



## Development and validation of the Rape Excusing Attitudes and Language Scale

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### ABSTRACT

Rape myth acceptance (RMA) is the acceptance of false beliefs, stereotypes, and statements about rape, victims, and perpetrators (Burt, 1980). Rape myths become outdated as we learn more about sexual violence. Therefore, psychometric scales should be updated periodically to reflect the more nuanced phenomenon of rape myth acceptance. Several items in the Illinois Rape Myth Acceptance Scale (IRMA; Payne et al., 1999; McMahon & Farmer, 2011) may measure knowledge about the rape perpetrator's psychology rather than rape myth acceptance. In current studies we developed and validated an updated rape myth acceptance scale called the Rape Excusing Attitudes and Language (REAL) Scale without items measuring knowledge about rape. Through exploratory and confirmatory factor analyses on two separate datasets ( $N = 663$ ), the REAL Scale presents a four factor, 20-item scale. We provide evidence of validation through demonstrating the Scale's convergent and discriminative validity by correlating the REAL Scale with the IRMA and the Rape Victim Empathy Scale (RVES; Smith & Frieze, 2003). We argue that the REAL Scale should be adopted in future studies assessing rape myth acceptance because the items explain the same amount of variance in the RVES as the IRMA, but the REAL Scale displays more face validity.

She did not physically resist, so she was not raped. If a girl does not say “no,” she cannot claim rape. He took her on a nice date, so the least she could do was have sex with him that night. These statements are all common forms of a category of false beliefs, statements, and stereotypes about rape known as *rape myths* where rape myth acceptance is the endorsement of these beliefs, statements, and stereotypes (Burt, 1980). The definition of rape myths used in the development of rape myth acceptance scales includes persistent beliefs, attitudes, and stereotypes which deny the severity of, and justifies the use of, men's sexual aggression against women (Lonsway & Fitzgerald, 1994).

Periodically updating psychometric scales to reflect changing societal attitudes is important. As years pass, attitudes toward sex are becoming more liberal. For example, over the past 40 years, people have become more accepting of homosexuality (Smith et al., 2014), prostitution (Yokoyama, 2011), and engaging in sexual intercourse before marriage (Smith et al., 2018). Through the development and validation of a new rape myth acceptance scale, it will be possible to update the extant literature on rape myth acceptance with more valid data. Additionally, it is important to have an accurate measure of rape myth

acceptance because rape myth acceptance is related to sexist and oppressive attitudes (Hockett et al., 2009; Lonsway & Fitzgerald, 1995; Suarez & Gadalla, 2010). Rape myth acceptance predicts preparedness in response to sexual assault calls by police service-members (Garza & Franklin, 2020), increased likelihood of an officer questioning complainant credibility (O'Neal, 2019), and increased victim-blaming in sexual assault cases (Rollero & Tartaglia, 2019). Furthermore, rape myth acceptance has been proposed to function as a phenomenon which blurs the distinction between consensual and coercive sex (Hahnel-Peeters, 2020). The Rape Excusing Attitudes and Language (REAL) Scale may be a candidate for a new psychometric measure for rape myth acceptance, and with this, more valid data to support our understanding of rape myth acceptance.

### 1. Previous measures of rape myth acceptance

#### 1.1. The Rape Myth Acceptance Scale

Burt (1980) was the first to validate a scale measuring rape myth

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acceptance. Burt validated the Rape Myth Acceptance Scale (RMAS) across many attitudinal beliefs relating to traditional sex roles. Future research using the RMAS failed to replicate this effect (Briere et al., 1985; Lonsway and Fitzgerald, 1994). For example, the only demographic variable that replicated was participant sex (i.e., men were more likely to score higher than women on the RMAS; Lonsway & Fitzgerald, 1994). Additionally, research which sought to expand the construct validity of the RMAS was riddled with circularity rather than ultimate explanation of the variability within the construct (i.e., individual differences; Lonsway & Fitzgerald, 1994). For example, (1) higher levels of rape myth acceptance reported to result in a lower likelihood of perceiving the situation as rape, regardless of whether the situation met the legal definition (Muehlenhard & MacNaughton, 1988; Nyúl et al., 2018) and (2) higher levels of rape myth acceptance was associated with less blame attributed to the perpetrator and more blame attributed to the victim (Davies et al., 2012; Russell & Hand, 2017). Therefore, it appears that these studies documented relationships between accepting a rape myth and rape myth acceptance, rather than documenting potential individual differences influencing a participant's rape myth acceptance.

### 1.2. The Illinois Rape Myth Acceptance Scale

The Illinois Rape Myth Acceptance Scale (IRMA) was developed and validated as a 45-item scale measuring rape myth acceptance (Payne et al., 1999) over six studies with the intention to broaden the understanding of rape myth acceptance proposed by Burt (1980). The IRMA had a seven-factor structure with the following subscales: *She asked for it, It wasn't really rape, He didn't mean to, She wanted it, She lied, Rape is a trivial event, and Rape is a deviant event* (Payne et al., 1999).

The IRMA was updated in 2011 to measure more subtle rape myths because rape myths are subject to change as more knowledge and education on sexual assault becomes accessible (McMahon, 2007; McMahon & Farmer, 2011). Although the original IRMA (Payne et al., 1999) and the revised IRMA (McMahon & Farmer, 2011) have strong measures of reliability ( $\alpha = 0.93$  and  $\alpha = 0.92$ , respectively), we argue that some items included in the IRMA are empirically supported statements and are not representative of rape myths.

## 2. Some rape myths are not actually myths

By arguing that some statements included in the IRMA Scale are not actually myths, we are not endorsing such statements as morally acceptable. Our sole aim is to update the current scale of measurement to accurately assess rape myths, and we are not seeking to minimize victims' experiences of victim blaming.

Ten of the 22 items on the IRMA Scale can be considered empirically supported statements (see Appendix B for all 10 items and references). By "empirically supported statements," we are referring to statements on rape myth acceptance scales which may be supported as factually true by existing data within the rape literature. An example of these statements includes: "Girls who are caught cheating on their boyfriends sometimes claim it was rape" (McMahon & Farmer, 2011; Payne et al., 1999).

Data about false rape accusations fall into three themes – including alibis (Kanin, 1994). In a case study of reported rapes recanted by the accusers between 1978 and 1987, 56% ( $n = 27$ ) provided the complainants with an alibi of sorts. A common reason provided by the women in this category included fear of pregnancy by an affair partner. A replication of Kanin's (1994) study found 32.3% ( $n = 22$ ) of the 68 reports of forcible rape were classified as false by the complainants' false admissions (Kennedy & Witkowski, 2000). Of these 22 reports, 68% ( $n = 15$ ) served an alibi function. Other archival analyses of false rape accusations corroborate the alibi motivation of unfounded reports (Kelly et al., 2005; O'Neal et al., 2014).

These findings are important for understanding the motivations that

lead to false allegations of rape; however, false accusations of rape are likely to be relatively rare and to occur in specific circumstances. Between 2010 and 2016, an estimated 23% of rapes were reported to the police (Department of Justice et al., 2017). When the "unfounded" or "false" reports of rape are defined through the admission of the complainant, such that the complainant must verbally recant their report, roughly 2 to 10% of reports made to the police are deemed to meet this criterion (Lisak et al., 2010; Weiser, 2017). Therefore, while it is highly unlikely that most victims of sexual assault are lying, it is possible that *sometimes* women who cheat on their boyfriends falsely report rape as an alibi.

### 2.1. Items assessing knowledge that rape is sexually motivated

The US Department of Justice defines rape as "the penetration, no matter how slight, of the vagina or anus with any body part or object, or oral penetration by a sex organ of another person, without the consent of the victim" (Sullivan et al., 2017; emphasis added). Rape is a sexual act; therefore, the default assumption should be that the underlying (most likely unconscious) motivation of the perpetrator is one of sexual access.

Anybody can be the target of sexual violence; however, women are most likely to be victims of rape compared to other groups (Buss, 2021). Furthermore, sexual victimization of women seems to center around women's peak fecundity (i.e., the age at which it is easiest for women to become pregnant; Lalumière et al., 2005). Women ages 18 to 25 are at higher risk of victimization of rape compared to all other age groups. Additionally, women are more likely to be targets of victimization when they are sexually available (e.g., unmarried and sexually active). See Lalumière et al. (2005) and Thornhill and Palmer (2000) for a full review of victim and perpetrator demographics.

Furthermore, if rape was solely motivated by a perpetrator's desire to hold power and status over their victims, one might expect women of high status and power to be over-represented in victim statistics (Palmer, 1988; Thornhill & Palmer, 2000). This pattern is not reflected by the current data (Aborisade, 2017; Dinos, 2001; Lutnick, 2019; Silbert & Pines, 1981; Springfield, 2000).

If a woman's vulnerability was more important than sexual desire when choosing a target for sexual assault (Groth, 1979), women who were more vulnerable might be more likely to be a victim of rape – regardless of their attractiveness. This argument predicts that women in age groups that are particularly vulnerable (i.e., very young and very old) are the most likely age groups to be targets of sexual victimization. Data do not support this argument. The most vulnerable age groups, those who are younger and those who are older, are the least likely to be targets of sexual victimization (Lalumière et al., 2005; Thornhill & Palmer, 2000). Finally, if rape was a physically violent act and was motivated by hostile feelings toward women (Groth, 1979), the use of force in rapes might be excessive; however, excessive force is only present in a minority of cases. Most sex offenders use only as much force as needed (Burgess & Holmstrom, 1974; Chappell & Singer, 1977; Friis-Rødel et al., 2021; Hagen, 1979; Katz & Mazur, 1979; Schiff, 1971; Smithyman, 1978).

While a perpetrator's motivation for hostility, dominance, and power could be proximate motivators to rape, it is not a necessary nor sufficient explanation of the phenomenon of rape. Interestingly, it was not until Brownmiller's (1975) book *Against Our Will* that any explanation excluding sexual access was widely accepted (Palmer, 1988). Importantly, our goal is to prevent as many rapes as possible, and while we agree with other researchers that rape is a repugnant act; we disagree on the underlying motivations. Rape is a sexual act by definition. If one wants to claim that rape is not about sexual access, the onus is on them to show that rape is not about sex. We have detailed arguments against the "not sex" motivation of rape; however, the full extent of these arguments is beyond the scope of this paper (for review see Palmer, 1988; Thornhill & Palmer, 2000; Lalumière et al., 2005).

Working from the assumption that rape is ultimately sexually

motivated, several statements on the IRMA Scale may not represent rape myths. For instance: “rape happens when a guy’s sex drive goes out of control;” “if a guy is drunk, he might rape someone unintentionally;” “when guys rape, it is usually because of their desire for sex;” and “guys don’t usually intend to force sex on a girl, but sometimes they get too sexually carried away.” These statements may be measuring understanding of the motivations behind rape rather than false beliefs about rape, victims, and perpetrators. Therefore, the validity of the IRMA Scale may be questioned.

### 3. Study 1

#### 3.1. Method

##### 3.1.1. Development of the REAL Scale

Lonsway and Fitzgerald’s (1994) definition of rape myths—which indicates that statements may be described as a *rape myth*, even if the statement is empirically supported—demonstrates our concern with the current scales used to measure rape myths.

The REAL Scale items were developed after reviewing literature on rape myths (e.g., Burt, 1980; McMahon & Farmer, 2011; Palmer, 1988; Payne et al., 1999; Suarez & Gadalla, 2010; Thornhill & Palmer, 2000). Some items were adapted from previous rape myth acceptance scales, including the IRMA Scale (McMahon & Farmer, 2011; Payne et al., 1999), and some items were developed after talking to experts in mating psychology and sexual conflict. The REAL Scale contains items that were representative of rape myths but are not empirically supported. See Appendix A for all items included in the development of the REAL Scale.

Our participants responded to 40 candidate statements for the REAL Scale using a 5-point Likert-type scale anchored by 0 (*completely disagree*) to 4 (*completely agree*). Therefore, the scale had a range from 0 to 160 (i.e., all 40 items endorsed completely \* 4 = 160). Two separate samples were collected. The first sample ( $n = 618$ ) was collected for an exploratory factor analysis. The instructions for the REAL Scale read:

Please answer the following questions as honestly as you can. These questions are designed to assess your opinions on sexual violence; therefore, we understand that they may be hard for some people to answer. We appreciate all responses, and **no responses can be traced back to you**. Answer how strongly you *agree or disagree* with the statements.

##### 3.1.2. Participants

Our sample was recruited through the university’s psychological participant pool and posts on social media (e.g., Reddit, Facebook, and Instagram). The study was advertised as a study on “Attitudes and Excusatory Language.” Six hundred and eighteen participants responded to our study; and after applying our pre-registered filter (i.e., taking more than five minutes on the survey, reporting at least 70% honest answers, and reporting paying attention to at least 70% of the survey; <https://aspredicted.org/bg3my.pdf>), 437 individuals were included for analyses. Our final dataset consisted of 127 men (29.1%), 292 women (66.8%), and 17 individuals identifying as “other” or “rather not say” (4.1%). The mean age of our data was 30.74 ( $SD = 12.39$ ; Range = 18–75). Our sample consisted of 75.4% White ( $n = 328$ ), 13.6% identified as “other” ( $n = 59$ ), 8.3% Asian ( $n = 36$ ), 1.8% Black/African American ( $n = 8$ ), 0.2% Native Hawaiian/Pacific Islander ( $n = 1$ ), and 0.1% American Indian/Alaska Native ( $n = 3$ ).

##### 3.1.3. Materials and procedures

Participants consented to and completed a survey with five sections hosted through Qualtrics, an online survey platform. The first section contained the 40 items of the REAL Scale ( $\alpha = 0.92$ ; Appendix A). The second section assessed social desirability through the Marlowe-Crowne Short Form-C ( $\alpha = 0.70$ ; Reynolds, 1982). The Marlowe-Crowne Short

Form-C consists of 13 true or false items that addresses the participants’ likelihood of responding in socially desirable ways. We included this scale to identify which participants were not answering to socially undesirable items (e.g., acceptance of rape myths) honestly. The third portion of the survey assessed participants’ rape myth acceptance using the revised IRMA Scale ( $\alpha = 0.92$ ; McMahon & Farmer, 2011). The fourth section measured the participants’ empathy levels for rape victims using the Rape Victims Empathy Scale (RVES;  $\alpha = 0.89$ ; Smith & Frieze, 2003). The RVES is a 17-item scale measured on a 5-point Likert-type scale (i.e., 1-“Strongly Disagree” to 5- “Strongly Agree”). This measure was included to test divergent validity of the REAL Scale. Finally, the fifth section assessed common demographic information of the participants.

We pre-registered the hypothesized relationships between the REAL Scale, IRMA, and RVES. If the REAL Scale is a valid measure of rape myth acceptance, we expect positive (but not perfect) correlations with the scores on the IRMA Scale. Because 10 of the 22 items on the IRMA Scale are arguably measuring knowledge of the underlying motivations of rape (Appendix B), the REAL Scale should be more positively associated with the 12 items on the IRMA Scale that are myths. In other words, the scores of the REAL Scale should be more strongly related to the IRMA Scale items that are not empirically supported. Additionally, because empathy for rape victims predicts less rape myth acceptance (Hockett et al., 2009; Leone et al., 2020), a negative relationship between the items on the REAL Scale and the RVES items were hypothesized.

#### 3.2. Results

##### 3.2.1. Exploratory factor analysis

Our data met the assumption of linearity. However, our data suggested a presence of multicollinearity within responses related to the 40 REAL Scale items. Because we expected to reduce the number of items in our scale down to 20-items, multicollinearity was tested again after removing items with inter-item correlations below  $r = 0.30$  (Tabachnick & Fidell, 2018). After item reduction, our data met the assumption of absence of multicollinearity. We ran Kaiser, Meyer, and Olkin’s (KMO) Measure of Sampling Adequacy; our overall KMO value was 0.89, suggesting “meritorious” sampling adequacy (Tabachnick & Fidell, 2018). Visual inspection of the inter-item correlation matrix allowed for item reduction, and we excluded any items that were consistently correlating at  $r \leq 0.30$  across items since an  $R^2$  of this relationship would explain less than 10% of the variance associated between items.

To identify the structure of the REAL Scale, we ran an exploratory principal component analysis with a direct oblimin rotation and Kaiser normalization because we expected that our factors would be correlated, rather than orthogonal (Table 1). Upon visual inspection of the scree plot (Fig. 1), we ran a model defined by three factors. The solution with three factors explained 58.82% of variance,  $\chi^2(190) = 5053.78, p = .0009$ . Additionally, we ran an exploratory principal component analysis

**Table 1**  
Component correlation table for the REAL Scale.

Component	[1]	[2]	[3]	[4]
Exploratory factor analysis dataset				
Exaggeration of Harm	1.00	–	–	–
Confusion of Consent	0.37	1.00	–	–
Lack of Defense	0.36	0.34	1.00	–
Lies about the Event	0.19	0.23	0.16	1.00
Confirmatory factor analysis dataset				
Exaggeration of Harm	1.00	–	–	–
Confusion of Consent	0.30	1.00	–	–
Lack of Defense	0.34	0.24	1.00	–
Lies about the Event	0.46	0.34	0.25	1.00

Note: Correlation table indicating the relationships between the factor’s components. \*  $p < .05$ .

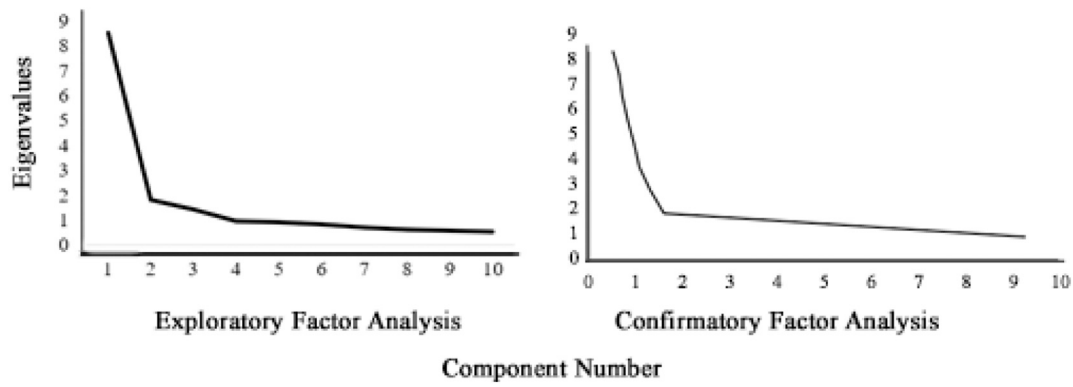


Fig. 1. Scree Plots for the REAL Scale.

Scree plot of eigenvalues for the exploratory and confirmatory principal component analyses with direct oblimin rotations.

with direct oblimin rotation as a four-factor solution. This four-factor solution explained 63.67% of the variance associated with the REAL Scale items.

Because four distinct themes emerged and explained more of the variance associated with the items, we accepted the four-factor solution produced through a direct oblimin rotation and Kaiser normalization. Table 2 displays the items' factor loadings. The 20-item REAL Scale (see Appendix C) displayed good internal consistency,  $\alpha = 0.93$ .

To verify that our data corroborated previous studies of rape myth acceptance, we ran an independent sample's *t*-test. A meta-analysis on rape myth acceptance (Suarez & Gadalla, 2010) indicated that men accept statistically more rape myths than women. Our data corroborated this finding using the REAL Scale. Men's average summed score on the REAL Scale was 2.75 ( $SD = 5.74$ ), and women's average summed score on the REAL Scale was 1.53 ( $SD = 4.15$ ). Men, statistically, endorsed more rape myths than women,  $t(185.55) = 2.15$ ,  $p = .033$ ,  $d = 0.26$ .

### 3.3. Study 1 Discussion

Study 1 suggested a four-factor structure to the REAL Scale and corroborated previous findings that men accept statistically more rape myths compared to women (Suarez & Gadalla, 2010). The purpose of Study 2 was to confirm the factor structure of the REAL Scale on a separate sample of participants and provide validity tests using samples from both Study 1 and Study 2.

## 4. Study 2

### 4.1. Method

#### 4.1.1. Participants, method, and procedure

As stated in our preregistration (linked above), we collected a unique set of data and conducted a confirmatory factor analysis. All materials and methods were identical to those listed above. A total of 243 responses were collected for analysis through the university's participant pool and postings on social media and online forums. Seven participants were removed for failing to meet the requirements of our preregistered filter (listed above). Additionally, 10 participants were removed from data analyses due to scoring higher than two standard deviations above the mean on the Marlowe-Crowne Short Form-C ( $M = 5.88$ ,  $SD = 2.78$ ; Reynolds, 1982).

A total of 226 participants were included in the final analyses for the confirmatory factor analysis. These participants were between 18 and 64 years of age ( $M = 22.6$ ,  $SD = 7.1$ ). There were a total of 42 men (18.6%), 174 women (77%), eight individuals who identified as non-binary (3.5%), and two individuals who did not report their gender (0.8%). Our dataset for confirmatory analyses was ethnically diverse, with participants identifying as: White ( $n = 122$ ; 54%), "Other" ( $n = 48$ ;

21.2%), Asian ( $n = 122$ ; 17.3%), Black ( $n = 10$ ; 4.4%), Hispanic/Latinx ( $n = 4$ ; 1.8%), 2 (0.9%) were American Indian or Alaskan Natives ( $n = 2$ ; 0.9%), and Native Hawaiian or Pacific Islander ( $n = 1$ ; 0.4%). Finally, these participants were single ( $n = 126$ ; 55.8%), in committed partnerships ( $n = 63$ ; 27.9%), married ( $n = 17$ ; 7.5%), casually dating ( $n = 17$ ; 7.5%), and divorced or separated ( $n = 3$ ; 1.3%).

### 4.2. Results

The confirmatory factor analysis indicated acceptable model fit with "marvelous" sampling adequacy;  $KMO = 0.902$ ;  $RMSEA = 0.135$  90%CI [0.126, 0.145];  $\chi^2(164) = 841.38$ ,  $p < .0001$ . The four-factor solution explained 66.29% of the variance associated with the REAL Scale items. Fig. 2 displays the factor loadings. The 20-item REAL Scale presented strong internal consistency in this second dataset.

Study 2's data corroborated those of Suarez and Gadalla (2010); on average, men's summed scores on the REAL scale ( $M = 8.31$ ,  $SD = 9.97$ ) were statistically greater compared to women's summed scores ( $M = 3.42$ ,  $SD = 6.90$ ) measured with the REAL Scale,  $t(50.87) = 3.01$ ,  $p = .004$ ,  $d = 0.57$ .

#### 4.2.1. Convergent and discriminant validities

If the REAL Scale is to be a useful measure of rape myth acceptance, we expected a positive—but not perfect—correlation with scores on the IRMA Scale. Because the IRMA Scale consisted of both rape myths and empirically supported statements, the REAL Scale should correlate more strongly with a revised version of the RMA (i.e., when the empirically supported items were removed). The full IRMA Scale displayed strong internal consistency,  $\alpha = 0.91$ , but the reliability estimate decreased after the empirically supported statements were removed,  $\alpha = 0.83$ .

To test for evidence of convergent and discriminant validities, we ran Pearson correlations between the REAL Scale, the IRMA Scale, and the IRMA Scale with the empirically supported items removed using both the exploratory and confirmatory datasets. The correlations between the REAL Scale and the full IRMA Scale were  $r(435) = 0.76$ ,  $p < .001$ ,  $N = 437$ , and  $r(224) = 0.76$ ,  $p < .001$ ,  $N = 226$ , respectively. The correlations between the REAL Scale and the IRMA Scale with the empirically supported items removed were  $r(435) = 0.84$ ,  $p < .001$ ,  $N = 437$  and  $r(224) = 0.82$ ,  $p < .001$ ,  $N = 226$ , respectively (Table 3).

To determine if the correlations between the REAL Scale and the IRMA Scale with the empirically supported items removed were statistically different than the correlations between the REAL Scale and the full IRMA Scale, we conducted Fisher's *z*-transformations (Steiger, 1980). The relationships between the REAL Scale and the IRMA Scale with the empirically supported statements removed were statistically stronger than the relationships between the REAL Scale and the full IRMA Scale,  $Z(435) = 4.81$ ,  $p < .001$  for the exploratory dataset and  $Z(224) = -2.10$ ,  $p = .035$  for the confirmatory dataset (Table 4),



**Table 2**  
Factor loadings for each item in exploratory analysis of the REAL Scale.

Item	Component loading
Exaggeration of harm	
If she didn't get injured or pregnant, then nothing bad really happened. (REAL33)	0.872
If a guy takes a woman on a nice date, he deserves to have sex with her.(REAL18)	0.832
Any women claiming they have PTSD from a rape are exaggerating the event.(REAL34)	0.811
She probably wasn't raped if she doesn't have any injuries (for example, bruises). (REAL5)	0.754
If a woman enjoys being dominated, it must not have been rape. (REAL25)	0.751
If two individuals are in a sexual relationship, it cannot be rape.(REAL29)	0.691
If a woman gets wet (lubricated) during rape, it makes it consensual because it means she was enjoying it.(REAL30)	0.663
Confusion of consent	
If she didn't scream for help, it wasn't as bad as she claims.(REAL32)	0.824
If a victim of rape doesn't fight back, they must have thought the assault wasn't that bad.(REAL36)	0.800
If she doesn't physically resist, she must have thought it wasn't that bad.(REAL11)	0.791
If a woman goes over to a man's house at night, she is consenting to sexual attention. (REAL37)	0.686
Because it's true that many women have rape fantasies, then some of them kind of want it. (REAL19)	0.659
If a woman sexually arouses a man and then changes her mind, it's not his fault if he rapes.(REAL26)	0.616
Lack of defense against rape	
A woman is somewhat responsible for being raped if it happened while she was drunk. (REAL1)	0.783
If she accepted a ride from a stranger, it's her fault if the driver rapes her.(REAL22)	0.756
Since she went out alone at night without a self-defense weapon (e.g., pepper spray), she's partially responsible. (REAL20)	0.728
If a woman goes to a room alone with a guy at a party, she is practically asking to be raped. (REAL2)	0.652
Lied about the event	
Unless she audibly says "no," she cannot claim that she was raped.(REAL7)	0.754
When a woman comes out about being raped many years after the alleged incident occurred, she is probably making it up. (REAL24)	0.593
Women often report rapes to get even with men. (REAL17)	0.568

Note: Table shows structure matrix  $r$  values for a Principal Component Analysis using a Direct Oblimin rotation with Kaiser Normalization,  $\alpha = 0.93$ ,  $N = 432$ . The REAL Scale with a four-factor structure accounted for 63.67% of the variation in scores.

providing preliminary evidence for convergent and discriminant validities.

To test the convergent and discriminant validities of the REAL Scale, we correlated participants' scores on the Rape Victim Empathy Scale (RVES; Smith & Frieze, 2003). Because empathy toward rape victims has been demonstrated to be negatively related to rape myth acceptance (e.g., Hockett et al., 2009; Leone et al., 2020), we predicted scores on the REAL Scale would be negatively related to scores on the RVES – such that, individuals who have lower empathy for rape victims were expected to believe more false statements about rape.

The items on the REAL Scale were statistically, negatively related to the scores on the RVES,  $r(435) = -0.29$ ,  $p < .001$ ,  $N = 437$  in the exploratory dataset and  $r(224) = -0.33$ ,  $p < .001$ ,  $N = 226$  in the confirmatory dataset. The IRMA was also negatively related to the scores on the RVES. The confirmatory dataset indicated a negative correlation between the RVES and the full IRMA Scale of  $r(435) = -0.34$ ,  $p < .001$  to  $r(435) = -0.30$ ,  $p < .001$  between the RVES and the IRMA Scale with the empirically supported items removed (Table 3). In the confirmatory dataset, these relationships were similar in strength,  $r(224) = -0.29$  (RVES and the full IRMA Scale) and  $r(224) = -0.29$  (RVES and the IRMA Scale with the empirically supported items removed),  $ps < 0.001$ , respectively. There were no statistical differences between the IRMA and the RVES compared to the relationships between the REAL Scale and RVES in the exploratory dataset,  $Z(435) = -0.84$ ,  $p = .40$ , or the confirmatory dataset,  $Z(224) = -0.50$ ,  $p = .61$  (Table 4). These relationships provide evidence for equal discriminant validity for both the REAL Scale and the IRMA.

## 5. Discussion

The current study provided evidence for an updated scale to measure rape myth acceptance. An exploratory principal components analysis with direct oblimin rotation and Kaiser-Normalization rotation suggested a four-factor solution. A confirmatory factor analysis on an independent dataset verified the REAL Scale's four-factor structure. We provided preliminary evidence of both convergent and divergent validity. The REAL Scale appears to measure rape myth acceptance while avoiding statements that capture lay knowledge about the underlying motivations of rape. Preliminary evidence suggests the REAL Scale may be a valid, updated scale for rape myth acceptance.

Future research should continue to validate the scale against additional measures of empathy, rape proclivity, and personality traits (e.g., the Dark Triad). Future researchers may expect negative relationships between empathy measures and positive relationships between measures of rape proclivity and certain anti-social personality traits (Suarez & Gadalla, 2010).

Furthermore, it is important that future studies validate this updated measure of rape myth acceptance within more diverse populations. University students, who made up roughly one-third of our sample, are presumably exposed to violence reduction training workshops each year. For example, *Not Anymore* by Vector Solutions (Pearlman, 2013) features survivor stories as one of many presentation strategies for the prevention of sexual assault on university campuses. These programs are ubiquitous across colleges and universities in the U.S. as amendments to the Jeanne Clery Act required the implementation of sexual assault prevention trainings to all undergraduate and graduate students beginning in 2013 (NASPA, 2018). There exists limited data on the efficacy of these programs; however, a systematic review suggests the programs effect beliefs and attitudes surrounding sexual violence (Lonsway et al., 2009). A nationally representative population would provide more variability in rape myth acceptance because, presumably, the average individual is not exposed to violence prevention training on an annual basis.

Additionally, studies on attitudes toward sexual experiences are notoriously self-selecting for more liberal attitudes (Dunne et al., 1997; Strassberg & Lowe, 1995) – suggesting that our sample may not capture the true variability of rape myth acceptance within the population. In a meta-analysis of rape myth acceptance, Suarez and Gadalla (2010) demonstrated that individuals who are more sexually conservative and who hold discriminatory attitudes toward others (e.g., sexism, racism) were more likely to accept rape myths. However, we argue that we would find stronger evidence for the validity of our scale with a more sexually conservative sample. Because sexually conservative individuals are more likely to accept rape myths (Suarez & Gadalla, 2010), introducing a more sexually conservative sample would presumably capture more variability on the upper end of the REAL Scale. Relatedly, future

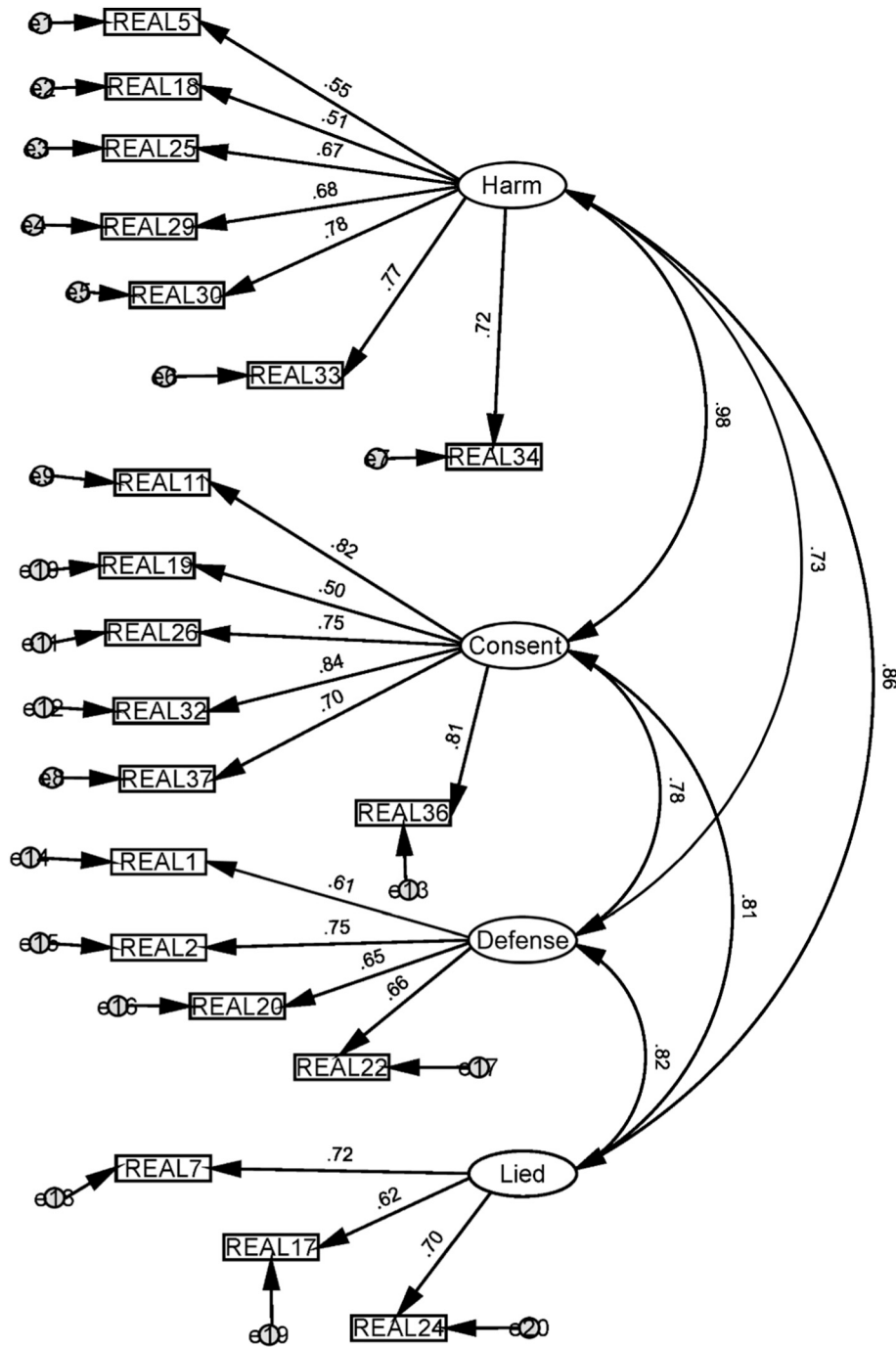


Fig. 2. Confirmatory Factor Analysis of the REAL Scale confirming the four-factor structure. This four-factor structure explained 66.29% of the data,  $N = 226$ .

studies should include samples from different cultures—as we were limited to participants mainly from the U.S. who spoke fluent English—and U.S. participants' judgments of sexual mores do not represent the global population.

The scope of the REAL Scale is limited to measurement of rape myth acceptance of rapes perpetrated on women by men. We recognize that rape takes on various forms (e.g., female perpetrators, male victims, rape in the LGBTQ+ community), and rape myths fill a variety of domains. We focused on updating the most widely used questionnaire (IRMA) because 90% of rape victims are female (Department of Justice et al., 2000) and nearly 99% of perpetrators are male (Tjaden & Thoennes, 2006). While we acknowledge and appreciate that the REAL Scale is not comprehensive, we simply cannot address all samples and

populations in a single given scale. Future research should construct and validate rape myth acceptance scales measuring different domains of rape myths.

As years pass, attitudes toward sex are becoming more liberal overall. For example, over the past 40 years, people have become more accepting of homosexuality (Smith et al., 2014), prostitution (Yokoyama, 2011), and attitudes toward engaging in sexual intercourse before marriage (Liu, 2021). Because of this, it is important to continually update our psychometric tools for the measurement of psychological constructs. The REAL Scale may be a candidate for a new psychometric measure for rape myth acceptance, and with this, more accurate data added to the extant literature on rape myth acceptance.

**Table 3**

Correlation table: tests of convergent and discriminant validity of the REAL Scale.

	[1]	[2]	[3]	[4]
Exploratory factor analysis dataset				
1. REAL Scale	1.00	–	–	–
2. IRMA full scale	0.76**	1.00	–	–
3. IRMA without empirically supported items	0.84**	0.92**	1.00	–
4. RVES	–0.29**	–0.34**	–0.30**	1.00
Confirmatory factor analysis dataset				
1. REAL Scale	1.00	–	–	–
2. IRMA full scale	0.76**	1.00	–	–
3. IRMA without empirically supported items	0.82**	0.91**	1.00	–
4. RVES	–0.33**	–0.29**	–0.29*	1.00

*Note:* The relationships between the REAL Scale and the IRMA Scale provide convergent validity for the REAL Scale—indicating that the REAL Scale is strongly related to an established measure of rape myth acceptance. Additionally, the negative relationship between the REAL Scale and the RVES provides evidence of discriminant validity. Individuals who accepted more rape myths were predicted to display less empathy toward rape victims. The exploratory factor analysis dataset had a sample size of  $N = 437$ . The confirmatory factor analysis dataset had a sample size of  $N = 226$ . \*\* $p < .01$ .

**Table 4**

Comparing correlation coefficients with Fisher's Z-Transformation.

Relationship	Z-value	p-value (two-tailed)
Exploratory factor analysis dataset		
REAL Scale	4.81	1.52 <sup>–9**</sup>
RVES	–0.84	0.40
RVES	–0.17	0.87
Confirmatory factor analysis dataset		
REAL Scale	–2.10	0.035671*
RVES	–0.48	0.63
RVES	–0.50	0.614

*Note:* Tests of correlation coefficients with Fisher's Z-Transformation to establish evidence of convergent and discriminant validities. The exploratory factor analysis dataset had a sample size of  $N = 437$ . The confirmatory factor analysis dataset had a sample size of  $N = 226$ .

\*  $p < .05$ .\*\*  $p < .01$ .**CRedit authorship contribution statement**

**Rebecka K. Hahnel-Peeters:** Conceptualization, Methodology, Data

**Appendix A. REAL Scale items before item reduction**

- A woman is somewhat responsible for being raped if it happened when she was drunk. [1]  
 If a woman goes to a room alone with a guy at a party, she is practically asking to be raped. [2]  
 Prostitutes cannot be raped because they are selling sex. [3]  
 Since she went out alone at night without a self-defense weapon (e.g., pepper spray,) she's partially responsible. [4]  
 If she was cheating on her significant other, she kind of deserved the assault. [5]  
 If she accepted a ride from a stranger, it's her fault if the driver rapes her. [6]  
 She probably wasn't raped if she doesn't have any injuries (for example bruises). [7]  
 If he didn't have a weapon, she wasn't forced to have sex. [8]  
 Unless she audibly says "no", she cannot claim rape.[9]

curation, Writing – original draft, Visualization, Formal analysis. **Aaron T. Goetz:** Supervision, Conceptualization, Methodology, Writing – review & editing.

**Declaration of competing interest**

The authors of this manuscript declare that there are no existing conflicts of interests (financial or non-financial). The research presented in this manuscript complies with ethical standards (e.g., the protocol was approved by the institution's Internal Review Board and all participants were provided an informed consent). The authors did not receive support from any organization for the submitted work. All data and preregistration are available on OSF: ([https://osf.io/6hygm/?view\\_only=0de70433e18c4a29ad48e75be3b707ed](https://osf.io/6hygm/?view_only=0de70433e18c4a29ad48e75be3b707ed)).

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- If she doesn't physically resist, she must have thought it wasn't that bad. [10]
- If not hysterical and crying, she has not been raped.[11]
- Women often report rapes to get even with men.[12]
- Most "rapes" are false reports.[13]
- If a victim of rape doesn't fight back, they must have thought the assault wasn't that bad.[14]
- If a woman didn't report being raped immediately, then it's likely that she wasn't really raped.[15]
- A woman would not wait to report a rape if it actually happened.[16]
- When a woman comes out about being raped many years after the alleged incident occurred, she is probably making it up.[17]
- Usually rape happens because the way she said "no" was unclear.[18]
- If he was drunk and didn't realize what he was doing, he probably shouldn't be held accountable.[19]
- If a guy takes a girl on a nice date, he deserves sex at the end of the night.[20]
- Because it's true that many women have rape fantasies, then some of them kind of want it. [21]
- If a woman goes over to a man's house at night, she is consenting to sexual attention. [22]
- If a woman was raped, it's because the rapist had mental problems. [23]
- If a woman enjoys being dominated, it must not have been rape. [24]
- If a woman sexually arouses a man and then changes her mind, it's not his fault if he rapes. [25]
- Rapists just can't help themselves. [26]
- There is nothing wrong with touching a woman who is dressed in a sexually provocative way. [27]
- Only young, pretty women are raped. [28]
- When a woman resists sex, they actually want it. [29]
- If two individuals are married, it cannot be rape. [30]
- If two individuals are in a sexual relationship, it cannot be rape. [31]
- If a woman gets wet (lubricated) during rape, it makes it consensual because it means she was enjoying it. [32]
- If a woman orgasms during the so-called rape, she wasn't raped. [33]
- Rape victims exaggerate how emotionally upsetting the incident was. [34]
- Emotional responses to rape are over-blown. [35]
- Rape isn't as big of a deal as victims claim it is. [36]
- Most rapists use excessive violence. [37]
- If she didn't scream for help, it wasn't as bad as she claims. [38]
- If she didn't get injured or pregnant, then nothing bad really happened. [39]
- Any women claiming they have PTSD from a rape are exaggerating the event. [40]

**Appendix B. Illinois Rape Myth Acceptance Scale items that may be empirically supported**

IRMA item	Logic and empirical evidence
When guys rape, it is usually because of their desire for sex. (IRMA 7) Rape happens when a guy's sex drive goes out of control. (IRMA 9)	Two potential evolutionarily informed explanations for rape: Rape as an exploitative strategy, and rape as a byproduct of men's sexual desire, aggression, and desire for variety of sexual partners; <a href="#">Palmer, 1988</a> ; <a href="#">Thornhill &amp; Palmer, 2000</a> ; <a href="#">Lalumière et al., 2005</a> ) both directly predict that a higher desire, or motivation, for sex may lead to sexually coercive behavior. Additionally, <a href="#">Bouffard and Miller (2014)</a> documented a relationship between sexual arousal, sexual overperception, and the likelihood of engaging in sexually coercive behaviors, such that participants reported a higher likelihood of engaging in sexually coercive behaviors if they experienced greater sexual arousal.
Guys don't usually intend to force sex on a girl, but sometimes they get too sexually carried away. (IRMA 8) If a guy is drunk, he might rape someone unintentionally. (IRMA 10)	Self-control is an important factor influencing the behaviors involved in sexual coercion ( <a href="#">Seto, 2019</a> ). Self-control may vary with mood, intoxication, and the current situation the actor is exposed to. <a href="#">Hanson et al. (2007)</a> discussed how the lack of sexual self-regulation may be a dynamic risk factor in a perpetrator's likelihood of following through with a sexual assault; specifically, they found that deficits in both general and sexual self-regulation increased the likelihood that an offender would sexually offend again.
When girls go to parties wearing slutty clothes, they're asking for trouble. (IRMA 2) If a girl acts like a slut, eventually she is going to get in trouble. (IRMA 4)	<a href="#">Goetz et al. (2012)</a> documented that women wearing revealing clothing were perceived as easier to seduce, pressure, or deceive into a sexual encounter, and <a href="#">Blake et al. (2016)</a> demonstrated that both men and women viewed women who self-sexualized as more vulnerable to sexual victimization due to assuming the target was sexually open.
If a girl initiates kissing or hooking up, she should not be surprised if a guy assumes she wants to have sex. (IRMA 6) Girls who are caught cheating on their boyfriends sometimes claim it was rape. (IRMA 22) A lot of times, girls who say they were raped agreed to have sex and then regret it. (IRMA 18) A lot of times, girls who say they were raped often led the guy on and then had regrets. (IRMA 20)	Research on the sexual overperception bias shows that men tend to interpret cues (e.g., initiation of kissing or "hooking up") as sexual interest ( <a href="#">Haselton, 2003</a> ). Women regret engaging in sexual acts statistically more than men ( <a href="#">Galperin et al., 2013</a> ). This statistic holds even in sexually egalitarian cultures ( <a href="#">Kennair et al., 2016</a> ). Women may incur costs if they engage in a short-term sexual strategy ( <a href="#">Crawford &amp; Popp, 2003</a> ). False reports of rape are rare. When they occur, one main theme in the reasons women provided were to provide an alibi ( <a href="#">Kelly et al., 2005</a> ; <a href="#">O'Neal et al., 2014</a> ).

**Appendix C. Final REAL Scale including instructions and scoring**

Please answer the following questions as honestly as you can. These questions are designed to assess your opinions on sexual violence; therefore, we understand that they may be hard for some people to answer. We appreciate all responses, and **no responses can be traced back to you**. Answer how strongly you *agree or disagree* with the statements.



1. If she didn't get injured or pregnant, then nothing bad really happened.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
2. If a guy takes a woman on a nice date, he deserves to have sex with her.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
3. Any women claiming they have PTSD from a rape are exaggerating the event.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
4. If a woman enjoys being dominated, it must not have been rape.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
5. She probably wasn't raped if she doesn't have any injuries (for example, bruises).	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
6. When a woman comes out about being raped many years after the alleged incident occurred, she is probably making it up.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
7. If two individuals are in a sexual relationship, it cannot be rape.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
8. If a woman gets wet (lubricated) during rape, it makes it consensual because it means she was enjoying it.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
9. If she didn't scream for help, it wasn't as bad as she claims.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
10. If a victim of rape doesn't fight back, they must have thought the assault wasn't that bad.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
11. If she doesn't physically resist, she must have thought it wasn't that bad.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
12. If a woman goes over to a man's house at night, she is consenting to sexual attention.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
13. Because it's true that many women have rape fantasies, then some of them kind of want it.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
14. Unless she audibly says "no," she cannot claim that she was raped.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
15. Women often report rapes to get even with men.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
16. If a woman sexually arouses a man and then changes her mind, it's not his fault if he rapes.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
17. A woman is somewhat responsible for being raped if it happened while she was drunk.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
18. If she accepted a ride from a stranger, it's her fault if the driver rapes her.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
19. Since she went out alone at night without a self-defense weapon (e.g., pepper spray), she's partially responsible.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree
20. If a woman goes to a room alone with a guy at a party, she is practically asking to be raped.	0-completely disagree	1-somewhat disagree	2-neither disagree nor agree	3-somewhat agree	4-completely agree

Rape myth acceptance is reported as the sum of the items on the REAL Scale. A score of 0 indicates no rape myth acceptance. Larger numbers indicate higher levels of rape myth acceptance.

**Note to Researchers, Students, and Clinicians:** The content of the REAL Scale may be reproduced and used for non-commercial research and educational purposes without seeking written permission. The authors request citation of this piece when reporting data produced by the REAL Scale.

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