



# The One Ring Model: Rape Culture Beliefs are Linked to Purity Culture Beliefs

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## Abstract

The One Ring Model suggests that when a culture presents both ideas valuing female purity (Purity Culture) and ideas promoting sexual violence against women (Rape Culture), people acquire both sets of ideas and these two idea systems can be cognitively linked. Results from Studies 1 through 4 (a) present correlational evidence of this between-construct linkage; (b) show that different subsets of ideas are linked to each construct; (c) show from modeling evidence that the data are well-accounted for by a dual construct model organized around the Rape Culture and Purity Culture constructs, and not a single-construct model; and (d) show that endorsement of purity beliefs and endorsement of rape myths can sometimes simultaneously and uniquely predict blame for a sexual assault. Results from Study 5 support the existence of the linkage by showing that priming purity ideas increases the strength of rape myth beliefs. Taken together, these studies provide preliminary evidence that, not only are purity culture ideas cognitively associated with rape culture ideas, but that they might be causally linked as well.

**Keywords** Purity · Rape myths · Sexism · Attitudes

## Introduction

Existing data suggest that some people have strong beliefs in the value of female purity (Owens et al., 2021; Klement et al., 2022b). An example of such a belief is that women who are most valued are those who are thought to be sexually “pure.” Moreover, in

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those people who highly value such purity, women are often encouraged to (a) “save themselves” until marriage, (b) eschew recreational sex, and (c) engage in sex only when attempting to get pregnant. Existing data also suggest that some people have strong beliefs in myths about rape (e.g., Anderson, 2015; Carmody & Washington, 2001; Masser et al., 2010). Examples of the kinds of myths such people would endorse are (a) if a girl goes to a room alone with a guy at a party, it is her own fault if she is raped; and (b) rape happens when a guy’s sex drive goes out of control.

In the present manuscript, following the work of scholars across multiples disciplines (e.g., Anderson, 2015; Bright, 2021; Graff, 2013; Gay, 2018; Harding, 2015; Kessel, 2022; Natarajan et al., 2022; Owens et al., 2021; Schwarz et al., 2022), we offer a model postulating that these two belief sets are linked. More specifically, in our **One Ring Model** we hypothesize that those cultures that prize purity might also be cultures that espouse myths about rape. When such a convergence occurs, we suggest that though each of these belief systems reflects a separate measurable construct (which we term the **Rape Culture** belief construct and the **Purity Culture** belief construct), these two belief systems can become mentally linked at the construct level. This hypothesized linkage has a number of implications. Among them are (a) the same people who strongly endorse ideas about female purity will also express strong endorsement of rape myths, (b) measures of the different constructs will evince discriminative validity in that they will uniquely and separately predict responses assessing other variables, and (c) activating one set of ideas will tend to activate the other set of ideas.

Accordingly, in this article we report results from five studies that search for evidence of a cognitive linkage between these constructs and that explore some of the implications of the existence of this linkage. We also note that we use “culture” as a term to describe groups of beliefs and attitudes, rather than a specific community or demographic group. The United States at large can be said to have both a purity culture and rape culture due to the presence of characteristics or features of each culture (Harding, 2015). Moreover, due to the significant influence of Christianity and white supremacy on the founding of the U.S., these elements appear in U.S. institutions and communities whether they are secular or not. We revisit these influences in the General Discussion.

## Study 1

Study 1 is a “proof of concept” study that sought to verify the idea that the strength of an individual’s rape myth-related beliefs might be linked to the strength of an individual’s beliefs about the importance of, and the nature of, female purity.

## Method

### Participants

Undergraduate psychology students ( $N=758$ ) completed two study-relevant questionnaires (one assessing purity beliefs; the other assessing rape myth beliefs) as part of a mass testing battery administered at the beginning of an academic semester. Several other scales were included in the battery but were unrelated to the current research. There were slightly more men ( $n=383$ , 50.5%) than women ( $n=359$ , 47.4%) in the sample, with 16 participants reporting another gender or not reporting gender. Approximately half of the participants identified as White ( $n=391$ , 51.6%), with large numbers of others identifying as Black ( $n=167$ , 22%) or Latino/Latina ( $n=104$ , 13.7%). Most participants were single ( $n=426$ , 56.2%), and their mean age was 19.21 years ( $SD=2.2$ ).

### Materials

Participants completed the Female Purity Beliefs Scale (FPBS; Klement et al., 2014, 2022b) and the Updated Illinois Rape Myth Acceptance Scale (IRMAS; McMahon & Farmer, 2011).

The FPBS assesses three main types of purity-related beliefs: (a) virginity, (b) surrendering sexual autonomy, and (c) heteronormative marriage for procreation. Participants responded to the 21 FPBS items on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores indicating a greater endorsement of purity beliefs.

The Updated IRMAS (McMahon & Farmer, 2011) assesses individuals' endorsement of common rape myths with four subscales: (a) she asked for it, (b) he didn't mean to, (c) it wasn't really rape, and (d) she lied. Participants responded to 22 items on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate greater endorsement of rape myths.

We used the total scale score in the main analyses for this study; Table 1 shows the means, standard deviations, and correlations among the subscales. In Study 1 both total scales exhibited good reliability (IRMAS  $\alpha=0.91$ ; FPBS  $\alpha=0.87$ ).

## Results

Participants exhibited mean purity beliefs scores ( $M=2.32$ ,  $SD=0.54$ ) and mean rape myth acceptance scores ( $M=2.45$ ,  $SD=0.61$ ) that were around the midpoint of their respective scales. Previous research has shown that men typically report higher rape-supportive beliefs than women, so *t*-tests were used to see whether rape myth acceptance scores or purity belief scores were related to gender. Contrary to expectations, women exhibited higher rape myth acceptance scores ( $M=2.57$ ,  $SD=0.60$ ) than men ( $M=2.34$ ,  $SD=0.61$ ),  $t(717)=-5.13$ ,  $p<0.001$ ,  $\eta_p^2=0.04$ . Women

**Table 1** Correlations among study 1 measures, including subscales

Measure	1	2	3	4	5	6	7	8	9
1. Female purity beliefs (total scale)	2.26 (0.58)								
2. Rape myth acceptance (total scale)	.55**	2.45 (0.61)							
3. Virginity beliefs ^	.86**	.40**	2.61 (0.85)						
4. Surrendering sexual autonomy^	.84**	.53**	.55**	2.49 (0.69)					
5. Heteronormative marriage for procreation^	.76**	.43**	.48**	.53**	1.68 (0.54)				
6. She asked for it†	.53**	.86**	.41**	.50**	.39**	2.51 (0.79)			
7. He didn't mean to†	.44**	.79**	.34**	.40**	.34**	.53**	2.55 (0.72)		
8. It wasn't really rape†	.45**	.76**	.29**	.44**	.40**	.57**	.51**	1.81 (0.54)	
9. She lied†	.35**	.82**	.25**	.37**	.25**	.62**	.50**	.50**	2.88 (0.84)

\*\*Indicates significance at the .001 level. ^ Indicates subscales of the Female Purity Beliefs Scale. †Indicates subscales of the Updated Illinois Rape Myth Acceptance Scale. Values along the diagonals are means and standard deviations

also reported stronger purity beliefs ( $M=2.42$ ,  $SD=0.52$ ) than men ( $M=2.22$ ,  $SD=0.53$ ),  $t(734)=-5.06$ ,  $p<0.001$ ,  $\eta_p^2=0.04$ .

The One Ring Model's prediction is that the strength of rape myth acceptance beliefs as assessed by the IRMAS should be related to the strength of purity beliefs as assessed by the FPBS. The measures of these two constructs were, indeed, positively correlated,  $r=0.55$ ,  $p<0.001$ , and the strength of this relationship that did not vary by gender (women  $r=0.52$ ,  $p<0.001$ ; men  $r=0.56$ ,  $p<0.001$ ).

## Study 2

### Conceptual Development and Overview

The results of Study 1 are consistent with the notion that ideas about female purity are linked to the extent to which people believe rape myths. However, in the One Ring Model, we propose that this linkage goes beyond a simple one-to-one relation between two mental constructs. Instead, we propose that this relation reflects linkages between two *systems* of constructs. By this we mean that activating beliefs consistent with one system or culture (such as the belief that women should remain sexually abstinent until marriage or they lose social value) can simultaneously activate beliefs consistent with the other system or culture (such as the belief that a woman who has been raped is no longer sexually abstinent and deserves to be punished). This first construct system can be characterized as reflecting ideas characteristic of a *purity culture*. The second construct system can be thought of as reflecting ideas characteristic of a *rape culture*. The two sections that follow each describe the systems of ideas that are thought to be characteristic of each culture.

### Ideas and Beliefs that May Characterize a Purity Culture

One set of ideas and beliefs about women and sex emphasizes the importance of female purity and prizes the maintenance of virginity, particularly for women, until marriage (Anderson, 2015; Hong, 2021; Ramirez et al., 2020). Such ideas have spawned programs that both promote and teach abstinence, such as *True Love Waits* and purity balls (Barnett et al., 2018; Miller, 2017; Moslener, 2015). These programs focus predominantly on women, teaching students that women are the gatekeepers to sexual activity and that sexual exploration is a lapse on the part of the woman (Stevenson & Hiebert, 2021). These programs also rely on traditional gender roles, highlight gender essentialism (i.e., gender differences are based on innate, physical features; see Prentice & Miller, 2006), and teach women that men are only ever interested in them for sex (Herrmann, 2020). Groups that endorse such ideas have been characterized as having a *purity culture* (e.g., Moslener, 2015; Valenti, 2009).

Examinations of how the term is often described (e.g., Anderson, 2015; Anne, 2011; Hong, 2021; Valenti, 2009) suggest that there may be at least five distinct

and measurable sets of beliefs that characterize a purity culture. These are (a) sexual conservatism; (b) female purity beliefs; (c) a sexual double standard; (d) traditional gender roles; and, (e) benevolent sexism.

### **Sexual Conservatism**

Burt (1980) used the term “sexual conservatism” to refer to a constellation of beliefs that reflect the prohibition of certain expressions of sexuality. These include “restrictions on the appropriateness of partners, sexual acts, [and] conditions or circumstances under which sex should occur” (Burt, 1980, p. 218). For example, a very sexually conservative individual would be interested in limiting sexual behavior to a legally sanctioned marital relationship, and would endorse items such as “a woman shouldn’t give in sexually to a man too easily, or he’ll think she’s loose.”

### **Female Purity Beliefs**

Klement et al. (2022b) proposed that purity beliefs idealize women and their purity, ascribing to “pure women” better morality, more innocence, and greater worth (see Gresh, 1999). For example, a woman’s virginity is something to be protected by her father, and later her sexuality is to be protected by her husband (e.g., Feldhahn & Rice, 2006). These beliefs also reflect the idea that women should aspire to be wives and mothers and only engage in sexual activity for the goal of procreation.

### **Sexual Double Standard**

The sexual double standard describes the differing amounts of permissiveness both men and women perceive regarding male sexuality versus female sexuality (Bordini & Sperb, 2013; Endendijk et al., 2020). In this double standard, men are accorded greater freedom in their sexual behavior than are women. This sexual double standard stigmatizes women for engaging in excessive sexual activity.

### **Traditional Gender Role Prescriptions**

People have beliefs about the kinds of behaviors that men and women exhibit and about the roles that they play in society (McLaughlin & Aikman, 2020). As noted by Kerr and Holden (1996), these beliefs can emphasize either descriptive or prescriptive elements. That is, some beliefs reflect perceptions of “what is”—descriptive beliefs about gender characteristics and gender differences (e.g., women are usually nurses and not doctors). However, other beliefs reflect gender role ideology, which is concerned with what “ought to be”—prescriptive beliefs and proscriptive beliefs about gender roles and gender differences (women ought to be nurses and not doctors).

## Benevolent Sexism

Glick and Fiske (1996, 1997) proposed that one domain of sexism can reflect benevolent sexism (idealizing women and evaluating them positively when they act in accordance with prescribed roles). In their discussion of the concept, Glick and Fiske (1997) suggested that benevolent sexism can exhibit three subcomponents: (a) paternalism (men should protect women); (b) complementary gender differentiation (women are communal, men are agentic); and (c) heterosexual intimacy (men achieve fulfillment from emotional closeness with women). These three subcomponents are all likely characteristics of a purity culture: Men are seen as the protectors of women, women are expected to “know their place,” and women are expected to be at all times responsive to their partner’s psychosexual demands and desires. We propose that benevolent sexism fits under purity culture (rather than rape culture) because it focuses on the positive stereotypes about women and upholds the idea that women’s value is partially based on their sexual and moral purity.

## Ideas and Beliefs Characteristic of a Rape Culture

A second set of beliefs and ideas that people can possess largely concerns the act of rape. Buchwald et al. (1994) suggest that there is a complex of beliefs that encourages male sexual aggression and supports violence against women. It is a society where violence is seen as sexy and sexuality as violent. In a rape culture, women perceive a continuum of threatened violence that ranges from sexual remarks to sexual touching to rape itself. (p. vii).

This set of beliefs is thought to emerge in a *rape culture*, which exhibits hostility to rape victims, challenges accusations of rape as lies, and discourages victims from coming forward. In addition, Buchwald et al., (1994, p. viii) comment that “In a rape culture both men and women assume that sexual violence is a fact of life, inevitable as death or taxes.” In such a culture, myths and false beliefs about rape and rape victims are also prevalent (Burt, 1980; Edwards et al., 2011; O’Connor, 2021).

As an example of such a culture and its beliefs, consider responses to disclosures of sexual harassment and assault made on social media via the hashtags #MeToo, #WhyIDidntReport, and #YesAllWomen (Alaggia & Wang, 2020; Kunst et al., 2019). While many who responded to these posts offered solidarity and sympathy (Drewett et al., 2021), others pointed out behaviors the survivors engaged in that could have led to their victimizations or speculated on their motivations for reporting their experiences (Stubbs-Richardson et al., 2018), such as one tweet in Nutbeam and Mereish’s (2021) content analysis: “Y’know what’s typical abusive behavior? Women abusing men then twisting it onto themselves so that they can try and extort money from him, knowing they will be believed by the media and the #metoo movement, because they have a f\*cking vagina” (p. 9). Each of these points was used to blame the victims for their assault.

Based on an examination of both the various scholarly literatures that examine the rape culture concept (e.g., Buchwald, et al., 1994; Lonsway, & Fitzgerald, 1994)

and the rape culture concept as described to the general population (e.g., Harding, 2015; UN Women, 2019) we suggest that at least five sets of measurable ideas may characterize a rape culture. These are (a) rape myth acceptance, (b) victim blaming, (c) the extent to which sexual violence is expected, (d) the extent to which sexual violence is accepted, and (e) hostile sexism.

### Rape Myth Acceptance

Burt (1980) described rape myths “s "prejudicial, stereotyped, or false beliefs about rape, rape victims, and rapists" (p. 217). For example, the “ideal” rape victim (e.g., not responsible for the rape) is thought to be young, pure, and virginal. This idea is reflected in comments (Winslow, 2006) made by South Dakota State Senator Bill Napoli in 2006:

A real-life description to me would be a rape victim, brutally raped, savaged. The girl was a virgin. She was religious. She planned on saving her virginity until she was married. She was brutalized and raped, sodomized as bad as you can possibly make it, and is impregnated. I mean, that girl could be so messed up, physically and psychologically, that carrying that child could very well threaten her life.

As rape myths are beliefs (that is, cognitions), they can inform further attitudes and behaviors. Endorsing a myth that women often lie about being raped could lead someone to have a negative attitude about women who disclose sexual victimization and result in them denying women’s experiences. They might also explain a rape survivor’s behavior in a specific way that exonerates the perpetrator, which is victim blaming.

### Victim Blaming

A victim who does not match Napoli’s description may be met with suspicion and a lack of empathy. That is, victims who are not “ideal” are perceived to be responsible for their victimization, which relieves the perpetrator from responsibility. Victim blaming is a type of causal attribution, which seeks to explain the reason why a situation happened. Within a rape culture, attributions of blame are more likely to fall on the victim rather than the perpetrator.

Moreover, one oft-postulated characteristic of a rape culture is that victims of sexual assault who come forward about their experiences may be subjected to victim blaming (Schwarz et al., 2022). While anyone can participate in victim blaming, there is evidence indicating that individuals with sexist views of women (often assumed to be present in a rape culture) may be more likely to engage in victim blaming. For example, Abrams et al. (2003) found that, in response to an acquaintance rape scenario, individuals who reported higher levels of benevolent sexism were also more likely to engage in victim blaming. A study by Sleath and Bull (2012) yielded similar results. Using police office participants, Sleath and Bull explored the link between rape myth endorsement and perpetrator blame. The extent to which the officers endorsed rape myths predicted their level of victim blame



attribution, particularly myths such as "She wanted it" and "He didn't mean to." This finding was supported in Parratt and Pina's (2017) systematic review of 38 studies investigating police officers' attitudes toward rape victims. In particular, Parratt and Pina (2017) found that the more rape myths officers endorsed, the more likely they were to attribute blame to rape victims and the less likely they were to find victims credible.

### **Expectation of Sexual Violence; Acceptance of Sexual Violence**

Another proposed characteristic of a rape culture is that it minimizes or trivializes sexual aggression against women (Edwards et al., 2011). One way in which this is accomplished is to classify such activity as "normal." One dimension of normality is the extent to which sexual violence is *expected*. A second dimension of normality is the extent to which such violence is *accepted*.

Results reported by Cook (1995) confirm the idea that sexually violent behavior is sometimes expected. For example, 38.4% of the participants in the study expected rape when a man was "led on" by a woman, and 35.7% expected rape when a woman changed her mind about wanting sex. Morry and Winkler (2001) reported that such expectations were correlated with the extent to which individuals exhibited rape myth acceptance.

Results illustrative of both normalization in terms of sexual abuse expectations and normalization in terms sexual abuse acceptance was reported by Hlavka (2014). Hlavka used archival data from interviews of adolescent girls in reported cases of sexual abuse to ascertain how the girls construct their own experiences of sexual violence and victimization. Statements such as "sex [is] 'something [men and boys] do,' or 'something he wanted,' and sexual assault [is] ... 'something she let happen'" (p. 16) appeared frequently. Such statements suggest that the girls did not see their experiences as incidents of sexual violence, but that they characterized these experiences as "normal" and "expected."

### **Hostile Sexism**

Rape cultures are also thought to reflect hostile sexism. Hostile sexism reflects negative reactions to women when those women do not perform their gender-determined obligations or when women behave in ways that are perceived as the domain of men (Glick & Fiske, 1996, 1997). There are three aspects of hostile sexism: (a) paternalism (women must be controlled by men); (b) competitive gender differentiation (men must be better than women); and (c) heterosexual hostility (men's sexual desire for women includes a desire to dominate them).

## Testing the One Ring Model in Study 2

The One Ring Model suggests that the purity culture ideas that we have previously described can become cognitively linked to the rape culture ideas that we have described. Study 2 examines this idea, and is derived from a logical chain that proceeds as follows: (a) when repeatedly exposed to a purity culture, people acquire the ideas and values espoused by the culture; (b) when repeatedly exposed to a rape culture, people acquire the values and ideas espoused by the culture, and (c) when a culture presents both purity ideas and sexual violence ideas, people acquire both sets of ideas and these two systems of ideas can be mentally linked. This repeated exposure can take the form of being raised within a culture (e.g., growing up in an evangelical Christian community) or through recurring messaging via media, peers, and family later in life. Importantly, the lessons learned within each culture demonstrates a bidirectional relationship: women are expected to maintain sexual purity and if and when they fail at this, they must be punished; likewise, women who are sexually victimized are no longer able to claim the benefits of the status conveyed by virginity. In both instances, women are valued based on their level of sexual experience (whether or not it is desired or consensual sexual experience) and may be characterized as either “good” or “bad,” with no nuance in between (this characterization is also referred to as the Madonna/whore dichotomy, e.g., Kahalon et al., 2019).

This mental linkage notion already has some support. In addition to the results that we described from Study 1, results from other existing studies (see Table 2) have documented links between individual measures thought to be indicative of the Purity Culture construct and individual measures thought to be indicative of the Rape Culture construct.

Study 2 sought to replicate and extend the results depicted in Table 2 in a manner that was congenial to the propositions of the One Ring Model. To do so, Study 2 measured all five of the subordinate constructs (virginity value, benevolent sexism, sexual conservatism, endorsement of sexual double standards) thought to be indicators of the Purity Culture construct and all five of the subordinate constructs (hostile sexism, rape myth acceptance, endorsement of other rape-related beliefs) thought to be indicative of the Rape Culture superordinate construct. Data analyses examined correlations among all measures. The One Ring Model leads to the expectation that all measures should be correlated with all other measures. We note that this should be the case regardless of whether the measures both are indicators of the same superordinate construct or are each indicators of different superordinate constructs. For example, these constructs could both fall under a larger umbrella of patriarchy and the systemic oppression of women based on gender. However, the One Ring Model also suggests that the average correlation among subordinate constructs ought to be stronger when the constructs are both indicators of the same superordinate construct than when they are indicators of different superordinate constructs.

**Table 2** Correlations between proposed purity culture variables and proposed rape culture variables

Study	Purity culture variables	Rape culture variables			
		Rape Myth acceptance <sup>^</sup>	Victim blaming	Hostile sexism	Rape proclivity
Abrams et al. (2003)	Benevolent Sexism	.48**	.33**	.43**	.29**
Burt (1980)	Sexual Conservatism	.39*	–	–	–
	Sex-Role Stereotyping	.48*	–	–	–
Chapleau et al. (2007)	Benevolent Sexism (HI)	.32*	–	.36*	–
	Benevolent Sexism (CG)	.32*	–	.22*	–
	Benevolent Sexism (PP)	.30*	–	.41*	–
Glick and Fiske (1996)	Benevolent Sexism	.32**	–	–	–
Hill and Marshall (2018)					
<i>British Sample</i>		.73**			
Benevolent Sexism					
<i>Indian Sample</i>	Benevolent Sexism	.63**		.28**	
Lee et al. (2010)	Attitudes toward Women	.44**	–	–	–
	Sexual Double Standard	.38**	–	–	–
Masser et al. (2010)	Benevolent Sexism	.24*	.38*	.39**	–
Payne et al. (1999)	Sex-Role Stereotyping	.55**	–	–	–
Viki and Abrams (2002)	Benevolent Sexism	.42*	.32*	.50*	–
Yamawaki (2007)	Benevolent Sexism	–	.35**	–	–

\*Indicates significance at the .05 level, \*\* indicates significance at the .01 level. HI=Heterosexual Intimacy subscale, CG=Complementary Gender subscale, PP=Protective Paternalism subscale. <sup>^</sup>There were multiple scales used to assess RMA: Burt's (1980) RMA (Burt, 1980; Glick & Fiske, 1996); Costin's (1985) R scale (Abrams et al., 2003; Masser et al., 2010; Viki & Abrams, 2002); Oh and Neville's (2004) KRMAS (Lee et al., 2010); Payne et al.'s (1999) IRMAS (Chapleau et al., 2007; Payne et al., 1999); and Ward's (1988) ARVS (Hill & Marshall, 2018)

## Method

### Participants

Undergraduates enrolled in an introductory psychology class ( $N=297$ ) completed an online survey. They were compensated with course credit. The majority of participants were women ( $n=184$ , 62%, with 45 not reporting gender) and the mean age was 19.27 years ( $SD=2.04$ ). Participants were mostly single ( $n=109$ , 36.7%), though many were seriously dating a partner at the time of the study ( $n=87$ , 29.3%). The average length of participants' current relationships was 1.89 years ( $SD=1.55$ ). About half reported being religious ( $n=139$ , 46.8%, with 36 not responding).

### Materials

Participants completed a questionnaire that contained multiple measures. Individual measures were each thought to be related to the purity culture construct or to the rape culture construct. Their descriptions are below.

#### Ambivalent Sexism Inventory

The Ambivalent Sexism Inventory (ASI; Glick & Fiske, 1996) measures hostile sexism (HS) and benevolent sexism (BS) on separate subscales. Benevolent sexism is thought to be indicative of a purity culture; hostile sexism is thought to be indicative of a rape culture. Participants responded to 22 items on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores on each subscale indicate more sexist attitudes. In the present study reliability for the two subscales was good: HS  $\alpha=0.82$ , BS  $\alpha=0.77$ .

#### Value of Virginity Scale

Twelve items (see supplemental materials) were created for this study to measure participants' endorsement of virginity beliefs. High virginity value is thought to be indicative of a purity culture. The items had acceptable reliability,  $\alpha=0.76$ . Exploratory factor analysis using maximum likelihood demonstrated that the scale had one predominant factor (based on eigenvalues  $> 1$ ) that explained 28.6% of the variance.

#### Updated IRMAS

Please see Study 1 for description of the IRMAS. In the present study reliability for the IRMAS was good,  $\alpha=0.91$ .

## Sexual Conservatism Scale

The Sexual Conservatism Scale (SCS; Burt, 1980) was designed to assess individuals' beliefs about how sexuality should be appropriately expressed. A very sexually conservative individual would endorse attitudes that align with the idea that only heterosexual sexual activity within the confines of marriage is acceptable. Participants responded to the 10 SCS items on a scale of 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores indicate greater endorsement of sexual conservatism. In the present study reliability for the SCS was  $\alpha=0.68$ .

## Sexual Beliefs Scale

The Sexual Beliefs Scale (SBS; Muehlenhard & Felts, 1998) was designed to measure rape-related beliefs. It comprises five different beliefs, which are represented by five subscales of 8 items each: token refusal (TR); leading on justifies force (LOJF); women like force (WLF); men should dominate (MSD); and no means stop (NMS). Participants responded to all SBS items on a scale of 0 (*disagree strongly*) to 3 (*agree strongly*). For the TR, LOJF, WLF, and MSD subscales, higher scores indicated greater endorsement of rape-related beliefs. Note that the NMS subscale is conceptually opposite to the other subscales; higher scores on this subscale indicate greater endorsement that a person should stop sexual activity if their partner says no. In the present study reliability for each subscale was good: TR  $\alpha=0.88$ , LOJF  $\alpha=0.90$ , WLF  $\alpha=0.93$ , MSD  $\alpha=0.91$ , and NMS  $\alpha=0.78$ .

## Sexual Double Standards Scale

The Sexual Double Standards Scale (SDSS, Muehlenhard & Quackenbush, 1998) was created to assess how much individuals endorse the gendered sexual double standard, which holds that sexual activity is more permissible for men than it is for women. Participants responded to the 26 SDSS items on a scale of 0 (*disagree strongly*) to 3 (*agree strongly*). Higher scores indicate greater endorsement of the double standard. In the present study reliability for the SDSS was  $\alpha=0.69$ .

## Results and Discussion

Means and standard deviations for each of the measures are reported in Table 3. As in Study 1, we used an independent samples *t*-test to explore whether there were gender differences for each of the measures. The majority of the measures evinced no significant difference between men and women ( $ps > 0.072$ ), with the exception of two: (a) men ( $M = 17.85$ ,  $SD = 5.14$ ) reported significantly greater scores on the subscale Men Should Dominate SBS subscale than did women ( $M = 15.04$ ,  $SD = 5.38$ ),  $t(243) = 3.70$ ,  $p < 0.001$ ,  $\eta_p^2 = 0.05$ ; and (b) men ( $M = 17.89$ ,  $SD = 6.29$ ) reported significantly greater scores on the SDSS than did

**Table 3** Correlations among Study 2 Measures

Measure	1	2	3	4	5	6	7	8	9	10	11
1. Value of virginity	3.48 (0.97)										
2. Benevolent sexism	.452**	3.37 (0.58)									
3. Sexual conservatism	.425**	.372**	3.52 (0.92)								
4. Sexual double standard	.143*	.335**	.252**	16.85 (5.34)							
5. Rape myth acceptance	.144*	.286**	.257**	.286**	2.46 (0.69)						
6. Hostile sexism	.174*	.460**	.237**	.328**	.523**	3.01 (0.65)					
7. Token refusal <sup>^</sup>	.235**	.394**	.342**	.481**	.599**	.533**	16.36 (5.35)				
8. Leading on justifies force <sup>^</sup>	.129*	.173*	.189*	.233**	.531**	.364**	.575**	12.03 (4.56)			
9. Women like force <sup>^</sup>	.044	.340**	.087	.372**	.481**	.540**	.604**	.417**	19.85 (5.77)		
10. Men should dominate <sup>^</sup>	.062	.309**	.111	.430**	.451**	.430**	.560**	.520**	.695**	15.91 (5.45)	
11. No means stop <sup>^</sup>	.017	.004	-.034	-.122	-.244**	-.100	-.212*	-.381**	-.094	-.226**	30.15 (3.23)

\*Indicates significance at the .05 level, \*\* indicates significance at the .001 level. <sup>^</sup> Indicates subscales of the Sexual Beliefs Scale (Muehlenhard & Felts, 1998). Values along the diagonals are means and standard deviations

women ( $M = 16.30$ ,  $SD = 4.80$ ),  $t(239) = 2.10$ ,  $p = 0.037$ ,  $\eta_p^2 = 0.02$ . One possible reason for the lack of significant gender differences on most measures could be the subgroup sizes, as women were 62% of the sample.

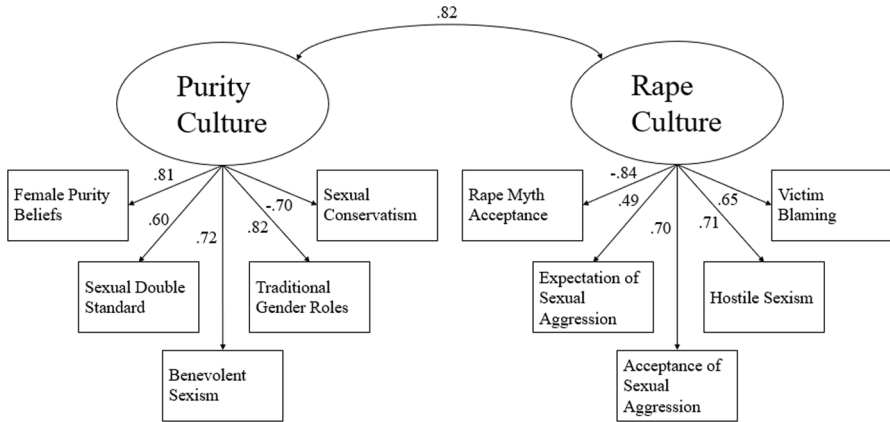
The correlations depicted in Table 3 show that measures thought to be indicative of a purity culture (1 through 4 in the table) were generally correlated with each other. For example, participants' sexually conservative beliefs were positively related to their virginity beliefs ( $r = 0.425$ ,  $p < 0.001$ ), indicating that individuals who had more sexually conservative beliefs also endorsed more virginity beliefs. Benevolent sexism was also positively related to virginity beliefs ( $r = 0.452$ ,  $p < 0.001$ ). In sum, consistent with the One Ring Model, all six correlations among purity belief-relevant measures were significant. Further, almost all the non-significant correlations were in the direction predicted by the One Ring Model (recall that the NMS subscale for the Sexual Beliefs Scale is positively worded, so that greater endorsement indicates acceptance that "no" means "stop").

Similarly, measures thought to be indicative of a rape culture (measures 5 through 11 in the table) were also generally correlated with each other. For example, except for the NMS subscale (recall that this subscale is positively worded, so that greater endorsement indicates acceptance that "no" means "stop"), scores on the measure of hostile sexism positively predicted scores on the sexual beliefs scale. In sum, as expected by the One Ring Model, 19 of the 21 correlations among rape myth belief-relevant measures were significant, and the two non-significant correlations followed the expected pattern.

However, most important to the present article are the results showing that participants' endorsement of beliefs indicative of a purity culture was often related to participants' endorsement of beliefs indicative of a rape culture. For example, participants' ratings of virginity correlated positively with their rape myth acceptance ratings ( $r = 0.144$ ,  $p = 0.025$ ), so that as their beliefs in the importance of purity increased, so did their acceptance of rape myths. In addition, hostile sexism was positively related to virginity beliefs ( $r = 0.174$ ,  $p = 0.006$ ), as was the Token Refusal subscale of the SBS ( $r = 0.235$ ,  $p < 0.001$ ), and the Leading on Justifies Force subscale of the SBS ( $r = 0.129$ ,  $p = 0.042$ ). In sum, 20 of the 28 correlations involving both purity-culture-relevant ideas and rape myth acceptance-relevant ideas were significant.

An additional analysis examined whether, as predicted by the One Ring Model, correlations among measures were strongest when the constructs assessed by the measures both reflected the same superordinate construct than when they reflected different superordinate constructs. Each correlation presented in Table 3 was classified as a within-construct correlation or a between-construct correlation, and the mean correlation yielded by these two groups was examined by means of an independent groups  $t$ -test. As expected from the One Ring Model, the average correlation among measures was stronger when the two measures contributing to the correlation both reflected the same construct ( $M = 0.41$ ) than when they reflected different constructs ( $M = 0.22$ ),  $t(53) = 4.55$ ,  $p > 0.001$ ,  $d = 1.23$ .

In summary, then, the data from Study 2 met several goals. First, the data replicated many of the prior results in the literature showing that individual elements of the Purity Culture construct were related to individual elements of the Rape Culture



**Fig. 1** The One Ring measurement model. Note that low scores on the Sexual Conservatism Scale reflect high endorsement of sexually conservative ideas. Similarly, low scores on the Rape Myth Acceptance Scale reflect high rape myth acceptance. Hence, the negative loadings of these indicators on their constructs are as expected

construct. Such attempts at replication fit with the recent re-emphasis in social psychology on results replication across researchers and paradigms (Maxwell et al., 2015). The generality of these relations between the constructs that are indicators of the Purity Culture construct and the constructs that are indicators of the Rape Culture construct supports the One Ring Model in showing that (a) purity culture-indicative ideas can be linked in people’s minds to rape culture-indicative ideas, but (b) the average magnitude of the correlations is greater for correlations among subordinate constructs that both reflect the same superordinate construct than for correlations among subordinate constructs that reflect different superordinate constructs.

### Study 3

Study 3 attempts to replicate, extend, and refine the results reported in Studies 1 and 2. As in Study 2, Study 3 again includes measures of all five of the subsidiary constructs thought to be indicative of the Rape Culture construct, and includes measures of all five of the subsidiary constructs thought to be relevant to the Purity Culture construct. Also as in Study 2, in Study 3 the correlations among all ten measures were assessed. As in Study 2, it was expected that in Study 3 all measures would be correlated with each other.

However, Study 3 went beyond Study 2 in an important way. Study 3 examined the correlations yielded by the data in the context of a formal measurement model that explicitly assumed (a) the existence of a Purity Culture construct and the existence of a Rape Culture construct, (b) that these two superordinate constructs were correlated, and (c) that the individual measures each assessed a subordinate construct that was an indicator of one superordinate construct or the other, but not both (see Fig. 1). Finally, the measures used in Study 3 were chosen to be standard scales



to measure the Purity Culture and Rape Culture constructs, based on the performance of the scales used in Study 2 and further reflection.

The fit of the data to this One Ring Model was compared to the fit of the data to a couple of alternative models. One of these was a measurement model in which the Purity Culture construct and the Rape Culture construct were treated as if they were independent. A second alternative to the One Ring Model is a model that sees all the indicators as stemming from a single construct (e.g., anti-feminism, right-wing authoritarianism). It was expected that the data would be a better fit to the One Ring Model than to either of these alternatives.

## Method

### Participants

Undergraduates enrolled in an introductory psychology class ( $N=167$ ) completed an online survey for course credit. The majority of participants were women ( $n=108$ , 65%, with 3 not reporting gender) and the mean age was 20.84 years ( $SD=3.26$ ). Most participants were single ( $n=73$ , 43.7%), though many were seriously dating a partner at the time of the study ( $n=52$ , 31.1%). A little more than half reported being religious ( $n=90$ , 53.9%, with 2 not responding).

### Materials

Participants completed a questionnaire designed to assess the various subsidiary constructs thought to reflect the Purity Culture construct, and the various subsidiary constructs thought to reflect the Rape Culture construct (see Fig. 1). The questionnaire included three new measures; all others were used in Study 1 and/or Study 2. The new scales were the Sex-Role Stereotyping Scale (traditional gender roles; Burt, 1980), the victim blaming scenario (victim blaming; Loughnan et al., 2013), and the Expectation and Acceptance of Sexual Aggression Scale (expectation of sexual aggression and acceptance of sexual aggression; Cook, 1995). The previously used measures were the ASI (Glick & Fiske, 1996), the FPBS (Klement et al., 2014, 2022b), the SCS (sexual conservatism; Burt, 1980), the SDSS (Muehlenhard & Quackenbush, 1998), and the Updated IRMAS (McMahon & Farmer, 2011).

## Results

### Descriptive Analyses

Nearly all the measures in the measurement model were significantly correlated with each other (see Table 4 for the bivariate correlations). Only the Expect Sexual Aggression measure and the Accept Sexual Aggression measure did not exhibit significant correlations with all other measures. We also conducted exploratory

**Table 4** Correlations for study 3 measures

Measure	1	2	3	4	5	6	7	8	9	10
1. Female purity beliefs	2.20 (0.61)									
2. Sexual double standard	.45**	14.79 (0.69)								
3. Sex-role stereotyping	.65**	.49**	3.20 (1.13)							
4. Benevolent sexism	.55**	.39**	.55**	3.12 (0.62)						
5. Sexual conservatism <sup>^</sup>	-.55**	-.32**	-.55**	-.46**	4.82 (0.94)					
6. Rape myth acceptance <sup>^</sup>	-.58**	-.39**	-.51**	-.40**	.47**	3.73 (0.67)				
7. Hostile sexism	.51**	.45**	.40**	.43**	-.35**	-.57**	2.78 (0.62)			
8. Expectation of sexual aggression	.14	.14	.23*	.29**	-.29**	-.22*	.19*	2.15 (1.11)		
9. Acceptance of sexual aggression	.30**	.28**	.41**	.15	-.38**	-.45**	.16	.40**	1.38 (0.72)	
10. Victim blaming	.31**	.38**	.36**	.29**	-.37**	-.54**	.38**	.35**	.44**	2.14 (1.18)

\*Indicates significance at the .05 level, \*\* indicates significance at the .001 level. <sup>^</sup> Lower scores indicate greater endorsement of construct. Values along the diagonal are means and standard deviations

independent samples *t*-tests to examine gender differences. Only five variables evinced significant gender differences: (a) men ( $M=2.49$ ,  $SD=0.73$ ) scored higher on the rape myth acceptance measure than did women ( $M=2.49$ ,  $SD=0.73$ ),  $t(156)=2.98$ ,  $p=0.003$ ,  $\eta_p^2=0.05$ ; (b) men ( $M=16.41$ ,  $SD=6.06$ ) scored higher on the sexual double standard measure than did women ( $M=13.84$ ,  $SD=4.15$ ),  $t(149)=3.02$ ,  $p=0.002$ ,  $\eta_p^2=0.06$ ; (c) men ( $M=3.60$ ,  $SD=1.21$ ) scored higher on the sex-role stereotyping measure than did women ( $M=2.95$ ,  $SD=1.01$ ),  $t(154)=3.57$ ,  $p<0.001$ ,  $\eta_p^2=0.08$ ; (d) men ( $M=2.38$ ,  $SD=0.62$ ) scored higher on the female purity beliefs measure than did women ( $M=2.10$ ,  $SD=0.59$ ),  $t(155)=2.79$ ,  $p=0.006$ ,  $\eta_p^2=0.05$ ; and (e) men ( $M=2.45$ ,  $SD=1.29$ ) scored higher on the victim blaming measure than did women ( $M=1.99$ ,  $SD=1.09$ ),  $t(161)=2.40$ ,  $p=0.018$ ,  $\eta_p^2=0.03$ .

## Model Estimation

The measurement model is depicted in Fig. 1. In the figure, the circles represent the latent variables, and rectangles represent the measured indicators. The model was tested in AMOS 21 using generalized least squares estimation.

The model was modestly supported,  $\chi^2(34, N=163)=87.14$ ,  $p<0.001$ , RMSEA=0.098, NFI=0.87, CFI=0.91. The measurement model estimates for each of the indicators appear in Fig. 1. Importantly, as suggested by the One Ring Model, there was a link between the purity culture construct and the rape culture construct: The correlation between the purity culture construct and the rape culture construct was 0.82. The modeling results also showed that the indicators loaded onto the purity culture construct and the rape culture construct in the expected manner. However, in this regard we note that, echoing the bivariate correlation results, the standardized regression weight in the model was relatively modest for the Expect Sexual Aggression variable, suggesting that the model fit for this variable was not especially good.

## Explorations of Model Modifications

The modification indices output by the analysis were examined to determine if any indicators or errors should be associated or moved. There were no large modification indices, nor were there any theoretical reasons to alter the model.

## Explorations of Alternative Models

The fit for the two-construct correlated model was compared to the fit for an uncorrelated construct model. Results were generally consistent with the expectations of the One Ring Model. The correlated two-construct model was found to be a significantly better fit than the uncorrelated model,  $\chi^2(1, N=163)=98.82$ ,  $p<0.001$ . Similarly, the fit of the correlated two-construct model was compared to the fit provided

by a single-construct model in which all the measures were modeled as if they were indicators of a single construct (e.g., anti-feminism, right-wing authoritarianism). The correlated two-construct model was found to be a significantly better fit than the single construct model,  $\chi^2(1, N=163)=17.37, p<0.001$ .

## Discussion

The modeling results described in Study 3 showed that the Purity Culture construct could be assessed via five measures, each assessing a theorized subcomponent of the Purity Culture construct (purity beliefs, endorsement of the sexual double standard, evidence of benevolent sexism, endorsement of traditional gender roles, sexual conservatism). Similarly, the modeling results suggested that the Rape Culture construct could be assessed via five measures, each assessing a theorized subcomponent of the Rape Culture construct (rape myth acceptance, expectation of sexual aggression, acceptance of sexual aggression, evidence of hostile sexism, and victim blaming).

Results from Study 3 also showed that on the level of these individual measures, as in Studies 1 and 2, the more participants endorsed purity-related beliefs, the more they endorsed rape myth-indicative beliefs. Some of these relations replicate results from prior studies (see Table 2); other relations between Rape Culture construct-related measures and Purity Culture-construct related measures have not before been described in the literature.

However, the data obtained from Study 3 also point to a possible need to reconsider the sexual aggression measures. These were sometimes not linked to the other measures used in the study as strongly as might be expected. In this regard, however, we note that even the non-significant correlations between these measures and the other measures were in the expected direction. This directionality suggests that these nonsignificant relations may be real, but may simply need more power to emerge from the data. Such power might come from a greater sample size than the one that we used, or from the use of alternative sexual aggression measures that might be more sensitive than the measures that we employed.

However, despite such minor glitches, the modeling evidence produced in Study 3 are consistent with the One Ring Model. These results suggest that though the Rape Culture construct and the Purity Culture construct are each multi-faceted, the mental representation of the Purity Culture construct and the mental representation of the Rape Culture construct are cognitively linked. To our knowledge, this is the first empirical evidence documenting this linkage between these higher-order constructs.

## Studies 4a, 4b, 4c

The One Ring Model suggests in an individual's knowledge base, though the Purity Culture construct is linked to the Rape Culture construct, the two constructs are cognitively distinct. One way to illustrate that these constructs are separate (e.g., to provide *discriminant validity* evidence for the constructs) is to show that each of the two constructs uniquely predicts a given measure.

This is the logic that drove the research conducted in Studies 4a, 4b, and 4c. The studies build on the results of prior research suggesting that the degree to which one endorses rape myths predicts the extent to which one blames a rape victim (e.g., victim culpability, perpetrator guilt, victim pleasure, Klement et al., 2019). Given the One Ring Model's hypothesized relation between the Purity Culture construct and the Rape Myth construct, one might expect purity beliefs to predict victim blaming in a manner similar to that observed for rape myth beliefs. More important, however, is whether measures of purity beliefs and measures of rape myth acceptance would each *independently* predict victim blaming (i.e., each construct accounts for victim blaming variance that is unique from the other construct). Such a result would provide evidence for the discriminative validity of the Purity Culture construct and the Rape Culture construct.

The data collected for the package of studies bundled in Study 4 pursue this idea. The data for these studies were originally collected for purposes that differ from the concerns that drove the present article (see Klement et al., 2022a). However, the data that we present in the present article are used in a set of analyses not published elsewhere. The procedures for each data collection wave were effectively the same in Study 4a, 4b, and 4c, but simply were used with different sub-samples. Thus, for Study 4 we describe the data collection method used for all three waves of data collection in a common Method section, distinguishing each sub study by separately describing the sample demographics that characterized each different wave of data collection.

## Method

### Study 4a Participants

The data for Study 4a were collected from undergraduates enrolled in both introductory psychology courses and upper-level psychology courses ( $N=181$ ). The participants came into the lab, completed an online survey, and were compensated with course credit or extra credit (depending on level of the course). The majority of participants were women ( $n=106$ , 59%, with 1 not reporting gender) and the mean age was 20.28 years ( $SD=3.42$ ). The most frequently reported racial identity was white ( $n=74$ , 41%), with many participants identifying as Black ( $n=53$ , 29%) or Latinx ( $n=30$ , 17%). Five participants identified as Asian and 1 participant identified as Native American/Pacific Islander.

### Study 4b Participants

This sample ( $N=218$ ) was collected on Amazon Mturk. Once participants accepted the HIT, they completed an online survey. Each participant received \$0.50 whether or not they completed the study. More participants were men ( $n=118$ , 54%) than women and the mean participant age was 34.16 years ( $SD=10.08$ ). Most participants identified as white ( $n=165$ , 76%), with 30 identifying as Black, 4 identifying

as Latinx, 9 identifying as Asian, and 6 identifying as Native American/Pacific Islander.

### Study 4c Participants

This sample ( $N=434$ ) was also collected on Amazon Mturk. After accepting the HIT, participants completed the online study, and received \$2.00 whether or not they finished the study. The majority of participants were men ( $n=255$ , 59%, with 4 reporting a non-binary gender and 3 not reporting gender) and the mean participant age was 34.12 years ( $SD=9.30$ ). Most participants identified as white ( $n=316$ , 73%), with 54 identifying as Black, 28 identifying as Latinx, 22 identifying as Asian, and 4 identifying as Native American/Pacific Islander.

### Materials

The participants all completed the Updated IRMAS (McMahon & Farmer, 2011) and the FPBS (Klement et al., 2014, 2022b). These measures were described earlier in this article. Internal reliability was good for both scales: IRMAS Study 4a  $\alpha=0.92$ , Study 4b  $\alpha=0.97$ , Study 4c  $\alpha=0.97$ ; FPBS Study 4a  $\alpha=0.91$ , Study 4b  $\alpha=0.97$ , Study 4c  $\alpha=0.97$ .

Each participant also read a sexual assault vignette (see Klement et al., 2019 for validation information). In the vignette, Robert and Erika, two college students, work together on a class project and as a thank you, Erika invites Robert to dinner. Throughout the evening, Robert interprets Erika's behavior as "playing hard to get," and eventually rapes her; Erika freezes during the assault.

After reading the vignette, participants responded to seven sets of items. Each item set contributed to a separate dependent variable. These were (a) how culpable Erika was in what happened, (b) how culpable Robert was in what happened, (c) how credible Erika's accusation against Robert was, (d) whether Robert was guilty of rape or not, (e) how much pleasure Erika experienced, (f) how much trauma Erika experienced, and (g) a recommended prison sentence for Robert. Across all three studies, reliability was good for all the dependent variables (Study 4a  $\alpha=0.69-0.90$ ; Study 4b  $\alpha=0.69-0.95$ ; Study 4c  $\alpha=0.68-0.97$ ).

### Procedure

When participants began the online study, they completed either the IRMAS or the FPBS (presentation order counterbalanced to negate order effects). As part of the original study design, each participant was randomly assigned to a condition where they wrote about a time they felt too similar or too different from others around them. In the analyses reported in the present article, these conditions were not

relevant and were ignored.<sup>1</sup> Next, each participant then read the vignette describing Robert's rape of Erika. After reading the scenario, all participants completed the victim blaming dependent variables and filled out a set of questions assessing participant demographics.

## Results and Discussion

For all three samples, we separately predicted each of the seven victim blaming measures using a two-step hierarchical regression model.

In each model, the female purity belief measure was entered in Step 1 as the sole predictor variable. As can be seen in Table 5, female purity beliefs significantly predicted all dependent variables for each study, with only one exception (perpetrator prison sentence recommendation in Study 4a).

Next, in each analysis the rape myth acceptance measure was then entered in Step 2 as a second predictor of each of the victim blaming variables (see Table 5 for the full regression model information). Although the evidence is not as strong as it might otherwise be, the results from these analyses still nonetheless provide support for the discriminant validity of the Purity Culture construct and the Rape Culture construct. With one exception (perpetrator prison sentence recommendation in Study 4c), in all analyses the Rape Myth Acceptance measure explained significant additional variance in the DV above and beyond the variance accounted for by Female Purity Beliefs. Moreover, even when statistically controlling for rape myth acceptance, in nine of the analyses (out of 21) female purity beliefs significantly predicted a measure reflective of victim blaming.

Additional evidence for discriminant validity comes from the fact that across all three subsamples, the female purity belief measure and the rape myth acceptance belief measure always each significantly and simultaneously predicted responses to the victim pleasure subcomponent of the victim blaming construct. That is, stronger endorsement of rape beliefs and stronger beliefs in the desirability of female purity independently both independently predicted higher expectations that rape victims experience pleasure. More generally, across all samples and measures, the female purity belief measure and the rape myth acceptance measure each significantly and simultaneously predicted a measure of victim blaming in eight (out of 21) of the analyses.

However, in two of these eight cases, we note that the independent predictive effects of each of the predictor measures moved in opposite directions (when they ought to move in the same direction). For the perpetrator prison sentence recommendation measure in Study 4b, in Step 2 weaker endorsement of rape myths predicted longer sentences. Similarly, for the perpetrator culpability measure in Study 4c, in Step 2 weaker endorsement of rape myths predicted stronger culpability judgments. Hence, a conservative view of the data would conclude that optimal model-consistent evidence for the simultaneous and significant predictive effects of the

<sup>1</sup> The effects of these experimental manipulations are reported in (2022a).

**Table 5** Hierarchical multiple regression analyses predicting victim-blaming variables from female purity beliefs and rape myth acceptance

Victim blaming variables														
Predictor	Victim Culpability		Perpetrator Culpability		Victim Credibility		Perpetrator Guilt		Victim Pleasure		Victim Trauma		Perpetrator Sentence	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
<i>Study 4a</i>														
Step 1	.14**		.04*		.13**		.10**		.11**		.06*		.003	
Female Purity Beliefs		.37**		-.20*		-.36**				.34**		-.24*		-.05
Step 2	.17**		.07**		.14**		.10**		.02*		.12**		.05*	
Rape Myth Acceptance		.52**		-.33**		-.47**				.19*		-.43**		-.28*
Female Purity Beliefs		.05		.003		-.07				.22*		.02		.12
Total $R^2$	.30**		.11**		.27**		.20**		.14**		.18**		.05*	
<i>Study 4b</i>														
Step 1	.61**		.09**		.27**		.08**		.56**		.11**		.04*	
Female Purity Beliefs		.78**		-.29**		-.52**				.75**		-.33**		.19*
Step 2	.07**		.03*		.10**		.05*		.03**		.07**		.02*	
Rape Myth Acceptance		.51**		-.33*		-.61**				.34**		-.52**		-.26*
Female Purity Beliefs		.34**		-.004		.002				.46**		.12		.41*
Total $R^2$	.68**		.11**		.37**		.14**		.59**		.18**		.05*	



**Table 5** (continued)

Victim blaming variables														
Predictor	Victim Culpability		Perpetrator Culpability		Victim Credibility		Perpetrator Guilt		Victim Pleasure		Victim Trauma		Perpetrator Sentence	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
<i>Study 4c</i>														
Step 1	.58**		.01*		.29**		.05**		.51**		.07**		.06**	
Female Purity Beliefs		.76**		-.11*		-.54**		-.22**		.71**		-.26**		.24**
Step 2	.09**		.03**		.04**		.05**		.04**		.04**		.003	
Rape Myth Acceptance		.60**		-.35**		-.42**		-.47**		.37**		-.41**		-.10
Female Purity Beliefs		.25**		.19*		-.18*		.17		.40**		.09		.33**
Total $R^2$	.68**		.04**		.33**		.10**		.54**		.11**		.06**	

\* $p < .05$ ; \*\* $p < .001$

female purity belief variable and the rape myth acceptance variable emerged in only six of the Step 2 phases of the analyses.

Such results might not seem to provide especially persuasive construct validity evidence. However, to help put these results in their proper perspective, we note that the simultaneous and significant predictive effects of both constructs on the victim blaming measures occurred much more often than would be expected by chance. Many routes lead to this statistical conclusion.

For example, assume for the moment that the rape myth acceptance measure and the female purity measure both actually assess the same underlying construct. If this is the case, then neither should predict unique variance in the victim blaming measures at an above-chance level (e.g., at an alpha of 0.05, each variable should be a significant predictor in only one Step 2 phase of the analyses). Instead, (a) the rape myth acceptance measure uniquely predicted victim blaming variance in 20 out of 21 Step 2 phases of the analyses (though two results were inconsistent with theory), (b) the female purity measure uniquely predicted victim blaming variance in 9 out of the 21 Step 2 phases of the analyses, and (c) both variables simultaneously and significantly predicted victim blaming variance in 8 of the 21 Step 2 phases of the analyses (though again, we caution that in two of these cases results for the predictive effects of the rape myth acceptance variable on victim blaming were opposite of prediction).

The previous example assumed that the two variables possessed equivalent predictive power. Let's now assume that both the rape myth acceptance measure and the female purity measure assessed the same underlying construct, but that the rape myth acceptance measure was a far better predictor of victim blaming than the female purity measure such that the effect of female purity beliefs could be fully accounted for by rape myth acceptance. In such a case, then at an alpha level of 0.05 the independent predictive effect of the female purity measure in the Step 2 phases of the analyses should be significant only once in the 21 analyses. Instead, it is significant in nine of the analyses (although we again note that in three of these analyses the predictive effects for the rape myth acceptance measure are not as predicted by the Model—one effect is non-significant and two are in a direction opposite to expectation).

Given these considerations, we agree that that the results are not optimal for the One Ring Model. However, we also assert that on balance, the results support the Model's contention that the Purity Culture construct and the Rape Culture construct are distinct constructs. These results reinforce our earlier results that within-construct relationships (in this case, rape myth acceptance and victim blaming measures) are stronger than between-construct relationships (in this case, female purity beliefs and victim blaming measures). We also note that the findings reported in Study 4 have descriptive implications that extend beyond the One Ring Model. To our knowledge, the finding that female purity beliefs sometimes predict aspects of victim blaming in a way that is independent of rape myth acceptance beliefs is a new finding that has not been reported elsewhere.

## Study 5

Study 5 continues exploration of the One Ring Model. It does so by again pursuing evidence of a linkage between Purity Culture construct and the Rape Culture construct, and in pursuit of this evidence also points to some possible cognitive consequences of this linkage. More specifically, following the model established in the research exploring links between sex and power (e.g., Bargh et al., 1995), the study used a priming manipulation to activate purity-related beliefs in some participants. If the Purity Culture construct is cognitively linked to the Rape Culture construct, then activation of purity beliefs in participants should tend to activate rape myth beliefs.

Thus, in a study that was advertised as exploring “cultural attitudes,” Study 5 participants were exposed to either sexually neutral stimuli (*control condition*) or to stimuli that should activate female purity beliefs (*female purity priming condition*). Participants then completed several measures, each of which assessed one of the subcomponents of the Rape Culture construct. Working from the One Ring Model, it was expected that individuals in the female purity priming condition would report greater endorsement of Rape Culture-relevant beliefs on each of the subcomponent measures.

One other interest in this study was whether priming effects that emerged from Study 5 would be moderated by participant gender. Gender differences in attitudes and beliefs relevant to rape have certainly been reported in previous research. For example, in religious purity cultures, men set the standards and make the rules regarding women’s sexuality (Fahs, 2010). Moreover, some research results indicate that men report higher levels of rape-supportive attitudes, such as rape myth acceptance, than women (Suarez & Gadalla, 2010; also see Bleeker & Murnen, 2005). We previously explored gender differences in Studies 1–3, but the results across the studies were mixed. For example, in Study 1, for both rape myth acceptance and female purity beliefs, women scored higher than did men. However, for both Study 2 and 3, we found that men scored significantly higher on rape myth acceptance than did women.

Thus, given these precedents, we wondered whether gender differences may moderate the impact of exposure to the priming stimuli on subsequent rape culture-relevant responding. Indeed, this idea is suggested by prior research results showing that women and men sometimes differ in the extent to which their attitudes are affected by the presentation of materials containing sexual content (e.g., Weisz & Earls, 1995). Thus, the possibility that men and women might show different Rape Culture construct-related responses after exposure to purity-related primes was pursued in Study 5 by entering participant gender as a variable in our analyses.

## Method

### Participants

Undergraduates enrolled in an introductory psychology class ( $N=92$ ) completed an online survey for extra course credit. A slight majority of participants were women ( $n=49$ , 53%, with 6 not reporting gender) and the mean participant age was 22.39 years ( $SD=3.12$ ). Most participants were single ( $n=36$ , 39.1%), though many were seriously dating a partner at the time of the study ( $n=23$ , 25%). A little more than half of the participants reported being not religious ( $n=47$ , 51.1%, with 5 not responding).

### Materials

On beginning the study, participants initially read a statement indicating that, with the advent of technology, cultural attitudes were shifting toward things like relationships and social media (see supplemental materials for exact language). Subsequent stimuli were used to exemplify this statement. Participants in the *control condition* saw stimuli that were unrelated to cultural ideas of sex and gender (logos of social media websites). In comparison, participants in the female purity priming condition saw stimuli designed to activate beliefs about female purity. These were a picture of a wedding ceremony and a picture of a mother with a child.

After viewing these stimuli, participants completed several questionnaires. Four of these measures had been used in at least one of the studies previously described in this article: (a) the hostile sexism subscale of the ASI (Glick & Fiske, 1996), (b) the Updated IRMAS (McMahon & Farmer, 2011), (c) the EASAS (Expectation and Acceptance of Sexual Aggression Scale, Cook, 1995), and (d) the victim blaming scenario (Loughnan et al., 2013). Participants also (a) completed the Social Dominance Orientation Scale (SDO; Pratto et al., 1994), and (b) to maintain the cover story for the study, completed measures assessing what type of social media they consumed and how often they consumed it.

## Results

Results from the study explored the extent to which the purity priming manipulation affected responding to each of the five dependent measures, each of which reflected one of the subcomponents of the Rape Culture construct. Analyses also examined whether the effects of the priming manipulation differed by participant gender.

To pursue these goals, scores were separately tallied for each of the questionnaires or questionnaire subscales according to the established procedure for each. These scores were first each analyzed using a one-way (neutral prime v. purity prime) ANOVA. There was one marginally significant test: participants in the purity prime condition ( $M=2.36$ ,  $SD=0.59$ ) reported greater rape myth acceptance than did participants in the control condition ( $M=2.08$ ,  $SD=0.66$ ),  $F(1, 80)=3.92$ ,

$p=0.051$ ,  $\eta_p^2=0.05$ . Based on the gender difference in rape myth acceptance, where men ( $M=2.43$ ,  $SD=0.64$ ) reported significantly greater rape myth acceptance than did women ( $M=2.08$ ,  $SD=0.64$ ),  $t(77)=2.55$ ,  $p=0.013$ ,  $\eta_p^2=0.08$ , we decided to explore the added impact of gender with condition on rape myth acceptance.

We analyzed rape myth acceptance with a Gender (men v. women)  $\times$  Condition (neutral prime v. purity prime) ANOVA. With this analysis, the effect observed fit expectations derived from the One Ring Model: participants in the female purity priming condition reported significantly more rape myth acceptance ( $M=2.37$ ,  $SD=0.59$ ) than did participants in the control condition ( $M=2.07$ ,  $SD=0.67$ ),  $F(1, 75)=4.25$ ,  $p=0.043$ ,  $\eta_p^2=0.05$ .

However, this effect was qualified by a significant Gender  $\times$  Condition interaction,  $F(1, 75)=7.09$ ,  $p=0.009$ ,  $\eta_p^2=0.09$ . Examination of the simple effects reveals that the effect of purity priming on rape myth acceptance was driven by the men in the sample. Men showed significantly greater rape myth acceptance in the female purity priming condition ( $M=2.63$ ,  $SD=0.50$ ) than in the control condition ( $M=1.95$ ,  $SD=0.73$ ),  $F(1, 75)=9.27$ ,  $p=0.003$ ,  $\eta_p^2=0.11$ . Women, in contrast, showed no significant difference in the IRMAS responses provided in the purity priming condition ( $M=2.03$ ,  $SD=0.55$ ) and the control condition ( $M=2.11$ ,  $SD=0.65$ ),  $F(1, 75)=0.23$ ,  $p=0.635$ ,  $\eta_p^2=0.003$ .

## Discussion

This study provides the first causal evidence that exposure to female purity-related ideas increases the endorsement of rape myth acceptance ideas. This effect supports the idea that there is a linkage in peoples' knowledge structures between the Purity Culture construct and the Rape Culture construct. The results of Study 5 also suggest that this linkage is especially strong in men: The effect of the purity priming manipulation on rape myth acceptance beliefs was significant for men, but not for women. One disturbing implication of these results is that putting an emphasis on female purity could have the paradoxical effect of enhancing rape tendencies via increasing acceptance of rape myths.

However, in considering our results we note that the purity priming manipulation did not affect responses to other measures (hostile sexism, aggression, social dominance, and victim blaming) that are hypothesized to be indicators of the Rape Culture construct. Hence, as in Study 4, the overall pattern of results obtained, while supportive of the One Ring Model, are not optimal for the model.

One can generate several reasons that might account for these null results. Obvious possibilities are: (a) the sample size was too small to provide adequate power to detect effects; (b) the response scales used are differentially sensitive to the effects of manipulations designed to activate the constructs assessed by the scales; (c) the constructs themselves are differentially sensitive to the effects of manipulations designed to activate them, and (d) the One Ring Model is wrong. One clue that suggests that our studies were underpowered lies in the gender data. The null results observed for four of the measures failed to replicate the results reported elsewhere suggesting gender differences in beliefs relevant to the Rape Culture construct

(e.g., Bleeker & Murnen, 2005; Suarez & Gadalla, 2010). However, such clues are often false leads; discernment of the true causes underlying the null effects that we observed in Study 5 is obviously best left to future research.

## General Discussion

Some theorists believe that cultures sometimes teach rape-supportive ideas to members of the cultures. Examination of the popular, scientific, and empirical literature seems to suggest that there may be at least five types of these ideas (e.g., Buchwald et al., 1994; Harding, 2015; Schwarz et al., 2022): (a) rape myth acceptance; (b) victim blaming; (c) the extent to which sexual violence is expected; (d) the extent to which sexual violence is accepted; and (e) hostile sexism. The data reported in this article support this idea. Data provided in Studies 2 and 3 show that measures of these five constructs tend to correlate with each other. The measurement model described in Study 3 suggests that these measures of these five domains reflect a common underlying construct.

In parallel, purity cultures are those that emphasize feminine purity, though the exact nature of these ideas has not been empirically examined as thoroughly as the ideas thought to be conveyed by rape cultures. Nonetheless, examination of both popular treatises and theoretical writings suggests that people who live in purity cultures may acquire five sets of ideas about women and sexual behavior (Anderson, 2015; Herrmann, 2020; Natarajan et al., 2022; Valenti, 2009): (a) sexual conservatism; (b) female purity beliefs; (c) a sexual double standard; (d) traditional gender roles; and (e) benevolent sexism. Data provided in Studies 2 and 3 show that measures of these five constructs tend to correlate with each other. The measurement model described in Study 3 suggests that these measures of these five domains reflect a common underlying construct.

In the One Ring Model, echoing the ideas of several scholars (e.g., Anderson, 2015; Natarajan et al., 2022; Valenti, 2009), we propose that those same cultures that are rape cultures also sometimes are purity cultures. When this convergence occurs, we hypothesize that the two sets of ideas that are derived from each culture can become cognitively linked at the superordinate construct level: The Rape Culture construct is linked to the Purity Culture construct.

This hypothesized linkage has a number of implications, several of which have been empirically examined in this article. One of these implications was that the same people who strongly endorse ideas about female purity will also express strong endorsement of rape myths. This proposition was supported in Studies 1 through 3. A second implication is that these correlations best reflect relations between two distinct sets or systems of constructs. This proposition was supported by the results of Study 3, which showed that the data were a good fit to a measurement model that conceived of five measures reflecting Rape Culture construct-relevant ideas and five measures reflecting Purity Culture construct-relevant ideas. This model was superior both to a model in which the Purity Culture construct and the Rape Culture construct were treated as if they were independent, and to a model that dispenses with

these two constructs and modeled all the measures as reflecting a single underlying construct (e.g., anti-feminism).

Further evidence that the Purity Culture construct and the Rape Culture construct are distinct appeared in Studies 4a, 4b, and 4c. Participants in that study read a rape scenario and then completed seven different measures, each of which reflect the extent to which rape victims are blamed for the rape. Participants also completed measures that separately assessed the strength of their Rape Culture construct and their Purity Culture construct. In analyses that simultaneously entered these two construct measures as predictors of the measures of victim blaming, each of the construct measures often (but admittedly not always) were significant predictors of the victim blaming responses. Such results provide discriminant validity evidence for the Rape Culture and Purity Culture constructs.

The hypothesized linkage between the Purity Culture construct and the Rape Culture construct was also experimentally explored in the priming study described in Study 5. The core idea was that if purity culture-relevant ideas were cognitively linked to rape culture-relevant ideas, then activating one set of ideas should tend to activate the second set of ideas. Though restricted to only one indicator of the Rape Culture construct, Study 5 found evidence for this hypothesis. Presenting images reflecting female purity (a wedding ceremony and a picture of a mother with a child) increased the extent to which people endorsed rape myth acceptance beliefs.

## Evaluating the One Ring Model

We assert that the data that we report from our five studies provide a good deal of preliminary support for the One Ring Model. However, when viewing our data, we emphasize the need for considerable caution. One important reason for caution is that the data from four of the studies that we describe are derived from observational methods. In this regard, there are well-known problems in the use of correlational data to support theoretical proposals (spurious correlations, the third variable problem, etc.). Thus, the observational data that we have provided, while consistent with the notion that there can be a mental linkage between ideas about female purity and ideas about sexual violence, can only provide limited support for the theory.

That reliance on observational methodology might seem to be potentially remedied by Study 5. That study used an experimental priming methodology in an attempt to show that activating purity constructs causally produced an increase in the extent to which people expressed beliefs in rape-related myths. While the results did yield results indicative of such a linkage, even here considerable caution is warranted. One reason is that the purity priming manipulation produced a significant change in rape culture-related ideas for only one of the five Rape Culture construct indicators that were measured. Assuming that a link between the systems of constructs actually exists, this pattern might reflect one of several causes. Among these are: (a) The manipulation might not have been sufficiently strong; (b) the linkage strength among the different components of the purity-related construct and the sexual-violence construct might be variable across component pairs, so that our priming manipulation was sufficiently robust to see results for strongly linked

components and not for weakly linked components; and (c) the sample may not have included enough participants to detect effects. These possibilities point to the need to attempt to replicate the Study 5 priming results, presumably with larger sample sizes and with various kinds of priming manipulations. Of course, attempts at replication might also show that the result that we report in Study 5 was a spurious effect. We, of course, hope that this is not the case, but the limited effect of the priming manipulation provides cause for us to be concerned.

## Limitations of Measurement

While we find reliable evidence for the relationship between purity culture constructs and rape culture constructs across our five studies, we also note that we are limited by the scales and components we chose to focus on. The elements of each culture we present in this paper were determined from reviewing both academic publications and popular press and media and we recognize that other scholars might include other elements in either culture constructs. For example, Schwarz et al. (2022) argue that rape culture comprises four components: (1) victim blaming; (2) empathizing with perpetrators; (3) assuming the victim's consent; and (4) questioning the victim's credibility. Additionally, some of the scales used are more than a decade old. While this is certainly less than psychometrically ideal, this is an area where modifications can be made in future research.

## Situating the One Ring within a Broader U.S. Context

It is important to note that as all data were collected in the United States, and largely from college student populations, our results need to be viewed in the cultural context of whiteness and Christian dominionism (Clarkson, 2005; Diamond, 1989). Purity culture has historically been investigated within white Evangelical Christian communities (e.g., Fahs, 2010; Herrmann, 2020) and individuals in these communities are likely those who will more strongly endorse corresponding beliefs and attitudes. Yet, the influence of purity culture has also spread outside conservative Christian communities, as public school children are required to sit through abstinence-only sexual education curriculum that includes purity culture messaging (Capatides, 2019), social media influencers post purity content (Veurink, 2021), and those who were raised in purity culture in its 1990s height are now raising their own children. Further, these ideas can be present outside of a religious setting. The New Atheism movement, for example, largely reproduced many of the same power structures as in religious communities, perpetuating gender inequality and sexual harassment against women (Guenther, 2019). Thus while purity culture, and subsequently rape culture, may be more likely to flourish in a religious context, it is not an essential aspect.

An inextricable element of both purity culture and rape culture is whiteness and white supremacy. Due to the association between whiteness and purity, Women of Color, particularly Black and Indigenous women, are often left out of the ideal of



sexual purity; this is enhanced by racialized sexual stereotypes that depict Women of Color as hypersexual (see Roberts, 2014 for discussion of sexualized Black female stereotypes). Kessel (2022) argued that rape culture is a manifestation of white heteropatriarchy. Myths about the hypersexuality of Black women have used historically to justify sexual violence perpetuated by white male slave owners, while concerns of Black male rapists have been used by white women to enact political violence against a group they saw as inferior (Kessel, 2022). Thus, any scholarship engaging either purity culture or rape culture necessitates engaging with the structural oppression white supremacy has produced.

## Directions for Future Research

The bulk of the scholarship we rely on for our methodology and design is in social cognitive psychology. Here, we have focused on individual-level variables to show evidence for broader systems. While we argue that these linked systems of mental constructs can be learned and reinforced at the individual level, we also suggest that this also one process by which greater social systems of oppression are maintained and reproduced. Future research can incorporate more interdisciplinary perspectives, such as sociology and gender and women's studies to incorporate both different methodologies and different theoretical foundations.

Another area of inquiry is whether a purity culture and a rape culture can exist in isolation of each other. We argue in this paper that these cultures have a bidirectional relationship, and that while it may not matter which set of cultural beliefs is learned first, they co-occur so frequently that the association will be absorbed and reinforced. Future studies could tease apart whether these belief systems can and do occur separately.

## Conclusion

Despite the reasons for caution, we believe that the studies that we describe make a contribution to the literature. Most importantly, to our knowledge, we are the first to systematically demonstrate a unique link between a hypothesized Purity Culture construct and a hypothesized Rape Culture construct. This linkage is potentially important. While purity culture ideas ("save yourself for your true life partner") may superficially seem to promote positive behavior, the One Ring Model suggests that such ideas can potentially exacerbate attitudes that are detrimental to women (for a related idea, see Abrams et al., 2003), such as violence against women. By focusing efforts on how to prevent seemingly innocuous purity-related beliefs from fueling sexual violence-accepting beliefs, we can help to reduce the presence of both of these cultures and the likelihood of sexual violence, and continue to work toward a culture of equality.

**Authors' Contributions** Author 1 developed the theory and research designs, managed all data collection, conducted analyses and interpretations, and wrote substantial amounts of the manuscript. Author 2 developed the theory and research designs, conducted data interpretation, wrote parts of the manuscript, and conducted substantial editing. Author 3 conducted analyses and interpretations, and wrote substantial amounts of the manuscript.

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**Availability of Data** Data files are available upon request.

**Code Availability** Not applicable.

## Declarations

**Conflict of interest** The authors declare they have no conflicts of interest.

**Consent to Participate** All participants provided informed consent prior to participating in each study.

**Consent for Publication** Each author consented to submitting this manuscript for publication.

**Ethical Approval** Data collection for the studies in this manuscript were approved by the Northern Illinois University or the Bemidji State University Institutional Review Boards.

**Human Participants and/or Animals** All studies in this manuscript were approved by the Northern Illinois University or Bemidji State University Institutional Review Boards.

**Informed Consent** All participants in this manuscript were given informed consent prior to participation.

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