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# Revisiting Perceiver and Target Gender Effects in Deception Detection

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**Abstract**
Existing research is inconclusive regarding the influence of perceiver gender and target gender on lie detection. Researchers have offered a number of conclusions regarding gender effects in deception detection (e.g., women are better at lie detection than men, participant and target gender interact in predicting deception detection accuracy, there are no gender effects in deception detection). In the current work, we revisit the question of whether and how gender influences lie detection, employing a large database of controlled stimuli, a large sample size, and the analytical advantages provided by signal detection theory. Participants viewed videos of male and female targets telling truths and lies about interpersonal relationships, and after each video, they rendered a truth or lie judgment. Female targets were easier to "read" (i.e., greater sensitivity) and were called liars more frequently than male targets. No effects of participant gender were observed. This work sheds light on an important issue in the lie detection literature (i.e., does gender matter?), and it identifies important considerations for understanding gender biases and cross-gender social interactions.

**Keywords** Lie detection · Gender · Bias · Signal detection theory

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## Introduction

Understanding and accurately detecting deception has been of interest to law enforcement and to laypeople for centuries, and it is a long-standing topic of research (Fay and Middleton 1941). Unfortunately, detecting lies and truths is far from simple. Most people experience considerable difficulty in accurately detecting deceit, with the average person revealing 54% accuracy (when 50% is chance; Bond and DePaulo 2006, 2008). Furthermore, failure to accurately detect deception is consequential economically, emotionally, and socially (e.g., Belot et al. 2010; Carton et al. 1999; Planalp and Honeycutt 1985). Indeed, lies and truths told in boardrooms, courtrooms, and bedrooms have meaningful implications for commerce, criminal justice, and romantic couples.

In the pursuit of improving accuracy, researchers have identified perceiver (e.g., anxiety, profession; Ein-Dor et al. 2016, 2017; Ekman and O'Sullivan 1991; Ekman et al. 1999; Mann et al. 2004) and target (e.g., Machiavellianism, race; DePaulo and Rosenthal 1979; Lloyd et al. 2017) characteristics that predict accurate deception detection. Not surprisingly, one of the longest standing and most widely investigated characteristics is perceiver and target gender. In the current work, we revisit this classic question of whether perceiver and target gender influence deception detection leveraging a large set of newly developed, highly controlled stimuli evaluated by a large sample of female and male participants, allowing for a fully powered test of gender effects on lie detection. But first, we review the existing, and notably inconsistent, research on this topic.

## Gender and Lie Detection: An Inconsistent Literature

Generally, researchers have proposed three possible gender effects on deception detection. First, some have contended that women are better at lie detection than are men (i.e., perceiver gender effects). Second, some have argued that women are better liars than are men or that men are better liars than are women (i.e., target gender effects). Finally, some have said that perceivers are better at detecting lies across gender lines (i.e., a perceiver gender by target gender interaction). We outline the arguments and evidence for these positions below.

A number of researchers have provided evidence for the conclusion that women are more accurate lie detectors than men (e.g., deTurck 1991; Forrest and Feldman 2000; Lyons et al. 2013; McCornack and Parks 1990; ten Brinke et al. 2014). Female perceivers' superior deception detection performance has been documented across a variety of deception detection paradigms. For example, female perceivers have been shown to be better at detecting lies in strangers (e.g., Forrest and Feldman 2000) or in relationship partners (e.g., McCornack and Parks 1990). Also, using both explicit deception judgments (e.g., Forrest and Feldman 2000) and unconscious measures of deception detection (ten Brinke et al. 2014), the abilities of women appear to exceed men. Further, this position is consistent with a rich history of perceiver gender effects in interpersonal sensitivity tasks more broadly. Indeed, Hall and colleagues have reliably demonstrated that women are more accurate than men at a range of person perception and interpersonal sensitivity tasks including person memory, emotion recognition, knowledge of nonverbal cues, and interpretation of verbal and nonverbal cues (Hall and Matsumoto 2004; Hall and Schmid Mast 2008; Rosip and Hall 2004). This superior interpersonal sensitivity of women could result from gender roles where women often fulfill communal social roles involving caregiving, which emphasizes emotional sensitivity (Diekman and Eagly 2008; Eagly and Steffen 1984; Eagly et al. 2000). Such gendered roles could enhance social sensitivity via practice or could create gender stereotypes that differentially affect performance by men and women. Indeed, Horgan and Smith (2006) argue that the gendered nature of many interpersonal sensitivity tasks (e.g., emotion recognition) may account for superior performance by women than men. Further, they demonstrated that when an interpersonal sensitivity task was framed as masculine, women performed worse than when the task was not accompanied by a frame (the feminine condition did not differ from either the masculine or no-frame conditions). By contrast, men were less accurate at the same task when it was framed as feminine compared to when it was framed as masculine or when no frame was provided.

However, lie detection is different from other interpersonal sensitivity tasks. Whereas stereotypes about women as emotionally sensitive are well established, there are not comparable stereotypes about women as particularly sensitive detectors of deception. In fact, the most accessible exemplars of human lie detectors may be police officers, which is a male dominated occupation (86% of police officers are male; Census Bureau 2015). Indeed, a number of researchers have failed to replicate the finding that women are better lie detectors than men (e.g., Bond et al. 1990; DePaulo and Tang 1994; Porter et al. 2007; Reinhard et al. 2013; ten Brinke et al. 2014) or have even observed that male perceivers outperform female perceivers (e.g., Vrij and Mann 2001). Moreover, meta-analyses have found no reliable perceiver gender effects on deception detection accuracy (Aamodt and Custer 2006; Zuckerman et al. 1981).

Second, although target gender effects have received less attention than perceiver gender effects in lie detection, the evidence here is also inconsistent. For example, Porter et al. (2002) investigated the effects of both perceiver and target gender on deception detection accuracy, finding that perceivers achieved greater accuracy when detecting deception for male targets than for female targets. These authors suggested that because women are more emotionally expressive than men (Chaplin and Aldao 2013; Hall 1984), female targets may be more practiced in emotional displays and thereby better able to conceal emotional responses (i.e., tell better lies). However, other researchers have observed the opposite effect, finding that perceivers showed poorer accuracy for male targets than female targets (e.g., DePaulo et al. 1985; DePaulo and Tang 1994; Forrest and Feldman 2000; Forrest et al. 2004). Despite conflicting findings, a similar theoretical perspective has been adopted (Forrest et al. 2004). That is, because women are more emotionally expressive than men (Hall 1984; Chaplin and Aldao 2013), female targets' true intentions and emotions may be more likely to "leak," making deception detection easier for female targets than male targets (Forrest et al. 2004). Although there appears to be more support for the prediction that female targets are easier to read than male targets, mixed evidence makes it difficult to draw strong conclusions about the role of target gender in deception detection performance.

Finally, other researchers have suggested that perceivers may be better at detecting lies across gender lines, resulting in a participant gender by target gender interaction. Porter et al. (2002) found that female, compared to male, perceivers were more accurate in their attempts to detect deception in male targets, whereas male perceivers, compared to female perceivers, more accurately judged female targets. Porter and colleagues contend that this effect could result from own-gender biases and preferences. Perceivers might be especially likely to trust own-gender members and thus be more likely to miss cues to deception among them. However, this argument presumes that perceivers should use the truth response more for own-gender targets and that this response bias should impair lie detection accuracy for these targets. In general, studies including both perceiver and target gender as factors have failed to replicate this interactive effect (DePaulo and Tang 1994; Forrest and Feldman 2000).

## Understanding Inconsistency in Gender and Lie Detection

In sum, decades of research has yielded inconsistent findings regarding the role of participant gender, target gender, and a putative participant by target gender interaction on deception detection. Why might such inconsistent findings exist? First, many classic studies in this domain had relatively small stimulus sets, in no small part because of the difficulty in creating high quality stimuli in lie detection paradigms. For example, Porter et al. (2002) work, which found an advantage for reading male targets, had only 8 targets (4 female, 4 male). Similarly, Forrest et al. (2004) work, which reported the opposite effect, had only 8 female and 8 male targets. Across all of the studies reviewed above that reported target effects, none include more than 16 total targets (DePaulo and Tang 1994; DePaulo et al. 1985; Forrest and Feldman 2000; Forrest et al. 2004; Porter et al. 2002). Small pools of target stimuli increase the likelihood that inconsistent findings reflect idiosyncratic qualities of the materials used in these studies.

Second, many studies that observed (or failed to observe) perceiver gender effects are low in statistical power. For example, some (but certainly not all) studies had relatively small sample sizes (i.e., less than 60 participants overall, with gender as a *between* subjects factor; e.g., Forrest and Feldman 2000; Vrij and Mann 2001). Many of these classic studies reporting inconsistent results were published before recent calls for improved statistical power in research (e.g., Asendorpf et al. 2013; Lindsay 2015; Open Science Collaboration 2015).

Third, some gender effect inconsistencies in lie detection may be methodological. Not all studies investigating gender effects in lie detection have the same target people telling both truths and lies (e.g., Forrest et al. 2004; ten Brinke et al. 2014), and often the statements (truths or lies) are uncontrolled in terms of content or topic (e.g., Porter et al. 2002). This lack of consistency and control can create confounds with gender in the stimuli themselves. For example, if men and women tell lies about different topics or about different content valences (e.g., women tell positive lies more than men), errant gender effects could be observed or actual gender effects could be masked by such confounds.

Finally, gender effect findings may be obscured by analytical issues as well. That is, often the criterion of interest is "percent of lies detected," yet such dependent variables conflate both sensitivity and response bias. That is, most classic lie detection research focuses on *accuracy* without investigating the *response bias* or the tendency to have biased responding toward men and women (e.g., propensity to label men or women as liars).

## Current Research

In the current work, we revisit the role of perceiver and target gender in deception judgments while addressing many issues in the existing literature. First, we recruited a large participant sample ($N=405$) of female and male participants, used an extensive database of deception detection videos ($N=320$) that include an equal number of female and male targets telling both two truths (one positive valence, one negative valence) and two lies (one positive valence, one negative valence) about close others or acquaintances. These videos, taken from the *Miami University Deception Detection Database* (MU3D; Lloyd et al. 2018), are equated in length, are visually controlled, and normed on many important stimulus dimensions (e.g., attractiveness), giving the current work greater control over the target stimuli. The MU3D is composed of low-stakes lie detection videos that we believe are particularly compelling for investigating gender effects in everyday contexts (many real world lies are low stakes lies told about those we know). However, it is notable that the low stakes nature of the videos may simultaneously limit generalizability to high-stakes deception contexts (e.g., lying about a crime). We return to this methodological trade-off in the discussion.

In addition to having greater stimulus control and greater generalizability, this large stimulus set enables the use of *Signal Detection Theory* (SDT; Macmillan and Creelman 1991), offering greater precision about the mechanisms underlying lie detection. Whereas researchers have typically focused on accuracy as the key metric of lie detection, SDT allows researchers to avoid confounding the *ability to discriminate* between truths and lies (i.e., sensitivity) with the *tendency to favor* one response over another (i.e., response bias). For example, Porter and colleagues suggest that a cross-gender advantage in deception detection may be the result of participants being overly trusting of own-gender targets. SDT offers a more precise way to test this proposed mechanism by investigating whether participants show a "truth bias" (i.e., biased selection of the truth relative to the lie response; Levine et al. 1999) for own-gender, compared to cross-gender, targets. Few studies in the lie detection literature use SDT analyses (cf., Albrechtsen et al. 2009; Lloyd et al. 2017; Porter et al. 2007), which in part likely reflects the limits of using small target stimulus sets (which makes conducting SDT analyses problematic). By incorporating these features, we revisited the gender effect debate in the deception detection literature. Specifically, we were interested in whether a main effect of target gender, a main effect of participant gender, or an interaction between target and participant gender would be observed. Because of the inconsistent findings in the current literature, we were agnostic about what effects might emerge.

# Method

## Participants

Four-hundred five participants, recruited from Amazon's Mechanical Turk, attempted to accurately detect deception from stimulus videos (to be described) and provided subjective ratings of these videos in exchange for compensation ($1.50). In total 320 videos were used as stimuli in this study; however each participant viewed a subset of these videos ($n = 16$). Overall, there were 203 men, 199 women, and 3 participants who did not disclose gender. Participants were primarily white (83.5%) and ranged in age from 18 to 78 ($M_{age} = 34.45$; $SD_{age} = 11.34$). Because we are interested in the effects of target and participant gender, only those who disclosed self-disclosed their gender were included in analyses ($N = 402$).[1]

[1] Data collection for this project was conducted contemporaneously with pretesting for the Miami University Deception Detection Database (Lloyd et al. 2018). All stimuli, data, and codebook can be freely accessed by researchers via http://hdl.handle.net/2374.MIA/6067 after requesting an access code from the corresponding author.

## Stimuli

Stimuli included 320 videos of 80 different targets (40 men and 40 women) telling truths and lies about interpersonal relationships (DePaulo and Rosenthal 1979), taken from the MU3D (Lloyd et al. 2018). Targets featured in the videos were students and staff members recruited from a Midwestern university campus. Targets ranged in age from 18 to 26 years ($M_{age}=20.20$; $SD_{age}=1.55$), and a complete description of stimulus development can be found in Lloyd et al. (2018).

In these videos, targets were seated in a private webcam-equipped cubicle, and they engaged in the video-recorded lie detection task modeled after DePaulo and Rosenthal (1979). Videos were recorded using a c525 Logitech HD Webcam with a video resolution of 1280 × 720 and a frame rate of 30 fps. The experimenter began each video recording with a prompt, left the cubicle, and returned 45 s later to stop the recording. For the first video, the experimenter said: "Please describe a person you know who you truly like, talk about why you like that person and describe their positive qualities." All targets were asked not to use the name of the person described but instead to use the pronoun "him," "her," or "they." After the 45 s elapsed, the experimenter returned and administered the second prompt: "Now, describe the same person you just spoke about, but this time *lie* and describe that person as if you dislike them, talk about why you dislike that person and describe their negative qualities." After 45 s elapsed, this procedure was repeated again with the following prompts: "Please describe a person you know who you truly dislike, talk about why you dislike that person and describe their negative qualities" and "Now, describe the same person you just spoke about, but this time *lie* and describe that person as if you like them, talk about why you like that person and describe their positive qualities." All targets responded to the prompts in the same order, were urged to be convincing, and were asked to speak for the entire 45 s. Targets were instructed that their videos would be shown to future participants who would attempt to ascertain the veracity of their statements, and they were provided no other incentives to produce convincing truths or lies.

This procedure resulted in the generation of four lie detection videos per target, fully crossing valence (negative vs. positive) with veracity (truths vs. lies). After editing each video clip (e.g., removing the experimenter's presence, eliminating long silences), the mean video was 35.73 s ($SD=3.49$), and video length did not vary as a function of target gender, valence of video, or veracity of video, $t$s(318) < 1 (for details, see Lloyd et al. 2018).

## Procedure

Each participant (perceiver) was randomly assigned to view one of 20 different video sets (each set contained 16 videos) created from the 320 deception detection videos. Thus, each individual video was watched and rated by approximately 20 unique perceivers. Each of the 20 video sets included 8 videos of female targets (4 truths and 4 lies) and 8 videos of male targets (4 truths and 4 lies). Each video set included a negative truth, a negative lie, a positive truth, and a positive lie, from 2 women and from 2 men. The 16 videos were presented one at a time in a randomized order. Following each video, participants responded to four questions in a fixed order: "Is this person telling a truth or a lie?," "How attractive is this person?," "How trustworthy is this person?," and "How anxious is this person?." The first question was assessed using a forced-choice dichotomous selection of "Truth" or "Lie." The remaining three questions were assessed using scales ranging from 1 (*Not at all*) to 7 (*Extremely*). The subjective ratings were collected as norming data for the MU3D. The current work investigates whether gender impacts performance and biases in deception detection, and thus we focus on the dichotomous truth–lie decisions as our dependent variable of interest.

## Results

### Analytic Strategy

Most previous deception detection literature has focused on accuracy (i.e., total proportion correct responses) as the key criterion. However, the SDT index *sensitivity* (i.e., discrimination between truths and lies) separates discrimination ability from *response bias* (i.e., generally favoring the "truth" or the "lie" response). To link the current work to previous findings as well as use the best analytic techniques (SDT) to better understand the effects of gender on deception detection, we report both SDT analyses (i.e., sensitivity and bias) and accuracy (the traditional measure in the literature). To understand the relationships among the variables, we conducted bivariate correlations involving sensitivity, response bias, accuracy, and participant-level variables (i.e., gender, age; see Table 1). All data associated with this manuscript can be freely accessed at https://osf.io/m48td/.

### SDT Analyses

#### Sensitivity

Sensitivity indexes for each participant were computed separately for male and female targets by calculating the proportion of hits (i.e., correct identification of a lie) and false alarms (i.e., calling a truthful statement a lie). As is common in signal detection analyses, cells with proportions of 1 or 0 were replaced with .99 and .01 respectively (Macmillan and Kaplan 1985). These proportions were then standardized and sensitivity was calculated by subtracting standardized false alarms from standardized hits. Larger sensitivity ($d'$) values indicate better ability to distinguish truths from lies (i.e., better deception detection). Negative values indicate performance poorer than chance, whereas positive values indicate performance exceeding chance. Similar to previous findings in the deception detection literature, sensitivity scores ($M=.15$; $SD=.98$) averaged across targets and participants were slightly better than chance (i.e., 0), $t(401)=3.053$, $p=.002$, 95% CI [.05, .25] $d=.30$.

We first conducted a 2 (perceiver gender) × 2 (target gender) mixed-model ANOVA on sensitivity, with target gender as the within-subjects factor. We observed *neither* a significant main effect of perceiver gender, $F(1, 400)=0.09$, $p=.771$, 95% CI [−0.16, 0.22], $\eta_p^2=.00$, *nor* an interaction between perceiver and target gender, $F(1, 400)=0.02$, $p=.896$, $\eta_p^2=.00$. However, we observed a significant main effect of target gender, with participants being better able to distinguish between truths and lies for female targets ($M=.25$, $SD=1.31$) than male targets ($M=.05$, $SD=1.38$), $F(1, 400)=4.32$, $p=.038$, 95% CI [.01, .37], $\eta_p^2=.01$.

**Table 1** Descriptive statistics and correlations means, standard deviations, and correlations between variables

| Variable | *M* | *SD* | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Sensitivity overall | .15 | .98 | .03 | .96* | .71* | .00 | .69* | .74* | .04 | .73* | − .02 | .03 |
| 2. Response bias overall | .37 | .60 | – | .02 | − .01 | .82* | − .01 | .04 | .81* | .03 | .03 | − .02 |
| 3. Accuracy overall | .52 | .13 | | – | .71* | − .01 | .73* | .69* | .04 | .73* | − .03 | .04 |
| 4. Sensitivity female targets | .25 | 1.31 | | | – | − .04 | .96* | .06 | .03 | .07 | − .01 | .00 |
| 5. Response bias female targets | .27 | .75 | | | | – | − .05 | .04 | .32* | .04 | − .00 | − .05 |
| 6. Accuracy female targets | .53 | .17 | | | | | – | .06 | .04 | .07 | − .00 | .02 |
| 7. Sensitivity male targets | .05 | .17 | | | | | | – | .03 | .96* | − .02 | .04 |
| 8. Response bias male targets | .47 | 1.38 | | | | | | | – | .02 | .06 | .01 |
| 9. Accuracy male targets | .51 | .17 | | | | | | | | – | − .04 | .04 |
| 10. Participant gender | 1.50 | .50 | | | | | | | | | – | .19* |
| 11. Participant age | 34.47 | 11.38 | | | | | | | | | | – |

Sensitivity was calculated via dprime (d′) with greater values indicating greater ability to discern real from fake. Response bias was calculated via criterion (c) with greater values indicating greater real responding

*$p < .001$

## Response Bias

In addition to investigating perceiver and target gender effects for distinguishing truths from lies, SDT also allows for novel investigations of whether perceiver and target gender bias responses in deception contexts. In other words, response bias analyses investigate whether gender influences the psychological threshold to label someone as lying (e.g., perhaps men or women are called liars more often irrespective of accuracy).

Response bias was calculated using criterion ($c$), which was computed separately for female and male targets by first calculating proportions of "hits" (i.e., correct identification of a lie) and "false alarms" (i.e., calling a truthful statement a lie). These proportions were standardized and $c$ was calculated by adding the standardized measures of hits and false alarms before dividing by − 2. Thus, greater $c$ values indicated more truth responses and fewer lie responses, indicative of a *truth bias*. Mirroring previous findings in the deception detection literature, we observed an overall truth bias such that across all participants and targets, the truth response was used more frequently than the lie response ($M=.37$; $SD=.60$), $t(401)=12.38$, $p<.001$, 95% CI [.31, .43], $d=1.24$.

We then conducted a 2 (perceiver gender) × 2 (target gender) mixed-model ANOVA on criterion, with target gender as the within-subjects factor. This analysis yielded only a significant main effect of target gender, such that there was less truth bias for female targets ($M=0.27$, $SD=0.75$) than for male targets ($M=0.47$, $SD=0.74$), $F(1, 400)=22.62$, $p<.001$, 95% CI [− 0.29, − 0.12], $\eta_p^2=.05$. Put simply, although everyone was labeled as telling the truth more often than labeled as lying, women were labeled as liars significantly more often than men. Neither the main effect of perceiver gender, $F(1, 400)=0.46$, $p=.499$, 95% CI [− 0.16, 0.08], $\eta_p^2=.00$, nor the interaction of perceiver and target gender, $F(1, 400)=1.20$, $p=.274$, $\eta_p^2=.00$, were significant.

## Accuracy

Accuracy values were computed by calculating the proportion of correct responses. For each participant, we calculated the number of correct responses separately for male and female targets and divided this value by 8 (the total number of possible correct responses). Possible values ranged from 0 to 1, with .5 indicating chance performance. Consistent with past meta-analyses in the deception detection literature, accuracy scores ($M=.52$, $SD=.13$) were slightly better than chance (i.e., .5), $t(401)=3.045$, $p=.002$, 95% CI [.01, .03], $d=.30$.

We conducted a 2 (perceiver gender) × 2 (target gender) mixed-model ANOVA on accuracy, with target gender as the within-subjects factor. This analysis yielded nearly identical findings to the sensitivity results reported above. There was neither a significant main effect of perceiver gender, $F(1, 400)=0.37$, $p=.544$, 95% CI [− .02, .03], $\eta_p^2=.00$, nor an interaction between perceiver and target gender, $F(1, 400)=0.36$, $p=.548$, $\eta_p^2=.01$. Consistent with the sensitivity findings reported above, a main effect of target gender was observed reflecting greater accuracy for female targets ($M=.53$, $SD=.17$) than for male targets ($M=.51$, $SD=.17$), $F(1, 400)=4.93$, $p=.027$, 95% CI [.00, .04], $\eta_p^2=.01$.

## Discussion

The current work revisits a long-standing issue in the lie detection literature: Does gender affect deception detection? Specifically, we conducted a study using a large sample of male and female perceivers, a large and well-controlled stimulus set, and a sophisticated analytic strategy to investigate the effects of target and perceiver gender on performance (i.e., sensitivity and accuracy) and response biases in deception detection. First, we replicated past effects, such as perceivers exhibiting slightly better than chance lie detection skills (Bond and DePaulo 2006, 2008), and perceivers demonstrating a general truth bias in their judgments (Levine et al. 1999), reflecting good fidelity with the existing deception detection literature. More important, we documented effects of target gender on both deception detection performance and response biases. Perceivers revealed greater sensitivity and accuracy for their judgments of female targets than for male targets. Additionally, perceivers judged male targets as truthful more often than they judged female targets as truthful. However, we neither observed any effects of *perceiver* gender on sensitivity, accuracy, or truth bias, nor did we observe an interaction between perceiver and target gender on any of these outcomes. Thus, the current work yielded potentially informative successes and failures in replicating past work, as well as novel findings. We discuss each of these in turn below.

Inconsistent with the broader theoretical perspective that women are more interpersonally sensitive then men (e.g., Hall 1978; Hall and Matsumoto 2004; Hall and Schmid Mast 2008; Rosip and Hall 2004), we observed no effect of perceiver gender on measures of deception detection performance (i.e., sensitivity and accuracy). It is important to keep in mind that although there is quite consistent evidence that women outperform men in interpersonal sensitivity tasks such as emotion recognition or decoding others' nonverbals (e.g., Hall and Matsumoto 2004), deception detection is a relatively unique form of interpersonal sensitivity. Unlike other interpersonal sensitivity tasks, lie detection involves targets who purposefully attempt to mislead perceivers. Indeed, the effects of perceiver gender on lie detection performance are much more inconsistent than those of perceiver gender on other interpersonal sensitivity tasks. The current findings mirror conclusions from meta-analyses (Aamodt and Custer 2006; Zuckerman et al. 1981) reporting that perceiver gender was unrelated to deception detection accuracy.

Similarly, we found no evidence of perceiver gender by target gender interactions. Because only one published study found this interactive effect (i.e., Porter et al. 2002), the strengths of the current work (e.g., large sample size, large and controlled target stimuli set) provide a robust opportunity for replication. However, as with the perceiver gender effects, no reliable effects were observed on any of the measures (sensitivity, response bias, or proportion of correct responses). Thus, the current work underscores the value of replication and high power samples (e.g., Asendorpf et al. 2013; Lindsay 2015; Open Science Collaboration 2015).

The observed effects of target gender on performance are consistent with work (e.g., DePaulo et al. 1985; DePaulo and Tang 1994; Forrest and Feldman 2000; Forrest et al. 2004) documenting that female targets are easier to "read" than male targets. Previous researchers have suggested this finding could result from different socialization experiences of men and women. That is, women are typically socialized to communicate their emotions whereas men are often socialized to inhibit or control emotional expressions (Brody 2000; Fivush 1989). Consistent with this socialization, women may "leak" cues to true emotions more readily than men. Indeed, women appear to be more emotionally expressive than men (Chaplin and Aldao 2013; Hall 1984). Relevant to deception detection, men's socialization to conceal emotional responses could produce "less signal" for perceivers when attempting to discern truth from lie for male targets. Although a reasonable and seemingly intuitive explanation, further research is necessary to clarify the mechanism underlying the observed effects of target gender on deception detection performance. One fruitful avenue of future work might employ FACS (facial action coding system) coding to investigate whether facial expressions differ by gender during attempts at deception. For example, women (as compared to men) might display more negative expressions when lying about liking someone they actually dislike or might display more positive expressions when lying about disliking someone they actually like.

One additional strength of the current work is the use of signal detection analyses. SDT provides greater precision about the mechanisms underlying lie detection by allowing researchers to avoid confounding the *ability to discriminate* between truths and lies (i.e., sensitivity) with the *tendency to favor* one response over another (i.e., response bias). Thus, in addition to employing greater specificity in our discussion of deception detection performance, we were also able to investigate novel effects of gender on deception detection biases. Specifically, we found that perceivers used the truth response more for male targets as compared to female targets, and notably, this effect was quite large. Although we did not make specific predictions regarding response bias, we believe this sizable effect of target gender has important theoretical (i.e., trust as a potential mechanism underlying gender bias) and practical implications (i.e., potentially differential trust of men and women as eyewitnesses). For example, reactions to allegations of sexual assault and sexual harassment may be particularly well-suited to illustrate the potential implications of this work. In cases of sexual harassment or assault, victims are primarily women and perpetrators are primarily men. The current work indicates that women are more likely to be judged as lying than men. In the context of sexual assault and harassment, this gendered truth bias could be a contributing factor in suspicious responses to alleged sexual assaults and in female survivors' hesitancy to report (i.e., women often do not report because they are afraid they will not be believed; Sable et al. 2006).

Because this is, to our knowledge, the first time target gender has been implicated in biased truth responding, future research may be well positioned to better understand the underlying mechanisms. One possible explanation for why male targets would engender greater trust than female targets could be differences in stereotype content regarding the ways in which men and women aggress. Cultural stereotypes depict men as more physically aggressive and women as more relationally aggressive (e.g., Stewart-Williams 2002). Regardless of whether these stereotypes are accurate (for a review, Archer and Coyne 2005), these stereotypes could make women appear more likely to spread rumors or engage in gossip, leading perceivers to be skeptical of female (relative to male) targets describing interpersonal relationships. Future research might investigate this proposed mechanism directly by examining whether perceivers who endorse more strongly stereotypes about gender differences in aggression also demonstrate greater truth biases for male relative to female targets.

Despite its strengths, the current work has limitations. For example, the stimuli created for the MU3D feature relatively low-stakes lies. In some ways, this can be considered a strength of the work. On average, people lie about twice each day (DePaulo and Kashy 1998) and many of those lies are likely to be low stakes in nature. Thus, the current work is well suited to generalizations to everyday lie detection. However, low-stakes lies may not generalize to more high-stakes forms of deception. For example, the results of this work may not generalize to criminal deception detection. Whether gender is implicated in biases to trust suspects or is associated with police officers' ability to discern truth from lie are theoretically and practically important questions. Future research should consider how gender and context (i.e., high vs. low stakes) might interact to impact sensitivity or biases in deception detection.

Relatedly, the stimuli used in the current work feature targets describing interpersonal relationships. One possible explanation for discrepant findings in the lie detection literature is the variety of paradigms used to generate stimuli, and this issue remains a factor in the current work. For example, one could imagine that stereotypes about women as relationally aggressive could lead them to be labeled as liars more than men in the current work because we used acquaintances as the targets of the truths and lies. However, stereotypes about men as criminal or physically aggressive could lead to greater use of the lie response for male as compared to female targets in detection paradigms featuring descriptions or physical violence or criminal offences. In addition to addressing limitations of previous lie detection studies (e.g., small sample sizes, small stimulus sets, and analytic techniques), the current work also presents limitations that suggest valuable areas for future exploration.

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