002**	-.55	.291
Education	-.11	.824	.03	.678	-.01	.865	.04	.341
Informal consent training	.05	.271	.06	.414	.04	.554	.20	.418
Formal consent training	-.07	.170	-.11	.101	-.01	.862	-1.03	.151

*Note: * = p < 05, ** = p < .01, *** = p < .001*

Both scales showed results that were skewed towards the lowest possible response, but this was particularly the case for the IRMA-SF. By removing the word rape from the IRMA-SF, we elicited higher rape myth acceptance scores, but these scores remained fairly low. The LERMA also elicited a slightly wider distribution of scores, as demonstrated in Figure 2.

Figure 2: Distribution of rape myth acceptance scores as a function of completing the IRMA or LERMA



We found some of the traditional correlations between sociodemographic characteristics of respondents and RMA, such as the link with gender and conservatism but we did not replicate others, such as its link with consent training and age. This is possibly because of the restricted diversity of our sample (e.g., most participants were fairly young). In our next study we retest our main hypotheses with a larger and more diverse sample.

We also build on our observation that a better measure of rape myth acceptance may more strongly correlate with factors known to be related to rape myths. Further, we extend our approach by formally assessing whether having a broader and less skewed measure of RMA

allows to better capture if rape myth acceptance relates to psychological antecedents (e.g., Just World Beliefs) and consequences (e.g., victim blaming).

Study 2

Study 2 attempts to replicate the LERMA eliciting higher scores for rape myth acceptance than the IRMA-SF that we found in study 1. We also predict that the LERMA measure will elicit strengthened relationships between rape myth acceptance and psychological factors known to be predictors or outcomes of rape myth acceptance. These are just-world beliefs, victim and perpetrator blaming (for rapid evidence assessment, see Russell & Hand, 2017) and counterfactual thinking. Counterfactual thinking is the tendency to create possible alternatives to an event that has already occurred, contrary to what actually happened. Examples of this include 'what if…' and 'if only…' when considering how things could have turned out differently, e.g., 'if she had behaved differently, then this would not have happened to her' (Roese & Olson, 1995a).

We hypothesised that:

H1. Participants who completed the Lived Experiences Rape Myth Acceptance (LERMA) would score higher for rape myth acceptance than participants that completed the Illinois Rape Myth Acceptance scale (IRMA-SF).

H2. Rape myth acceptance would positively correlate with belief in a just world, victim-blaming and engaging in counterfactual thinking and negatively correlate with perpetrator blaming. This would especially be the case for participants that completed the LERMA (vs. the IRMA-SF).

This study was preregistered on As Predicted: https://aspredicted.org/5Y9_5D6.

Method

Participants

Participants were recruited via snowball sampling, which included invitations to participate through the research team's social media accounts. 274 participants responded to the study, but to improve the diversity of the sample in terms of age and gender, we also advertised the study on Prolific, where a further 200 participants responded to the study and were paid an average of £10.10 p/h for a median completion time of 8m 34s. A total of 474 participants responded, of which, 70 were removed for not completing the study to at least 93% (i.e., until the sociodemographic section). This resulted in a final sample of 404 participants required to capture a medium effect size of the wording manipulation on rape myth acceptance scores (Cohen's d = .056, alpha = .05 and power = .90).

The sample ranged from aged 18 – 81 years (*M* = 35.28; SD = 15.21). This comprised 63% women, 36% men, 1% trans men, 1% non-binary and 0.2% other. Ethnic composition was 70% white British, 14% white other, 5% Asian British, 2% Asian other, 3% black British, 1% black other and other 6%. This study had ethical approval with an additional risk assessment: ETH2122-0174.

Design

As in study 1, participants were randomly allocated to complete either the Illinois Rape Myth Acceptance short- form (IRMA-SF) scale (*n* = 202), or the version that replaced the word 'rape' with equivalent terminology – the Lived Experience Rape Myth Acceptance (LERMA) scale (*n* = 202) in a between-subjects design.

Materials & Procedure

The procedure was identical to that of Study 1 where participants were randomly assigned to complete either the IRMA-SF (α = 86) or the LERMA (α = .93), this time, on a 7-point scale to capture a larger range of responses. Participants also completed a measure for just-world beliefs, victim/perpetrator blaming and counterfactual thinking presented in a randomised order to each participant.

Belief in a just world

The scale measures the extent to which people believe that life is fair, hence good things happen to good people and bad things happen to bad people. We used an adaptation of The Just-World Scale (Rubin & Peplau, 1975) which was shown to be associated with rape myth acceptance (Russell & Hand, 2017). We adapted the scale so that it focused on participants' country of residence rather than 'the world' because at the time of the study came the breaking news of the Russian invasion of Ukraine in Spring 2022, which could have affected responses about world fairness. We also made significant amendments to the language used so that it was no longer gender specific, e.g., 'The political candidate who sticks up for *his* principles rarely get elected' was changed to 'The political candidate who sticks up for *their* principles rarely get elected' (for full details of the scale, see appendix I). Belief in a just-world was measured with 20 items (8 items were reversed scored) on a 6-point Likert scale ranging from 1 = *Strongly disagree,* 6 = *Strongly agree,* e.g., *"Students almost always deserve the grades they receive in school"; "By and large, people deserve what they get*". The scale had a good reliability, α = .73.

Victim and perpetrator blame

Participants read a scenario describing a rape incident that was based on past work on victim blaming (Sleath & Bull, 2010). Our scenario included a description of exactly the same

event, through the perspectives of the alleged rape 'victim' and 'perpetrator' (see table 16). As it is known in the literature, perpetrators may not label an act as rape, because of widely-recognised rape myths, such as 'there must be physical resistance in order for a rape to have taken place' (Ryan, 2019). Further, we wanted to capture the real experiences that people have when they are a third party observing contradicting recollections of the same event. This was operationalised by asking participants to put themselves in a situation where they are receiving 'versions' of the same event from both 'Sarah', the female 'victim' and 'Tom', the male 'perpetrator'. We also considered typical rape myths from the IRMA-SF scale which were embedded in the 'versions' of the event in a more realistic way, as opposed to objective statements.

Victim-blame was measured with a single item that asked 'How much do you blame Sarah for the sexual encounter?', and perpetrator blame was also measured with a single item, 'How much do you blame Tom for the sexual encounter?' Each item was measured on a sliding scale of 0: *Not at all* - 10: *Completely.*

Direct blame or responsibility judgements were complemented with a more subtle indirect measure of responsibility called 'counterfactual thinking'. Counterfactual thinking explores how events could have turned out if someone had acted differently in the situation. When counterfactuals focus on the victim, they directly imply that she was (partly) responsible for being assaulted (Branscombe et al., 1996). We asked how much participants believed that Sarah could have avoided the alleged rape if she had 'been sober', 'said stop without laughing' 'behaved differently' and 'if she had not kissed Tom'. Participants gave their answers on a 7-point Likert scale ranging from 1: *Strongly disagree* – 7: *Strongly agree.* The scale had a good internal reliability (Cronbach's α = .85) and responses were averaged into an aggregate counterfactual reasoning score, where higher score indicated higher counterfactual thinking. For the full scale, see appendix J.

Table 16*: Rape scenario and victim/perpetrator versions*

You attend your work's Christmas party in the local hotel, but decline the offer of a room overnight. All of your colleagues are at the party, including your close colleagues, whom you also consider as friends - Sarah and Tom. Both Sarah and Tom often flirt with each other at work, but as far as you are aware, they have not been romantically involved. You leave around midnight. The next evening, a colleague tells you that Sarah has made an allegation of rape against Tom, and later that night, you receive messages from both Sarah and Tom.

Sarah's message	Tom's message
Something happened yesterday and I know people will be talking about it at work, so I wanted to let you know what happened. I know people will be telling you that what I have accused Tom of is not true. After you left last night, a few of us stayed for a drink up in Tom's hotel room. As everyone left, I ended up being the last one there. I was enjoying myself, and Tom was being sweet, we ended up kissing. But I didn't want a drunken fumble, so I told him I had better call a cab. Tom kept saying 'one more drink'. We had another drink then I got my phone out to call a cab. Tom started	I know people will be telling you about the serious allegations Sarah has made against me. I did not force her to have sex with me. We did have sex but she consented. After you left last night, a few of us went up to my room in the hotel and had a drink before the others began to leave. Sarah didn't leave. She stayed, and it was obvious why. She was saying "I really should go" then happily accepting another glass of wine. She then started kissing me. She was telling me she was going to go home, then kissing me again and not actually leaving. As she was quite drunk, I told her just to stay, it was

pushing my phone away and kissing me. I was laughing at first, telling him to stop. He was saying “you’re here now, you might as well stay” and kind of holding on to me and blocking the door. He started lifting up my dress and I got nervous and laughed it off but I really didn’t want him to. I pushed his hands away but then something flicked in him, he dug his fingers into my arms and I got quite frightened. He pushed me onto the bed and held me down, I was terrified. After, I tried to pretend I was OK with it by making small talk about something on TV but then he passed out and I left. I thought about it all day and realised how wrong he was and I made the call to the police.

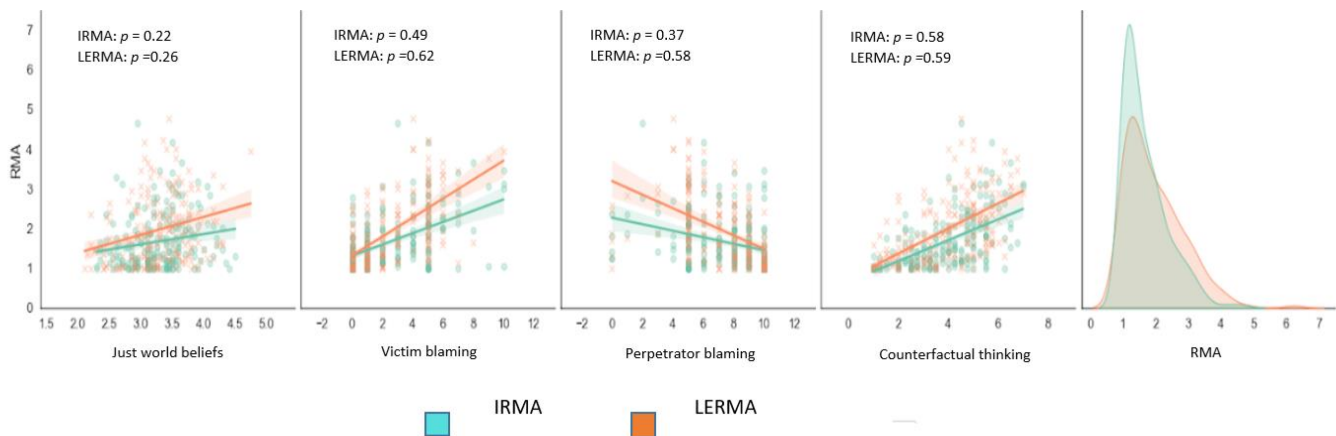
obvious she wanted to. It got heated, she was all over me, she was coyly laughing as I pulled up her dress but she didn’t really try to stop me, and made no attempt to leave. Then she just let me, and we had sex. After, she was fine, chatting away about something on the TV. I woke up and she had gone. Then the police came and arrested me for rape! I didn’t rape her! I don’t know why she is doing this. This will ruin me.

Results

Participants that completed LERMA scored statistically significantly higher on rape myth acceptance ($M = 1.96$, $SD = 0.89$) compared to those that completed the IRMA-SF ($M = 1.67$, $SD = 0.69$), $t(1, 404) = -3.72$, $p < .001$. This again suggests that in using behavioural specificity to describe rape instead of using the word ‘rape’, we elicited higher scores for rape myth acceptance.

We conducted pre-registered moderation analyses predicting RMA from belief in a just world/victim blaming/perpetrator blaming and counterfactual thinking as predictors and the scale type as a moderator (1 = LERMA, -1 = IRMA-SF). The results show that there was a significant moderating effect of victim blaming by scale wording, as well as perpetrator blaming by scale wording on rape myth acceptance. There was no moderating effect of belief in a just-world or counterfactual thinking by scale wording on rape myth acceptance (for full moderation analyses results, SM8). However, because the moderation did not account for the effect of the scale wording on rape myth acceptance, we report here the correlation between rape myth acceptance and belief in a just world, and victim/perpetrator blaming for the two versions of the scale and we compare the correlation coefficients with a Sobel test (see Figure 3). Just-world beliefs, victim-blaming, perpetrator exoneration and counterfactual thinking correlated with rape myth acceptance. The LERMA strengthened the correlations for all predictors, with the LERMA statistically significantly better predicting victim blame (positively) and perpetrator blame (negatively). We also included Sobel tests for the differences in correlations between age, gender, conservatism, level of education and consent training on rape myth acceptance as a function of the wording of the scale, but as with Study 1, none of the Sobel scores were statistically significant (*Age:* 1.03, p=.153*, gender:* .11, p= .457*, conservatism:* -1.42, p=.079*, education:*. 92, p =.180, *informal consent training:* -1.136, p=.128 and *formal consent training:* -1.38, p = .083*).*

Figure 3: Correlations of outcomes/predictors of RMA as a function of wording of the scale



Note: The difference between correlations as a function of scale wording were statistically significant for victim and perpetrator blame, Sobel = -.1.89, p = .030 and Sobel = 2.73, p = .003, respectively, but not for just world beliefs and counterfactual thinking, Sobel = -.53, p = .298 and Sobel = -.15, p = .440, respectively.

Discussion

In recent years, measures of rape myth acceptance have yielded increasingly low endorsement of rape myths (e.g., Gerger et al. 2007; McMahon & Farmer, 2011; Vandiver & Dupalo, 2013). We argue that people score low on such measures not because they do not endorse rape myths in general, but because they do not endorse rape myths for archetypal rapes (e.g., stranger rape where a man pounces on a woman in a dark alleyway). These archetypes are implicitly evoked when considering the word 'rape' (Ryan, 1988). In reality, around 85% of rapes may be considered as more 'ambiguous' (Office for National Statistics, 2020) in that they could involve friends/acquaintances, spouses/partners, and involve less violent scenarios, and as such, are likely to evoke rape myths. In this work, we emphasise the need for behavioural specific terms that describe rape in order to more accurately measure people's attitudes to rape myths. We conducted two studies where participants completed either the classic version of the widely used Illinois Rape Myth Acceptance Scale (short-form), which included the word 'rape',

or a version of the scale where the word ‘rape’ was replaced with a description of rape (e.g., ‘having sex against her will’). In both studies, as predicted, we found that the version of the scale without the word ‘rape’ elicited higher rape myth acceptance scores compared to the original Illinois Rape Myth Acceptance scale.

We also found in both studies, being a man and being more conservative were positively related with rape myth acceptance on both scales and those that completed the LERMA trended a strengthened correlation magnitude for age, gender and conservatism, compared to those that completed the IRMA-SF, but the differences between correlations were not statistically significant. Contrary to our expectations, being older, having a higher level of education and having had informal/formal consent training were not statistically significantly related to rape myth acceptance. For age, this could simply be because for both studies, we had quite a young sample, with an average age of 30 and 35 respectively, and much of our sample was made up of university students, so again, there was not a wide variability with level of education. However, we note that having had formal or informal consent training did not predict rape myth acceptance scores and this is particularly interesting given the work of Fávero et al., 2022 and Kinney et al., 2007, who found that specific training programmes given to police officers on sexual violence and consent did not result in lower agreement with rape myths than those that had not had the training.

In Study 2, we also predicted that removing the word ‘rape’ from the rape myth acceptance scale would elicit strengthened relationships between rape myth acceptance and psychological factors known to be predictors and outcomes of rape myth acceptance – just-world beliefs, victim blaming, perpetrator exoneration and counterfactual thinking. This showed that holding just-world beliefs, victim-blaming, exonerating the perpetrator and engaging in counterfactual

thinking predicted overall rape myth acceptance. As predicted, the LERMA was statistically significantly better predicting victim blame (positively) and perpetrator blame (negatively) compared to the IRMA-SF. Whilst the relationship between rape myth acceptance and just-world beliefs/counterfactual reasoning were strengthened for those who completed the LERMA, the difference between these relationships in the IRMA-SF and LERMA were not statistically significant.

Limitations

It is also worth noting that whilst both studies yielded higher rape myth acceptance scores in the scale that did not use the word ‘rape’ compared to the original Illinois Rape Myth Acceptance scale, the scores were still rather low, indicating generally low endorsement of rape myths. Initially, we expected to conduct our analyses using the seven sub-facets of rape myth acceptance that were found in Payne et al.’s (1999) exploratory factor analysis. However, only five of the factors that we found in our exploratory factor analysis were consistent, and some of the items loaded inconsistently within them – unsurprising, considering that the findings were over 23 years ago, and much has changed in the landscape of understanding consent and sexual violence.

As there is compelling qualitative evidence that rape myth endorsement remains rife, the wording of rape myth acceptance measures may need further changes, and complementary measures might be required in order to support their findings and gain a bigger picture on these harmful attitudes that are known to predict rape proclivity, and are arguably responsible for extremely low reporting and prosecution rates of rape and sexual assault.

Chapter 5

GENERAL DISCUSSION

According to social role theory (Eagly & Wood, 2012), societal expectations about gender roles play a key role in maintaining sexism and gender inequality. These expectations are upheld at an individual level through personal beliefs, attitudes, and behaviours, and at a societal level through cultural norms and institutional practices. Over time, repeated exposure to gendered contexts and information shapes individuals' self-perceptions in alignment with these roles, influencing behaviour and reinforcing gender disparities and sexism within society (Eagly et al., 2000). This thesis considers how sexism is understood through some of the key claims, measures and methodologies in research pertaining to sexism, on both an individual and societal level and how sexism manifests in attitudes that uphold violence against women. We therefore aimed to answer the global research question ‘are methods and measures in past research painting a distorted picture of sexism and its manifestations that uphold violence against women?’

To answer this research question, we conducted experimental studies within each of the three empirical chapters, demonstrating how past research findings may underestimate or over-inflate the effects of sexism and its manifestations, more specifically: putting the onus on women to confront sexism to mitigate its negative effects; sexism in terms of responding to women’s safety concerns and playing down the risks of violence they face, and; the endorsement of rape myths that are are highly correlated with sexist attitudes, that denigrate women survivors of sexual violence. . In light of the need for a more robust evidence base, coupled with the changing

landscape, we critically assessed three claims which may be falsely giving a promising picture that sexism and its negative manifestations are a no longer problematic: 1) that the negative effects of sexism can be mitigated simply by women standing up for themselves and challenging it; 2) that women's safety fears are disproportionate to the risks they face; and 3) that people are accepting rape myths less.

In chapter 2, across three experiments, we explored the assertion that challenging sexism mitigates its negative outcomes for women. We demonstrated that this may appear to be the case as we found a correlation between challenging sexist comments and women's value on sexual consent, their justification of gender inequality and rape myth acceptance. However, when we controlled for existing sexist attitudes, the relationship between challenging and all outcomes became null. This, we argue, provides a more accurate picture of reality and demonstrates methodological flaws in past research that claims that the negative effects of sexism can be mitigated on an individual level by challenging it. These methodological flaws include not having a control condition to compare the negative effects of exposure to sexism and not controlling for baseline sexist attitudes when examining the effects of challenging. In chapters 3 and 4, we shifted focus to sexism at a societal level, and how it maintains violence against women, either by painting women's fears of victimisation as irrational, or by published research on rape myth acceptance giving the illusion that society no longer accepts such myths. In chapter 3, we challenged the gender-fear paradox that posits the argument that women fear victimisation of crime, but statistically, are much less likely to become victims of crime compared to men. In this chapter, we demonstrated how the current measures of women's victimisation of violent crime failed to provide a full picture of the risks they face. We found a statistically significant difference between men and women in how they restrict their everyday behaviours and presence,

with women adopting all preventive behaviours more than men to avoid victimisation. We argue that this cannot possibly be reflected in crime statistics so often cited to assure women that they are comparatively safe. We also tested whether women were even less likely to report crimes to police in the current climate. This was in light of the murder of Sarah Everard and the then Police Commissioner diminishing the risks women face, insisting that women are safe (O' Callaghan & Ingala Smith, 2021; Topping, 2021b). Although in this study, we did not find a gendered difference in trust in police, as we had expected, we did find that overall trust in police in both men and women was low, consistent with the Crime Survey England and Wales 2018-2020, conducted before the murder of Sarah Everard, as well as more recent findings of Pickering et al. (2024) We posit the argument that one way that women are less likely to become part of the crime statistics so often cited to quell women's fears is by virtue of restricting their behaviours to avoid the risk that is posed to them, at a cost to their freedom. We therefore demonstrate that the measures used to inform crime statistics that paint a picture of a society that is much safer for women than men, do not give a true picture of the risk women face, and the victimisation that they may avoid because they restrict their behaviours. Finally, in chapter 4, we focus on rape myth acceptance, a manifestation of sexism, and highly correlated with sexist attitudes (Chapleau et al., 2007). We examined the research findings that suggest that in more recent years, people score low on rape myth acceptance measures, suggesting that societal attitudes have evolved to exhibit less denigration of survivors of sexual violence and less justification of perpetrators' actions. In two experiments, we replaced the word 'rape' in the Illinois rape myth acceptance scale (IRMA), which evokes archetypal rape scripts, with a behavioural-specific description of rape in the lived-experiences rape myth acceptance scale (LERMA). Whilst rape myth acceptance remained skewed towards the lower disagreement end

(consistent with our findings when we tested for rape myth acceptance in our three studies in chapter 2, and consistent with findings by Beshers & DiVita, 2021; Bohner, 1998; Bohner et al., 1999; Gerger et al., 2007; Vandiver & Dupalo, 2013), we were able to demonstrate a statistically significant difference between groups that completed the IRMA or the LERMA, which showed rape myth acceptance scores to be higher in the groups that completed the LERMA. This, we argue, demonstrates a flaw in the measure of rape myth acceptance in using the word ‘rape’, which has been found to elicit archetypal rape scripts to which rape myths do not apply and are most likely to elicit low endorsement (Fejervary, 2017). This confirms the need for rape myth acceptance measures to be more behavioural-specific, as recommended by Koss et al. (2007).

The three empirical chapters reveal methodological flaws in previous research on challenging sexism, and how sexism manifests in attitudes that uphold violence against women. We argue that these flaws create a misleading narrative, suggesting that sexism can be effectively mitigated and that the manifestations of sexism and the impacts on women are diminishing, or are not a significant issue. Our findings show that ingrained sexist attitudes are related to how women see themselves and other women. This compliments the findings of Chapleau et al. (2007), whose work demonstrated the positive relationship between sexist attitudes and rape myth acceptance.

This body of work comes at a time when public discourse around sexism and women’s safety is particularly prominent in the aftermath of the #MeToo movement and high-profile criticism of those responsible for preventing violence against women and girls, most notably the police. Additionally, concerning evidence of backlash against gender equality among younger men has emerged in the UK, Europe, and globally (Ipsos, 2022; Off et al., 2022; Ipsos, 2024; Campbell et al., 2024), evidence that sexism continues to be a scourge that permeates society

Given the enormous consequences of sexist and rape cultures, it is crucial to explore how scientific research is enhancing our understanding of sexism's prevalence, evolution, manifestations, and impact on women, as well as how to reduce its prevalence. This was especially important following the replication crisis in psychology and the social sciences, which called scientific findings into question and raised doubts about the reliability and replicability of research findings. All experimental studies in this thesis pay particular consideration to the replication crisis in social sciences, and how some assertions and findings that help to inform guidance and policy on tackling sexism and its manifestations may be grounded in poor scientific practices. In order to ensure robust and transparent research, we utilised well-powered sample sizes in all studies, we pre-registered all studies, included manipulation checks and uploaded data and materials to the Open Science Framework.

Understanding the negative impact of sexism and how to mitigate it: methodological issues.

Previous work in this field state that exposure to sexism affected women's self-esteem and performance in cognitive tasks (Swim et. al, 2001; Fischer et. al, 2007; Dardenne, Dumont, & Bollier, 2007; Dumont, Sarlet, & Dardenne, 2010). We did not find these effects across our experimental studies in chapter 2, and argue that this is likely to be because sexism is pervasive and persistent over time (Helwig, 2022), with one-off experiences in a superficial setting unlikely to result in definitive changes, which are affected by deeply ingrained societal expectations and roles (Eagly & Wood, 2012). We refer to the assertions in past research that the negative effects of sexism can be mitigated by challenging it, but highlight that this past research either failed to test for the actual effects of exposure to sexism (e.g., Gervais et al., 2010), failed to control for baselines sexist attitudes, (e.g., Gervais et. al, 2010) or failed to find an effect of exposure to sexism (Swim et. al., 1999). In all three pre-registered experiments in chapter 2, we

remedied these methodological flaws. There was a null effect of sexist comments on performance on a cognitive task and self-esteem, as well as all other personal and interpersonal outcomes: value of sexual consent, justification of gender inequality and rape myth acceptance. We note that the fact that we did not find effects of sexism found on performance and self-esteem, we argue, is likely due these methodological issues discussed, and more in line with the findings of Swim & Hyers (1999), who did test the effect of exposure to sexism and subsequent challenging but neither found an effect of exposure to sexism, nor an effect of challenging it. However, we do not propose that this means that being exposed to sexism is not related to self-esteem, demonstrated by subsequent qualitative diary studies by Swim et al. (2001) that evidenced detriments to self-esteem when women were exposed to sexist comments. Gervais et al. (2010) are also often cited as evidence to show that self-esteem is boosted when women challenge sexist comments. It is important, however, to understand that in Gervais et al.'s work, 165 graduates (75 women) were all exposed to sexist comments, and there was no non-sexist control group to compare self-esteem. Further, we found that the act of challenging was linked with lower support for gender inequality, more value placed on sexual consent, and lower rape myth acceptance but there was no relationship between challenging and a boost in self-esteem across all experiments in chapter 2. On the surface, this appeared to be really positive in terms of how women value sexual consent and how they perceive other women. However, when controlling for baseline sexist attitudes, we found that the effect of challenging on all dependant variables became null. This demonstrates that ingrained sexist attitudes relate to outcomes in how women see themselves and others, with women lower in sexist attitudes placing more value on sexual consent, and less justification of gender inequality and rape myth acceptance. The third study in this package provided more causal evidence that women already lower in pre-existing

sexist attitudes prompted challenge and more positive outcomes in how they perceive themselves and other women. These findings call into question the assertion that challenging is transformative for women and empirically demonstrates that it was not the act of challenging that elicited positive outcomes for women, rather, lower scores for sexist attitude predicted women valuing sexual consent more, having more support for gender equality and less support for rape myths. This shows that ultimately, as Swim and Hyers (1999) found, women already committed to gender equality were more likely to challenge sexist comments, and we demonstrate that those types of women place higher value on themselves and other women. This contradicts the key claim that that challenging sexism as an intervention is transformative, and efforts should focus on addressing deep-rooted sexist attitudes.

Sexism in responding to women's safety concerns

In chapter 3, we aimed to challenge a manifestation of sexism - the gender-fear paradox, in the immediate aftermath of the kidnap, rape and murder of Sarah Everard in 2021, described as a watershed moment in the UK in terms of public discourse on the risks women face, and women's safety. This resulted in a deeper level of scrutiny of sexism and misogyny in the institutions that are meant to protect people from violence – particularly the police. Statistics purporting women to be relatively safe on the streets in comparison to men portrayed women's fears as unfounded, and as a knee-jerk reaction rather that a genuine increase in their risk (Pol & Buil-Gil, 2023). Given the climate of declining trust in police (End Violence Against Women Coalition, 2021a; Pickering et al., 2024), we argue that the response to women's fears, implying them to be 'irrational' is fundamentally sexist, and aimed to challenge this gender-fear paradox. We did this by examining whether, in the current climate, women demonstrated less trust in police than men. Further, we examined how women taking preventative actions more than men

to keep themselves safe is detrimental to their liberty but ultimately means that they are experiencing crime less, again, with the implication that risk of victimisation is not reflected in recorded crime statistics.

Whilst we found that women continued to report feeling less safe at night compared to men, and less safe in more places than men, we did not find that women were less likely to report crime to police, or have less trust in police to take appropriate action compared to men. While this was somewhat surprising, given the public discourse at this time, we note that we did not specifically ask about crimes where women are disproportionately at higher risk, such as rape and sexual offences (End Violence Against Women Coalition, 2021b). Nevertheless, our findings are in line with the Crime Survey England and Wales 2018-2020, conducted before the murder of Sarah Everard, as well as Pickering et al.'s (2024) findings that trust in police is low but not more so in women.

Furthermore, of 19 possible restrictions to their behaviour to feel safer, we found that women were more likely to adopt these restrictions than men in every instance. This, we argue, reflects the risk of victimisation women face, and therefore display heightened concerns for their safety, taking more preventative measures. Yet by restricting their behaviour, they could be reducing their presence in recorded crime statistics, at a cost to their liberty. This on top of findings on underreporting of intimate partner abuse and violence, so the true extent of domestic victimisation is underestimated, whilst the proportion of violence perpetrated by strangers and acquaintances are overestimated (Office for National Statistics, 2021). We posit that the gender-fear paradox is not paradoxical, because recorded crime statistics do not reflect the levels of risk women face; not just because of under-reporting some types of crime, but also because of the degree in which women restrict and protect themselves from crime, at a cost to their liberty.

Is there really less endorsement of rape myths?

Our third and final package (chapter 4) examines the consequences of sexism maintaining rape culture by challenging the assertion that rape myth acceptance measures yield results that are increasingly skewed towards low endorsement (Beshers & DiVita, 2021; Bohner, 1998; Bohner et al., 1999; Gerger et al., 2007; Vandiver & Dupalo, 2013). This can suggest that societal attitudes towards rape and rape survivors have improved over time. Whilst these quantitative measures may appear to capture declining attitudes in rape myth acceptance, examples of qualitative interviews in policing demonstrate rape myths and victim-blaming (Dellinger Page, 2008, 2010; Gekoski et al., 2023; Page, 2007; Venema, 2016). Furthermore, the recent emergence of rebound attitudes towards gender equality in younger men (Ipsos, 2024, Campbell et al., 2024; Off et al., 2022) also reflects a global trend of victim blaming attitudes towards violence against women emerging as more common amongst men and younger generations (Ipsos, 2022).

In light of indications that rape myth acceptance is still prevalent but also yielding decreasing endorsement in rape myth acceptance measures, we turned our attention to the methodological flaw in measures that use the socially undesirable and loaded word ‘rape’. The word ‘rape’ evokes archetypal rape scripts to which rape myths do not apply and people are unlikely to endorse (Fejervary, 2017). We modified the short-form Illinois Rape Myth Acceptance scale (IRMA-SF) and developed a new scale, the Lived-Experience Rape Myth Acceptance scale (LERMA), where the word ‘rape’ was replaced with a description of rape (e.g., ‘having sex against her will’). We conducted two studies where participants completed either the IRMA-SF or the LERMA. In both studies, we found that rape myth acceptance scores were higher among participants completing the LERMA compared to the IRMA-SF. As predicted, the

LERMA elicited strengthened relationships for all predictors/outcomes and statistically significantly predicted victim blame (positively) and perpetrator blame (negatively). Notably, across each experiment we conducted in chapters 2 and 4, rape myth acceptance was low. We argue that these findings demonstrate the need to reconsider the use of the word 'rape' in rape myth acceptance measures in order to avoid evoking 'archetypal rape' and better capture these harmful attitudes that are known to predict propensity for males to offend (Bohner et al., 2013; Camp, 2017; Powers et al., 2015) and are arguably responsible for extremely low reporting rates and prosecution rates of rape and sexual assault (Angiolini, 2015; Stanko & Hohl, 2018).

Across our empirical chapters we argue that past findings could be minimising the consequences of sexism, either through methodological flaws that posit that negative effects of sexism could essentially be reversed if women challenge it; that women's fear of crime is not justified because crime statistics paint a picture of them being much safer from violent crime than men and; that rape myth acceptance is less prevalent nowadays.

Limitations

The limitations of each package of work in this thesis are presented within the empirical chapters. More globally, we acknowledge the limitations of the use of quantitative methods to scrutinise past research findings and claims: that the negative effects of sexism can be mitigated by challenging it; that women's safety fears are disproportionate to the risks they face; that people are accepting rape myths less. We note past qualitative findings that women are indeed negatively impacted by exposure to sexism (demonstrated in diary studies, e.g., Swim et al., 2001) and undoubtedly demonstrable in victim testimony that we see in everyday life. We note the strength of feeling in women's concerns for their safety (e.g., , #ReclaimTheseStreets,

#MeToo) and the sexism and misogyny demonstrated by those who should prevent them from becoming victims of crime (Baroness Casey of Blackstock, 2023; The Angiolini Report, 2024). Further, we note the findings that demonstrate victim-blaming attitudes, particularly amongst younger men (Ipsos, 2022; Ipsos, 2024, Campbell et al., 2024; Off et al., 2022), and qualitative findings demonstrating the prevalence of rape myth acceptance (Dellinger Page, 2008, 2010; Gekoski et al., 2023; Page, 2007; Venema, 2016). Together, these findings indicate that sexism, underpinning violence against women, is very much alive, and quantitative measures may not be appropriately capturing this.

It is also prudent to point out that quantitative experimental studies prescribe sexist comments in environments where participants know their responses are being intentionally 'provoked'. In chapter 2, we included text box responses where women could share what they thought of the 'male researcher' perpetrating sexist comments, and it was evident from these responses that women were aware of the goal of the study, e.g., "too obviously sexist with the intention to irritate"; "I believe [sexist comments were used] deliberately to try and provoke a reaction. I therefore found it amusing!" This casts doubt on experimental studies that fail to find an effect of sexism on outcomes, given that participants are aware that the comments are not genuine, and do not represent the cumulative effects of prolonged exposure to everyday sexism. Further, such experimental studies provide controlled and safe environments that differ significantly from real-life settings, where challenging sexism, deviating from self-protective measures or being seen to endorse rape myths all incur high costs that are difficult to replicate in an experimental environment. Past research has found that empirical studies could be perceived as a 'low cost' environments for confronting sexism, with little chance of social reprisals (Petzel

& Casad, 2023). Future work should therefore consider using complementary methods to examine discrepancies between quantitative responses and qualitative responses.

Also important for future work and subsequent policy-making is the consideration of empirical findings in light of the replication crisis. Considering the culture of pressure to publish and empirically demonstrate statistically significant effects, there is a high possibility that null effects are not necessarily published (Frias-Navarro et al., 2020). This limits our understanding of what works in terms of reducing the prevalence of sexism and its manifestations. We have high hopes that future scientific contributions in this field consider well-powered sample sizes, appropriate control conditions, pre-registered hypotheses and analytical plans (Hardwicke & Wagenmakers, 2023; Nosek et al., 2018) in adherence with Open Science Practices.

CONCLUSION

This thesis has contributed to the scientific field by demonstrating how past research findings may be painting a distorted picture of our understanding of sexism and its manifestations. The journey towards gender equality in the UK has seen significant achievements, including legislative reforms and equal participation and hiring of women in the workforce, which can indicate that gender inequality and sexism are 'a thing of the past'. However, persistent challenges remain, particularly in terms of societal sexism, which continues to permeate society, disproportionately disadvantaging women and girls and limiting their opportunities. A critical issue linked to sexism is its role in maintaining and perpetuating violence against women and girls. This is being played out every day, in spite of various initiatives to reduce the prevalence of sexism in society. Deep-seated attitudes towards women and girls cannot be changed overnight and it is our hope that by questioning the methodologies

and measures used in past research, we can encourage further, more robust scientific contributions to the field to help eradicate sexism and violence against women and girls.

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APPENDICES

Appendix A: The Ambivalent Sexism Inventory (Glick and Fiske, 1996)

Participants were asked to indicate the strength of their agreement or disagreement with each of these items on a 5-point scale. Scoring system: 1: *Strongly disagree*; 2: *Disagree*; 3: *Neither agree nor disagree*; 4: *Agree somewhat*; 5: *Strongly agree.* Items with (H) or (B) denote hostile or benevolent sexism items.

1. No Matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman (B)
2. Many women are actually seeking special favours, such as hiring policies that favour them over men, under the guise of asking for ‘equality’ (H)
3. In a disaster, women ought to be rescued before men (B)
4. Most women interpret innocent remarks or acts as being sexist (H)

5. Women are too easily offended (H)
6. People are often truly happy in life without being romantically involved with a member of the other sex (B) (Reverse coded)
7. Feminists are not seeking women to have more power than men (H) (Reverse coded)
8. Many women have a quality of purity that few men possess (B)
9. Women should be cherished and protected by men (B)
10. Most women fail to appreciate fully all that men do for them (H)
11. Women seek to gain power by getting control over men (H)
12. Every man ought to have a woman whom he adores (B)
13. Men are complete without women (B) (Reverse coded)
14. Women exaggerate problems they have at work (H)
15. Once a woman gets a man to commit to her, she usually tries to put him on a tight leash (H)
16. When women lose to men in a fair competition, they typically complain about being discriminated against (H)
17. A good woman should be set on a pedestal by her man (B)
18. There are actually very few women who get a kick out of teasing men by seeming sexually available and then refusing male advances (H) (Reverse coded)
19. Women, compared to men, tend to have a superior moral sensibility (B)
20. Men should be willing to sacrifice their own wellbeing in order to provide financially for the women in their lives (B)
21. Feminists are making entirely reasonable demands of men (H) (Reverse coded)

22. Woman, as compared to men, tend to have a more refined sense of culture and good taste (B)

Appendix B: Verbal Cognitive Reflections Test (vCRT) (Sirota & Juanchich, 2018)

We used 6 items from the original ten item task (using this as an opportunity to also provide sexist comments embedded in the task instructions). We wanted to make this task simple so that the stress of the task was not a confounding variable, so we offered 4 multiple choice responses. Correct answers were summed for each participant, giving them a vCRT score.

1) Mary's father has 5 daughters but no sons – Nana, Nene, Nini, Nono. What is the fifth daughter's name?
   A) There's no way of telling
   B) Nuno
   C) Mary
   D) Nano

Correct Answer: C

2) If you were running a race, and you passed the person in second place, what place would you be in now?
   A) 1st
   B) 2nd
   C) 3rd
   D) Depends how many people were running the race

Correct Answer: B

3) It is a stormy night and a plane takes off from JFK airport in New York. The storm worsens, and the plane crashes-half lands in the United States, the other half lands in Canada. In which country do you bury the survivors?

A) Canada

B) USA

C) Depends on the preference of the relatives

D) Don't bury them

Correct Answer: D

4) How many of each animal did Moses put on the ark?

A) None

B) One

C) Two

D) Depends on the breed

Correct Answer: A

5) If you have one match and you walk into a dark room where there is an oil lamp, a newspaper and wood - which thing would you light first?

A) Wood

B) Match

C) Oil lamp

D) Newspaper

Correct Answer: B

6) Would it be ethical for a man to marry the sister of his widow?

A) Yes

B) Depends on the culture

C) No

D) It's no possible

Correct Answer: D

Appendix C: Rosenberg Self-Esteem Scale (Rosenberg, 1965)

Scoring system: 1,2,4,6 and 7: 0 = *Strongly disagree*, 1 = *Disagree,* 2 = *Agree*, 3 = *Strongly agree.*

Items 3,5,9 and 10 were reverse coded. The scale ranges from 0-30. Scores between 15 and 25 are normal range, scores below 15 suggests low self-esteem.

SES1	I feel that I am a person of worth, at least on an equal plane with others.
SES2	I feel that I have a number of good qualities.
SES3_R	All in all, I am inclined to feel that I am a failure.
SES4	I am able to do things as well as most other people.
SES5_R	I feel I do not have much to be proud of.
SES6	I take a positive attitude toward myself.

SES7	On the whole, I am satisfied with myself.
SES8	I wish I could have more respect for myself.
SES9_R	I certainly feel useless at times.
SES10_R	At times I think I am no good at all.

Appendix D: Sexual Consent scale: Subscale 2- Positive attitude toward establishing consent (Humphreys & Brousseau (2010)

All items were taken from subscale 2: Positive attitude toward establishing consent. Scoring system: Items were measured using a seven-point Likert scale ranging from 1: *Strongly disagree* – 7: *Strongly agree*

1. I feel that sexual consent should always be obtained before the start of any sexual activity.

2. I believe that asking for sexual consent is in my best interest because it reduces any misinterpretations that might arise.

3. I think it is equally important to obtain sexual consent in all relationships, regardless of whether or not they have had sex before.

4. I feel that verbally asking for sexual consent should occur before proceeding with any sexual activity.

5. When initiating sexual activity, I believe that one should always assume they do not have sexual consent.

6. I believe that it is just as necessary to obtain sexual consent for genital fondling as it is for sexual intercourse.

7. Most people that I care about feel that asking for sexual consent is something I should do.

8. I think that consent should be asked before any kind of sexual behaviour, including kissing or petting.

9. I feel it is the responsibility of both partners to make sure sexual consent is established before sexual activity begins.

10. Before making sexual advances, I think that one should assume ‘no’ until there is clear indication to proceed.

11. Not asking for sexual consent some of the time is okay (R)

Appendix E: Gender-specific system justification scale (Jost & Kay, 2005) adapted from Jost & Banaji, 1994)

Scoring system: Participants were asked to indicate the strength of agreement or disagreement with each of these items on a 7-point scale *NB: The original scale was 9-points. We made this a 7-point scale as the width of the scale was too large for participants to see on mobile phone screens. The scoring system was: 1: *Completely disagree* – 7: Strongly disagree. Responses were coded in such a way that agreement with Items 1,2,4,5,6, and disagreement with Items 3 and 7 resulted in higher scores on gender-specific system justification. *_R denotes reverse coding.

SJ1	In general, relations between men and women are fair.
SJ2	The division of labour in families generally operates as it should.

SJ3_R	Gender roles need to be radically restructured
SJ4	For women, the United States (adapt to UK) is the best country in the world to live in.
SJ5	Most policies relating to gender and the sexual division of labour serve the greater good
SJ6	Everyone (male or female) has a fair shot at wealth and happiness
SJ7_R	Sexism in society is getting worse every year
SJ8	Society is set up so that men and women usually get what they deserve

Appendix F: Illinois Rape myth acceptance scale - short form (Payne, 1999)

Labelling: SA, She asked for it; NR, It wasn't really rape; MT, He didn't mean to; WI, She wanted it; LI, She lied; TE, Rape is a trivial event; DE, Rape is a deviant event; FI, filler item (not scored).

Scoring system: 1= *Strongly disagree* – 5 = *Strongly agree*, where higher score indicates higher rape myth acceptance.

SA_1	If a woman is raped while she is drunk, she is at least somewhat responsible for letting things get out of control.

WI_2	Although most women wouldn’t admit it, they generally find being physically forced into sex a real ‘‘turn-on.’’
TE_4	If a woman is willing to ‘‘make out’’ with a guy, then it’s no big deal if he goes a little further and has sex.
WI_8.	Many women secretly desire to be raped.
FI_11	Most rapists are not caught by the police.
NR_12	If a woman doesn’t physically fight back, you can’t really say that it was rape.
DE_13	Men from nice middle-class homes almost never rape.
LI_16	Rape accusations are often used as a way of getting back at men.
FI_21	All women should have access to self-defence classes.
DE_22	It is usually only women who dress suggestively that are raped.

NR_24	If the rapist doesn’t have a weapon, you really can’t call it a rape.
DE_27	Rape is unlikely to happen in the woman’s own familiar neighbourhood
TE_29	Women tend to exaggerate how much rape affects them.
LI_31	A lot of women lead a man on and then they cry rape.
FI_32	It is preferable that a female police officer conduct the questioning when a woman reports a rape.
SA_36	A woman who ‘‘teases’’ men deserves anything that might happen.
SA_37	When women are raped, it’s often because the way they said ‘no’ was ambiguous.
MT_39	Men don’t usually intend to force sex on a woman, but sometimes they get too sexually carried away.

SA_41	A woman who dresses in skimpy clothes should not be surprised if a man tries to force her to have sex.
MT_42	Rape happens when a man’s sex drive gets out of control.

Appendix G: Representation of county postcodes amongst respondents

Breakdown of county postcodes of respondents

Postcode	% of respondents
CO4	13%
CM1	10%
CO2	7%
CO7	6%
CO12	6%
CO1	5%
CM2	5%
CO3	5%
CM8	4%
CO7	4%
CO5	4%
CM7	3%
SS8	3%
CM3	3%
CM0	2%
CM9	2%
CO15	1%
CO6	1%
CO16	1%
SS16	1%
SS2	1%
SS15	1%
SS4	1%
SS14	1%

RM17	1%
CO9	1%
RM17	1%
SS9	1%
SS7	1%
CO11	1%
SS0	1%
CM12	1%
No response	0.4%
CM5	0.4%
SS15	0.4%
IG7	0.4%
CM14	0.4%
SS13	0.4%
CO8S	0.3%
SS6	0.3%
RM5	0.3%
CM17	0.3%
CM11	0.3%
SS5	0.3%
RM11	0.3%
SS1	0.3%
CM4	0.3%
SS12	0.3%
SS17	0.1%
RM15	0.1%
IG7	0.1%
CM13	0.1%

IG8	0.1%
RM12	0.1%
CO14	0.1%
SS3	0.1%
IG10	0.1%
SS11	0.1%
CM18	0.1%
CM16	0.1%
RM3	0.1%
CM24	0.1%
CM6	0.1%

Appendix H: Ethic breakdown of our sample compared to ethnic population of Essex

Ethic breakdown of our sample compared to ethnic population of Essex

	White British	White other	Mixed/multiple ethnic group /other	Asian British	Black British
Our sample	86%	10%	2%	1%	1%
Population of Essex sample (2011 census)	91%	4%	2%	2%	1%

Appendix I: The Just-World Belief Scale (Peplau & Rubin, 1973;1975) amendments (in bold):

Original scale (Peplau & Rubin, 1975)	Revised version of the scale
1. I've found that a person rarely deserves the reputation they have.	Unchanged.
2. Basically, the **world** is a **just** place.	Basically, the **country that I** live in is a **fair** place.
3. People who get "lucky breaks" have basically earned their good fortune.	Unchanged.
4. Careful drivers are just as likely to get hurt in traffic accidents as careless ones.(R)	Unchanged. (R)
5. It is a common occurrence for a guilty person to get off free in **American** courts. (R)	It is a common occurrence for a guilty person to get off free in court. (R)
6. Students almost always deserve the grades they receive in school.	Unchanged.
7. **Men** who keep in shape have little chance of suffering a heart attack.	**People** who keep in shape have little chance of suffering a heart attack.
8. The political candidates who stick up for **his** principles rarely get elected.	The political candidates who stick up for **their** principles rarely get elected.
9. It is rare for an innocent **man** to be wrongly sent to jail.	It is rare for an innocent **person** to be wrongly sent to jail.
10. In professional sports, many fouls and infractions never get called by the referee.	Unchanged.

11. By and large, people deserve what they get.	Unchanged.
12. When parents punish their children, it is almost always for good reasons.	Unchanged.
13. Good deeds often go unnoticed or unrewarded (R)	Unchanged.
14. Although evil **men** may hold political power for a while, in the general course of history, good wins out.	Although evil **people** may hold political power for a while, in the general course of history, good wins out.
15. In almost any business or profession, people who do their job well will rise to the top.	Unchanged.
16. **American** parents tend to overlook the things that should be most admired in their children.	**Parents** tend to overlook the things that should be most admired in their children.
17. It is almost impossible for people to receive a fair trial in the **US.**	It is almost impossible for people to receive a fair trial in the **country that I live in.**
18. People who meet with misfortune have often brought it on themselves.	Unchanged.
19. Crime doesn't pay.	Unchanged.
20. Many people suffer through absolutely no fault of their own (R)	Unchanged.

Appendix J: Counterfactual thinking items

Scoring system: Participants gave their answers on a 7-point Likert scale ranging from 1: *Strongly disagree* – 7: *Strongly agree.*

1. If Sarah had been sober, she would have been in a better state to refuse Tom's advances.
2. If Sarah had said 'stop' without laughing, Tom might have understood that she did not want to have sex.
3. If Sarah had behaved differently, she may not have given Tom the impression that she was up for sex.
4. If Sarah had not kissed Tom, he would not have assumed that she was keen to have sex with him?

SUPPLEMENTARY MATERIALS

Challenging Sexism: Does challenging sexist comments empower women to value themselves and other women more?

Supplementary materials chapter 2

SM1: Pretest 1

We chose four sexist comments that we considered sexist, patronising and infantilising, similar to those used in past research (Lamarche et al., 2020). Although these kind of comments do not fall under the hostile categorisation of sexism, they are still undermining women's sense of competence and autonomy regardless of their alleged 'benevolence'. These comments were pretested on a sample of 109 women. The pretest confirmed that the sexist comments were more undermining, more sexist and less supportive than the control comments.

Method

Participants

Women were invited women to participate in a pre-test on the Prolific platform and were compensated £1.60 with a median completion time of 6.7 minutes. 126 participants started the pre-test. Of those, four participants were excluded for not completing the pre-test to the end, and nine were excluded as they did not identify as a woman, leaving a final sample of 109 women aged 18 - 65 years, M_{age} = 34.66, SD = 12.31. Ethic origin of participants was 62% White British, 17% White other, 8% other ethnic background, 6% Asian other, 5% Asian British, 2% Black other and 1% Black British. 17% of the participants in this sample were students at a UK university.

Design

The pre-test had two conditions: sexist or non-sexist, and was a between subjects design. Our dependent variable was the extent in which participants regarded the comments as sexist.

Materials and Procedure

Upon consenting, participants were introduced to the study by 'John', a 'research assistant', via audio study. It was strongly implied that John was a man, given the fact that 'John' is typically a man's name, and the audio recording depicted a man's voice. This is in light of past research finding effects on decreased self-efficacy only when sexism was perpetrated by men as opposed to other women (Jones et al., 2014). There was a restriction added that prevented participants from moving to the next page until the audio recording had been played in full. Participants were randomly assigned to either the sexist (*n*= 55) or non-sexist (*n* = 53) condition. 'John' then introduced the 6-item verbal Cognitive Reflections Test (Sirota & Juanchich, 2018) as a verbal reasoning task. Following some of the items, either sexist or non-sexist comments, respective of assigned condition, were delivered in the form of written feedback from 'John' (see table 1 for breakdown of the feedback).

Table 1

Sexist comments vs non-sexist control comments embedded in the vCRT

	Non-sexist version	**Sexist version**

Introduction comment	Participants tend to find verbal reasoning tasks quite tricky, so to assist you, I have included multiple choices, which should help.	**Women** tend to find verbal reasoning tasks quite tricky, so to assist you, I have included multiple choices, which should help.
Interim comment A	Keep going! Try to stay focused. **Participants** can let their emotion get in the way.	Keep going! Try to stay focused. **Girls** can let their emotion get in the way.
Interim comment B	Only three more to go!	Only three more to go **sweetie**!
Concluding comment	You're all done! Good work, **participants** don't usually do well on that task!	You're all done! Good work, **girls** don't usually do well on that task!"

Participants then rated their perception of all four comments by asking if they felt that the feedback: *treated them like a child; supported them* (reverse coded); *patronised them; undermined them; encouraged them* (reverse coded); and finally *was sexist* using a

5-point Likert scale ranging from 1: *strongly disagree* – 5: *strongly agree*. For each participant, a higher mean score overall meant higher agreement that each comment was perceived as sexist. These adjectives were found to describe sexism in the Oxford Dictionary, with the two reverse-coded adjectives describing ways that sexism could be misconstrued – as well-meaning by way of being encouraging and supportive. For perceived sexism of each of the four comments, reliability was good, ranging from $\alpha = .76$ to $\alpha = .83$. Finally, participants completed a sociodemographics section before being debriefed.

Results

Participants in the sexist condition perceived the four comments as more sexist than those in the non-sexist condition, $M_{PerceptionSexistComments}$ 4.26, *SD* .75, $M_{PerceptionNonSexistComments}$ 2.07, *SD* .55. An independent t-test revealed that participants in the sexist condition statistically significantly rated the comments more sexist than the control condition, $t(106) = -17.18$, $p < .001$, *CI* -3.89, -2.72.

We therefore concluded that the comments we deemed sexist for use in the studies in package 1 (chapter 2).

SM2: Pretest 2

For study 3 (chapter 2), we wanted to explore if comments were perceived to be sexist as a function of the sexist language used, as opposed to whether participants

correctly answered the vCRT questions, which may have impacted their perceived level of competence. We therefore conducted a second pre-test.

Method

Participants

Women were invited to voluntarily participate in a pre-test via snowball sampling on social media (i.e., Facebook). 127 participants started the pre-test. Of those, 34 participants were excluded for not completing the pre-test to the end, and two were excluded for not identifying as a woman, leaving a final sample of 91 participants. Participants were between the ages of 18-67 (M_{age} = 27.35, *SD* = 10.37). The majority of the participants identified as white (77% White/British, 10% white/other; 6% Black British; 4% other ethnic background; 1% Black/other; 1% Asian/British; 1% Asian/other). One third of the participants in this sample were students at a UK university.

Design

The pre-test utilised a 2 (comment type: sexist or non-sexist) x 2 (feedback type: positive or negative) within-subjects design. Our dependent variable was the extent in which participants regarded the comments as sexist.

Materials and Procedure

Upon consenting, participants were presented with a hypothetical scenario asking them to imagine completing a verbal reasoning task, where they would be presented with some feedback comments from a researcher called ‘John’, implying that the researcher was a man. Participants were advised that we were interested in their perceptions of the feedback comments. They were randomly presented with four comments (two sexist; 2 non-sexist) embedded within feedback in a verbal reasoning task (Sirota & Juanchich, 2018). This feedback was presented in scenarios where participants’ answers were either correct (positive condition) or incorrect (negative condition). In total, there were four examples of comments delivered: correctly answered questions were provided with positive feedback – either sexist or non-sexist - and incorrectly answered questions were given negative feedback, again, either sexist or non-sexist (see table 2 for breakdown of the feedback).

Table 2

Sexist and non-sexist feedback for correct/incorrect answers

Sexism/No Sexism	Correct answer	Incorrect answer
Sexist feedback	“Good answer, clever girl!”	“This is not correct. Don’t worry, you are a smart girl, keep this in mind.”
Non-sexist feedback	“Great, you’re right.”	“Sorry, this is not correct.”

Participants were then asked to rate their perception of sexism on all 4 comments by asking if they felt that the feedback: *belittled women; patronised women; undermined women; was fair to women; was appropriate for women;* and *was impartial* using a 5-point Likert scale ranging from 1: *strongly disagree* – 5: *strongly agree*. The latter three options were reverse coded. For each participant, a higher mean score overall meant higher agreement that each comment was perceived as sexist. These adjectives were found to describe sexism in the Oxford Dictionary, and who chose three reverse-coded adjectives which we felt meant the opposite of these. We therefore established that the best adjectives to describe sexism were belittling, patronising and undermining, as well as *not* fair, *not* appropriate and *not* impartial. For perceived sexism of each of the four comments, reliability was good, ranging from $\alpha = .81$ to $\alpha = .91$. Finally, participants completed a sociodemographics section before being debriefed.

Results

The two sexist comments were rated as more sexist than the two non-sexist comments, $M_{PerceptionSexistComments}$ 3.73, *SD* .51, $M_{PerceptionNonSexistComments}$ 2.39, *SD* .42. Positive feedback comments were rated more sexist than negative feedback comments, $M_{PerceptionPositiveFeedback}$ 2.96, *SD* .48, $M_{PerceptionNegativeFeedback}$ 2.39, *SD* .42). A 2 (Sexism/No Sexism) x 2 (Positive/Negative feedback comments). A repeated measures ANOVA was carried out to examine at the effects of sexism comment and feedback type on sexism ratings. There was a statistically significant effect of the sexism, such that participants

rated the sexist comments as more sexist than the non-sexist comments; F (1, 90) = 364.7, $p < .001$, $\eta p^2 = .80$. There was no effect of feedback type on participants' ratings of sexism; F (1, 90) = .192, p =.662. $\eta p^2 = .002$.

We therefore concluded that the comments we deemed sexist for use in study 3 of package 1 (chapter 2).

SM3: Study 1a: The effect of challenging vs. not challenging (sexist condition only)

We preregistered an ANOVA to compare those who challenged and those who did not challenge the sexist comments. For completeness, we reported the comparison between challenge, no challenge, and the non-sexist control condition in study 1a. Here, we ran the additional ANOVA to compare challengers (n = 202) vs. non-challengers (n = 199) in the sexist condition only (see table 3).

Table 2

Mean (SD) of personal/interpersonal outcomes for women as a function of challenging vs. not challenging in the sexist condition only (N= 401).

	Sexism challenged (n=202)	Sexism no challenge (n = 199)	F(1, 399)	p	η_p^2

Self-esteem	1.96 (0.50)	2.05 (.55)	3.05	.082	.008
Value of sexual consent	5.89 (0.87)	5.66 (1.00)	6.09*	.014	.015
JGI	3.48 (0.96)	3.90 (.87)	20.74***	<.001	.049
Rape myth acceptance	1.32 (0.39)	1.68 (.69)	41.49***	<.001	.094

Note: Asterisks represent significance level - ***: $p < .001$, **: $p \leq 0.01$, *: $p \leq 0.05$.

The lived-experienced rape myth acceptance scale (LERMA): the effect of using alternative terminology of rape in measuring rape myth acceptance

Supplementary Materials chapter 4

C: Factor loadings of the exploratory and confirmatory factor analyses

exp.1………………….

D: Multiple regression results for exp 1

E: Moderation analysis exp 2

SM4: Exploratory factor analysis of the IRMA-SF Illinois Rape Myth Acceptance Scale (SF)

To explore the factorial structure of the Illinois Rape Myth Acceptance scale compared to the factors found in the original IRMA scale (Payne et al., 1999), we conducted an exploratory factor analysis. Four of the six factors that we obtained were generally consistent with the factors that were found in the original scale (Payne et al., 1999), though there were some slight variations. ‘She asked for it’ (factor 1, accounting for 15% of the variance), had six items load onto it, three of them pertaining to women asking for it, yet three items were considered under alternative factor in the original IRMA – ‘not really rape’ and ‘rape is a deviant event’. These items; if a woman doesn’t physically fight back, you can’t really say that it was rape’ and ‘If the rapist doesn’t have a weapon, you really can’t call it a rape’ appear to connect to the notion that if a victim of rape is not fighting the perpetrator off, or isn’t being threatened or hurt with a weapon, then it is somehow invited and she is free to stop it at any point, which could explain why these items load with ‘she asked for it’. The same can be said for the item ‘and ‘It is usually only women who dress suggestively that are raped’, again, fitting in well with the factor ‘she asked for it’. The second factor, “she lied” accounted for 11% of the variance, and both of the items pertain to lying about rape loaded onto this factor, though there was one

additional factor that loaded here; "Women tend to exaggerate how much rape affects them", which relates well with dishonesty. The third factor, "she wanted it", accounted for 11% of the variance, also had both items from the original scale load onto it well, again, with one additional item: "If a woman is willing to ''make out'' with a guy, then it's no big deal if he goes a little further and has sex", which is of the theme that she is "willing" and therefore relates well with 'wanting it'. The fourth factor, 'He didn't mean to' accounted for 9% of the variance, had both items from the original scale load well on to it. The fifth factor, 'rape Is a deviant event', accounted for 8% of the variance, and had two out of three of the original items from this factor load well onto it. Finally, the sixth factor, accounting for 7% of the variance, had two items load well onto it that were originally from the factor 'she asked for it', though in this instance, the theme appeared to be that both the victim and the perpetrator share a degree of blame: "If a woman is raped while she is drunk, she is at least somewhat responsible for letting things get out of control" and "A woman who dresses in skimpy clothes should not be surprised if a man tries to force her to have sex".

SM5: Confirmatory factor analysis of the Lived Experiences Rape Myth Acceptance scale (LERMA)

To evaluate whether the change of wording affected the factorial structure of the scale, we conducted a confirmatory factor analysis and examined the structure of the LERMA compared to the factorial solution found on the exploratory factor analysis that we conducted on the IRMA. The six factor solution covered the same themes as the IRMA

but the same items were not always included in the same factors, showing the thin boundary between concepts covered by the IRMA (e.g., she asked for it and she wanted it), as well as the importance of scale wording.

The six factors accounted for a similar variance as for the IRMA (69.85%) and covered five of the six original themes (from highest variance explained to lowest):

1. She asked for it (3 items), 2. She wanted it (2 items), 3. Not really rape (4 items), 4. He didn't mean to (2 items), 5. Rape is a deviant event (2 items), and 6. She lied (1 item). The items within each themes varied, with eight items out of 14 falling within the same category for the IRMA and the LERMA.

Factor one, "she asked for it", accounted for 35% of the variance, and consistently loaded with three of the same items representing the theme 'asking for it' across both the IRMA and the LERMA. However, in the IRMA, three additional items loaded on to this factor – which was not the case for the LERMA. The factor "she lied", has disappeared and these items did not load well onto any of the other factors. Factor 2 - 'she wanted it', accounted for 10% of the variance, with two out of three items still loading onto it compared to the IRMA responses. A new factor also emerged, factor three, accounting for 9% of the variance, that fits well under the theme of 'not really rape' , which had two items originally identified as a factor 'not really rape' – 'If a woman doesn't physically fight back, you can't really say that she had sex against her will' and 'If a man doesn't have a weapon, you can't really say he forced someone to have sex', with two additional items – 'Men from nice middle-class homes almost never force women to have sex with them' and 'Sex against her will is unlikely to happen in the woman's own familiar

neighbourhood'(all four items negatively correlated in this factor). For factor 4- 'he didn't mean to', accounting for 6% of the variance, the same two items were consistent in loading on to this factor from the IRMA to the LERMA. For factor 5, accounting for 6% of the variance, originally identified as 'rape is a deviant event' in the IRMA, where 2/3 'deviant event' items from the original scale had loaded, with LERMA, 1/3 'deviant event; items loaded on to this factor with the confirmatory factor analysis of the LERMA – ' It is usually only women who dress suggestively that end up having sex that they didn't want to have', as well as 'If a woman was drunk and had sex against her will, she is at least somewhat responsible for letting things get out of control'. This factor generally appears to point at 'shared blame', where the victim is at least partly responsible for being raped'. Finally, factor 6, accounting for 5% of the variance, had different items load on to it from the exploratory factor analysis of the IRMA – 'If a woman is willing to "make out" with guy, then it is no big deal if he goes a little further and has sex", (THIS ITEM DID NOT CHANGE), "A lot of women lead a man on and then say that sex was against their will" and "Accusing someone of forcing them to have sex is often used as a way of getting back at men", which all share the theme that women lead men on, and then lie about being raped.

SM6: Factor loadings of the exploratory and confirmatory factor analyses

Exploratory Factor Analysis on the IRMA and Confirmatory Factor Analysis on the LERMA factor loadings

Items	Exploratory Factor Analysis on IRMA	Confirmatory Factor Analysis on LERMA RMA

	1	2	3	4	5	6	1	2	3	4	5	6
N items in each factor (out of 17)	6	3	3	2	2	2	3	2	4	2	2	1
	She asked for it	She lied/ exaggerated	She wanted it	He didn't mean to	Rape is a deviant event	Shared blame	She asked for it	She wanted it	Not really rape (new item)	He didn't mean to	Shared blame	She lied
If a woman is raped while she is drunk, she is at least somewhat responsible for letting things get out of control	-.003	.084	.006	.141	.067	**.873#**	.191	.067	-.025	-.095	**.733#**	-.143
A woman who "teases" men deserves anything that might happen	**.710#**	.288	.065	.072	.085	.225	**.771#**	-.017	-.104	-.033	.267	.131
When women are raped, it's often because the way they said "no" was ambiguous	**.574#**	.369	-.074	.364	.139	-.155	**.539#**	.027	-.338	.137	-.161	-.051

A woman who dresses in skimpy clothes should not be surprised if a man tries to force her to have sex	**.583 #**	.043	.023	.161	-.178	**.506**	**.801 #**	-.097	.222	.173	.149	.029
Although most women wouldn't admit it, they generally find being physically forced into sex a real "turn-on"	.096	.207	**.735 #**	.110	.082	.111	-.022	**.944 #**	.028	.038	.030	.173
Many women secretly desire to be raped	-.010	-.046	**.692 #**	.059	-.065	-.062	-.131	**.689 #**	-.053	.041	.047	-.274
If a woman is willing to "make out" with a guy, then it's no big deal if he goes a little further and has sex	.088	.136	**.509**	.099	.331	.012	.359	.287	-.120	-.011	-.261	**-.468**
Women tend to exaggerate how much rape affects them	.124	**.724**	-.180	.127	.319	.024	.477	.179	-.287	-.041	.067	.142
If a woman doesn't physically fight back, you can't really say that it was rape	**.831**	-.071	-.066	.017	.016	-.051	.143	-.018	**-.770**	-.068	-.010	-.151

If the rapist doesn't have a weapon, you really can't call it a rape	**.831**	-.071	-.066	.017	.016	-.051	.170	.227	**-.584**	-.090	.274	.237
Men from nice middle-class homes almost never rape	.133	.082	.119	-.168	**.673**	.427	-.083	.144	**-.703**	.146	-.087	-.096
It is usually only women who dress suggestively that are raped	**.720**	.009	.253	.080	.108	-.005	.052	.041	-.051	.125	**.779**	-.110
Rape is unlikely to happen in the woman's own familiar neighbourhood	.030	.091	.046	.307	**.761**	-.137	-.050	-.023	**-.592**	.210	.320	.183
A lot of women lead a man on and then they cry rape	.166	**.674**	.390	-.038	.064	.127	.412	.018	-.083	.139	.279	-.411
Rape accusations are often used as a way of getting back at men	-.068	**.661 #**	.423	.118	-.157	.058	-.125	.004	.005	.118	.274	**-.805 #**
Men don't usually intend to force sex on a woman, but sometimes they get too sexually	.194	.186	.239	**.638 #**	-.111	.111	.205	.211	.228	**.776 #**	-.002	-.052

carried away												
Rape happens when a man's sex drive gets out of control	.268	.301	.016	**.551 #**	.100	.087	-.050	-.078	-.308	**.769 #**	.003	-.035

Note: # = The item remained in the same factor from the IRMA EFA to the ET-RMA CFA. (9 out of 18 items in total)

SM7: Multiple regression results

To examine the relationships between a number of sociodemographic predictors of rape myth acceptance, namely, age, gender, level of education, political leaning and previous formal or informal consent training, we conducted multiple regression analyses. This showed that in both the IRMA and the LERMA, gender and political conservatism statistically significantly predicted rape myth acceptance, Level of education also predicted rape myth acceptance, but only for participants that completed the LERMA. For both scales, age, and informal and formal consent training did not predict rape myth acceptance, though the relationship with rape myth acceptance was strengthened for age and having had formal consent training in the LERMA, though both were just out of statistical significance.

Multiple regression showing the relationships between age, gender, conservatism, education, informal consent training and formal consent training and rape myth acceptance as a function of the wording of the scale (IRMA vs. LERMA).

	IRMA (n =221)			LERMA (n =207)		
	β	*p*	*CI for* B	β	*p*	*CI for* B
Age	-.075	.269	-.005,.002	.134	**.066**	.00, .009
Gender	-.169	.011*	-.190,-.025	-.151	.032*	-.209, -.010
Conser-vatism	.242	<.001***	.017, .059	.150	.038*	.002, .067
Education	.026	.692	-.016, .022	.191		.012, .067
Informal consent training	.033	.623	-.001, .002	.077	.272	-.001, .003
Formal consent training	-.094	.160	-.002, .000	.135	**.063**	.000, .004

*Note: * = p < 05, ** = p < .01, *** = p < .001*

SM8: Moderation analyses

To determine whether the relationships between belief in a just world, victim/perpetrator blame/ counterfactual thinking on rape myth acceptance was moderated by the wording of the scale, we conducted moderation analyses using PROCESS macros. There was a statistically significant moderating effect of the wording of the scale on the relationship between victim blaming and rape myth acceptance, β =.097, $p < .001$, CI [.046, .149], as well as on the relationship between perpetrator blaming and rape myth acceptance, β =.089, p = 003, CI [-.147,-.031]. The moderating effect of just-world beliefs x the wording of the scale on rape myth acceptance was not significant, β =.192, $p = .239$, CI [-.128, .512], nor was the moderating effect of counterfactual thinking x the wording of the scale on rape myth acceptance, β =.053, $p = .223$, CI [-.032, .139].