IMPACT OF CULPRIT THREAT AND INVESTIGATIVE PRESSURE ON DECEPTIVE EYEWITNESS LINEUP DECISIONS.

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DEDICATION

To my supervisor, Dr. Jamal Mansour, for believing in me and shaping me into the researcher I am today—you are the best supervisor anyone could ask for. To my lab mates, Rhiannon, Michelle, and Kelly for pretending to laugh at my very unfunny jokes and being huge pillars of support throughout this project. To the faculty of the psychology department for not only being amazing colleagues, but great friends. To my dog, Gnocchi, who never fails to wake me at 2am to go out—you're the best (except at 2am). To my partner, Jacquelyn, for making the sacrifice to join me in my academic journey and for being so kind and caring. To my family, for my upbringing and unwavering belief in me throughout this turbulent life. Lastly, thank you to everyone that told me to give up—it was the perfect fuel to keep going.

ABSTRACT

Deception research has primarily focused on individuals' ability to detect deception, with emphasis on both laypersons and professionals in controlled settings. In contrast, limited attention has been given to the factors that influence an eyewitness's decision to engage in deception. The present study addressed this gap using mock-crime videos and vignette-based scenarios alongside manipulations of whether a culprit threatens the eyewitness and whether a police investigator pressures the eyewitness to make an identification. To maximize participant engagement and cognitive and emotional responses, a guided imagery approach was implemented, supported by an artificial-intelligence created voice that provided continuous dialogue throughout the study. After witnessing a mock-crime via video, participants viewed a lineup and made an identification decision. Threatened participants were more accurate and honest in their responses, reflected in higher rates of correct identifications and rejections compared to non-threatened participants. These findings were unanticipated and highlight the need for further research on the conditions that influence deceptive behaviour in eyewitness contexts.

ETHICS STATEMENT

Work described in this thesis received research ethics approval from the University of Alberta Research Ethics Board, Project Name “YIP Msc1 (Threat and Investigative Pressure on Deceptive Eyewitness Identification)”, Pro00148713, 3/9/2025.

USE OF GENERATIVE AI

Artificial Intelligence (AI) was utilized to create life-like voices used throughout our experiment. We inputted dialogue scripts into these AI voices that would be played out to participants.

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INTRODUCTION

> The disappearance of a sense of responsibility is the most far-reaching consequence of submission to authority.
>
> - Stanley Milgram

In 2001, Dionte Byrd and Freddie Dean Jr. were charged in connection with the murder of Charles Simmons in Trenton, New Jersey (*State v. Byrd*, 2009). Kenneth Bush, a friend and associate of the defendants, served as the State's key witness at trial. He initially gave police a statement implicating both Byrd and Dean but later recanted in part and claimed memory loss at trial. The record later indicated that Bush feared the defendants would kill him and his family if he continued to incriminate them.

This is just one of many cases that highlight how potential miscarriages of justice can result from eyewitness evidence. Eyewitness evidence heavily influences jury decisions and verdicts, but its reliability can be compromised (Leverick, 2014). The accuracy of eyewitness evidence is affected by a multitude of variables and we explored one such variable—deception. Depending on the dictionary (e.g., Merriam-Webster, Cambridge, or Oxford), definitions of deception vary. However, the core idea remains the same: deception is the act of concealing the truth. Although there has been considerable research on deception—over a hundred years' worth, in fact (Denault & Talwar, 2022)—almost no research has considered deceptive eyewitnesses. Deception can take many forms, and Köhnken (1989, p. 270) defined deception in the context of eyewitness research: "to withhold, falsify, or substitute information with the deliberate intent of fostering in another person a belief or understanding which the deceiving witness knows to be

false or invalid." This research aimed to look at different social influences that lead eyewitnesses to act deceptively.

One place to begin looking at how eyewitness deception plays a role in society is through the lens of people who have been wrongfully convicted. There are five main contributing factors that play a role in wrongful convictions according to the National Registry of Exonerations (2026). Although the term deception is not explicitly mentioned in the National Registry of Exonerations, a working paper by Gross and Shaffer (2012) classified *perjury or false accusation* as forms of deception. They found that 51% of wrongful convictions from 1989 to 2012 had perjury or false accusation as a contributing factor. This figure has risen to 64%, making perjury or false accusation the largest contributing factor in wrongful convictions. (National Registry of Exonerations, 2026). Despite these alarming statistics, investigations of deception in eyewitness research have received relatively little attention (Desmarais & Yarmey, 2004).

Deception research has generally taken two empirically related approaches (Stiff et al., 1989). One is concerned with the isolation of verbal and nonverbal correlates of deception (Vrij, 1998; Vrij & Akehurst, 1998; Zuckerman et al., 1981; Zuckerman & Driver, 1985) for the purpose of identifying reliable behavioural indicators that practitioners can use to recognize deceptive individuals. The other is focused on the lie detection abilities of laypersons and professionals (Ekman, O'Sullivan, & Frank, 1999; Köhnken, 1987) for the purpose of evaluating how accurately different groups distinguish truthful from deceptive testimony. This brings us to a third, albeit rare, empirical approach which centers on the targeted detection of deceptive eyewitnesses: exploring why an eyewitness might choose to deceive in the first place. To date, only one study has taken this approach.

Parliament and Yarmey (2002) investigated how deceptive eyewitnesses behaved when they encountered specific social influences. Lineup performance was measured across four groups: Lie-Protect, Lie-Convict, Lie Protect–Truth Child, and a Control group. Participants in the three deceptive conditions were explicitly instructed to lie based on their assigned group. In the Lie-Protect group, participants were threatened and instructed to protect their friend, the person who had committed the crime. In the Lie-Convict group, participants received the same threat and instructions but were also told it was their social duty to lie to secure a conviction. In the Lie Protect–Truth Child group, participants were also threatened and given the same instruction but were told to be truthful when responding to questions about the child abducted in the mock crime.

Before reviewing their results, it is worth outlining the different lineup decisions an eyewitness can make, since these terms appear throughout this paper. In a Target-Present (TP) lineup, where the culprit is in the lineup, an eyewitness can make one of three decisions: a Correct Identification (CID), an Incorrect Rejection (IR), or a Filler Identification (FID). A CID occurs when the eyewitness correctly identifies the culprit. An IR occurs when the eyewitness says the culprit is not present, even though they are. A FID occurs when the eyewitness picks someone other than the culprit. In a Target-Absent (TA) lineup, where the culprit is not in the lineup (and none of the lineup members has been designated as the innocent suspect), an eyewitness can make one of two decisions: a Correct Rejection (CR) or a Filler Identification (FID). A CR occurs when the eyewitness correctly states that the culprit is not in the lineup. A FID occurs when the eyewitness picks someone from the lineup despite the culprit's absence. If someone in the lineup has been designated as the innocent suspect, a pick of that person would be an innocent suspect identification.

Most participants in the Lie-Protect group rejected the lineup—that is, they did not pick anyone—when the lineup was target-absent (i.e., the culprit was not present), which was the correct decision (Parliament & Yarmey, 2002). Interestingly, they also rejected the lineup when it was target-present (i.e., the culprit was in the lineup), resulting in an incorrect and deceptive decision. What was most surprising, though, were the results for the Lie-Convict and the Control groups. They produced similar rates of culprit identifications (i.e., correct identifications).This pattern raises concerns about eyewitnesses motivated to pick out the culprit: an eyewitness that is motivated to convict may identify the culprit at similar rates even when memory is not stronger, which suggests that identification rates may reflect a shift in decision criterion derived from the social influences involved rather than genuine memory accuracy.

Cutler and Penrod (1995) supports the conclusion that motivation does not necessarily facilitate identification accuracy. However, given that participants in Parliament and Yarmey's (2002) Lie-Protect group also experienced threat, their behaviour may have, to some extent, reflected cognitive dissonance. That is, participants may have been unsure of which decision to make seeing that they were both threatened by the culprit and forced to make a lineup decision by the investigator. Ultimately, their paper demonstrated that threats increased lineup rejections and that investigative pressure did not impact decisions. They provided a foundation for identifying strategies eyewitnesses may use when deceptive. We built on their paradigm with several changes to make the study more experimentally robust. Before describing our research, we review factors that may increase the likelihood that an eyewitness will act deceptively: threat and investigator pressure.

Threat

We know quite a lot about how threat at the memory production stage (i.e., encoding) affects an eyewitness's actual memories for the event. To summarize broadly, Easterbrook (1959) proposed that increased emotional arousal narrows the range of cues used during task performance. As arousal rises, attention shifts toward high priority cues—in the context of a crime, the imminent threat—and away from low priority or peripheral cues. Eyewitness research on the Weapon Focus Effect (WFE) has demonstrated this (eg., Biggs et al. 2013; Kramer et al., 1990; Tooley et al., 1987: when a weapon is present, people focus on it more than on other details. This affects encoding and weakens memory later. Further researcher has shown that threat-related arousal primarily affects encoding by narrowing attention, rather than by influencing retrieval processes directly (Christianson, 1992). However, apart from Parliament and Yarmey's (2002) work, researchers have not examined threat at the time of an identification decision.

Research shows that threats shape decision-making (Gurland & Grolnick, 2005; Lindell & Perry, 2012; Luckenbill, 1982). Luckenbill (1982) offered a clear overview of how people—who might later serve as eyewitnesses—comply when threatened with severe punishment (e.g., harm to themselves or their family if they do not comply). He analyzed 201 cases of robbery and attempted robbery using official documents from an unnamed city in Texas. These documents detailed the roles of the participants in the crime (the culprit and the victim), including their actions and statements, the sequence of events, and the victim's perceptions and decision-making. Luckenbill found that victims were more likely to comply when they believed the culprit had the means to carry out the threat. In other words, the possession of specific resources to carry out the threat played a role in whether a victim complied (Levinger, 1959; Michener et al., 1971;

Michener et al., 1973; Tedeschi, 1970). Victims were more likely to comply when they believed the culprit was armed with a knife or firearm, compared to when they believed the culprit was unarmed. Additionally, he found that victims were more likely to comply when they believed the culprit would punish them only if they resisted, compared to when they believed punishment would occur regardless of their actions.

Importantly, people may feel threatened even without explicit or implied threats from culprits (March et al., 2022; Gordon & Arian, 2001); their reactions to such threats may vary, but the underlying premise of feeling of threat may remain. Subtle cues perceived unconsciously can significantly impact physiological reactions to the presence of threat. For example, March and colleagues found that something not consciously registered as threatening can still trigger a physiological response, which may in turn affect decision making. That is, even if a culprit does not explicitly threaten a victim, the victim may unconsciously perceive threat. Gordon and Arian mentioned that context plays a role as well: even if a culprit was not deliberately trying to cause harm, subtle actions may subconsciously (or consciously) be perceived as threatening.

A related factor is the fear of retaliation, particularly in situations involving cooperation with authorities. In other words, to what extent are victims or eyewitnesses willing to report a crime or provide information about the culprit after being threatened? Eyewitness intimidation can disrupt the legal process, leading to unreported crimes and unwillingness to cooperate with investigators (Witman & Davis, 2007; Latané & Darley, 1970). In some cases, victims may even testify in support of the defendant (Cruz & Garvey, 2014). Papp (2015) surveyed 408 residents in Detroit and found that those who reported a "fear of being retaliated against" were less inclined to cooperate with police investigations compared to those who did not express such fear. Respondents who believed they or their families might be harmed by aiding a police

investigation were more likely to withhold information compared to those who did not perceive such threat. Moreover, Witman and Davis found that youth were less willing to report crimes when they feared being harmed compared to other reasons, such as a desire to mind their own business or a general distrust of the police.

We mentioned earlier that little research has been done on the social influences impacting deceptive eyewitness decision-making, let alone how threat plays role. The overall awareness of this issue is, however, not as elusive—Leach et al. (2009) noted that more research is needed on the role of deception in eyewitness testimony, specifically indicating threat as a variable for exploration. More practically, Gross et al. (2022) found that 52% of deliberate misidentifications in murder cases involved eyewitnesses who lied out of fear of threats made against them.

Investigative Pressure

Although threat appears to be a clear motivator for deception, subtle forms of persuasion from investigators may also lead eyewitnesses to provide misleading information. The impact of non-blind lineup administrators and investigator bias is well documented in eyewitness literature and has shown itself to be an issue in the judicial process (Steblay & Dysart, 2016; Kovera & Evelo, 2017; Wixted & Wells, 2017). Consider the following scenario:

> You're a dedicated detective under intense pressure and scrutiny from both the public and your supervisor because you haven't yet caught the enigmatic serial killer terrorizing your town. Neighbours think you've lost your edge, and your supervisor believes it's time to assign you to a less demanding role. A few days later, a suspect emerges—no one's certain they're the real culprit, but you're desperate for them to be. You bring in an eyewitness for a lineup and, as you ride the elevator together, you say, "Thank God for you. This guy's been causing all sorts of problems. After you identify him, it'll all be over—and you'll be a real hero.

While fictional, this scenario may resemble patterns seen in several real-life exoneration cases. For instance, in cases like Anthony Broadwater, Ronald Cotton, Timothy Cole, and Scott

Minton, investigators and public officials faced intense pressure and criticism for their inability to resolve the cases. Records showed investigators cheering and celebrating when eyewitnesses selected their suspect (see Wright, 2021) even when they were aware the identification was uncertain.

Eyewitness identifications should stem from an eyewitness' independent memory and not be influenced by suggestive police procedures (*Manson v Brathwaite,* 1977). Court precedent has established that administrators must avoid explicitly pointing out the suspect to an eyewitness, as this practice has been deemed unnecessarily suggestive and renders the resulting identification unreliable (*Foster v. California*, 1969). Kovera and Evelo (2017) found that innocent suspect identifications were approximately 50% more likely in single-blind lineups—where the administrator knows the suspect's identity—than in double-blind lineups—where the administrator does not. Indeed, Albright (2017) showed that eyewitnesses were highly susceptible to a range of biases and errors. Albright noted that investigator behaviour—whether in the form of lineup administration, feedback, etc.—could significantly impact what an eyewitness did and reported. Even subtle and unconscious behaviours, like nodding or smiling while an eyewitness speaks, could introduce bias and influence the eyewitness' decision-making (Modjadidi & Kovera, 2018).

It is also worth mentioning the Pygmalion effect, a concept from social psychology where expectations about a person's abilities can shape their actual performance (Rosenthal & Jacobson, 1968). Kierein and Gold's (2000) meta-analysis on the effect found that participants expected to excel were 79% more likely to outperform a control group in work-related tasks than those for whom expectations were not communicated. This effect could apply to lineup

performance: an investigator's comments may inadvertently or unnecessarily lead an eyewitness to respond in particular ways.

Beyond suggestive procedures, investigators sometimes pressure eyewitnesses to secure convictions (Lowrey-Kinberg et al., 2018). Gross and Shaffer (2012) found that 42% of exonerations in their sample 873 stemmed from official misconduct, including lying to eyewitnesses to secure convictions. Investigators pressured eyewitnesses for several reasons: they wanted to clear cases quickly, scrutiny from the public, lack of resources, etc. Gross and Shaffer also found that 74% of wrongful convictions in child sexual abuse cases occurred because children were pressured by investigators to identify someone. In one such scandal involving the Rampart division in the Los Angeles Police Department, investigators forced associates to fabricate statements to add weight to cases against possible suspects (Chemerinsky, 2000).

Issues with Wrongful Conviction Statistics and How Deception Plays a Role

Gross and Shaffer's (2012) working paper on exonerations in the United States illustrated the role deception played in wrongful convictions. They found that 27% of all exonerations included *deliberate* misidentifications; not to be confused with *mistaken* misidentifications which comprised 43% of exonerations. Alarmingly, 54% of those deliberate misidentifications were by eyewitnesses who had no connections to either the exoneree or actual defendant. Consequently, this meant that eyewitnesses with no ties to anyone involved in the crime intentionally avoided identifying or implicating the true culprit.

Statistically, three quarters of robberies are committed by strangers, whereas only one third of rapes involve stranger perpetrators (U.S. Dept. of Justice, 2005). Based on that base rate alone, robberies should produce more eyewitness mistaken identifications than rapes, since

mistaken identification requires that the eyewitness and culprit be unknown to one another. Yet Gross et al. (2005) found 121 rape exonerations between 1989 and 2003, compared to only six for robbery. Of those rape exonerations, 88% involved mistaken identification as the primary cause of the wrongful conviction.

The disparity in exoneration rates across crime types is largely attributable to the availability of DNA evidence. Rape cases produce biological trace evidence that DNA testing can later verify or refute. Robbery cases typically do not. This means that wrongful convictions driven by misidentification in robbery cases go largely undetected, not because they occur less frequently, but because no tool exists to expose them after the fact.

This pattern is directly relevant to eyewitness identification research because it demonstrates that misidentification errors are not an isolated or rare phenomenon. The rape exoneration data serves as a conservative estimate of how often stranger-based misidentification sends an innocent person to prison. If a comparably sensitive detection method existed for robbery, the scale of the problem would likely be far greater.

Routine felonies such as burglary, theft, and drug possession rarely receive follow-up investigations for error after a conviction is finalized (Gross et al., 2005). Compounding this, it takes eleven years on average from the date of wrongful conviction to exoneration (Gross & Shaffer, 2012). Defendants convicted of routine crimes typically serve sentences far shorter than that, which makes pursuing exoneration impractical. Gross and colleagues underscore this systemic issue: many wrongful convictions go undocumented because defendants find it more practical to serve a short sentence than to spend years fighting to clear their name. This dynamic is reflected in plea decisions. Approximately 91% of defendants charged with felonies plead guilty rather than go to trial (Reaves, 2001), a figure that includes innocent defendants who

accept a deal to avoid the risk of a harsher sentence at trial. The consequences of this are visible in exoneration data: only 6% of exonerees in the Gross and colleagues' dataset had originally pled guilty, suggesting that innocent people who take plea deals are almost never officially exonerated. Together, these patterns reveal a troubling gap in the justice system, where the true scale of wrongful convictions driven by eyewitness misidentification remains largely hidden from view.

My research raises a critical question: *why lie?* Davies (1993) noted that most eyewitness research operates under the assumption that eyewitnesses are primarily motivated to conclude the process quickly and that any errors are honest mistakes. Parliament and Yarmey (2002), however, challenged this assumption by highlighting the possibility that eyewitnesses may deliberately choose to deceive. Given that eyewitnesses have (probably) not committed the crime themselves and therefore lack actus reus, it stands to reason that any deceptive behaviour they exhibit is likely driven by external motivating factors.

Cognitive vs Social Factors Affecting Eyewitness Identification

Eyewitness identification research has historically prioritized cognitive explanations for identification errors over social ones (Kovera & Evelo, 2021). Estimator variables (e.g., stress, lighting, exposure duration) center on the eyewitness's cognitive processing, while system variables (e.g., lineup instructions, administrator behaviour) center on the social context. Wells (1978) originally argued that system variables deserved greater research priority than estimator variables, since they are the factors law enforcement can directly reform. In practice, however, both estimator and system variable research have grown substantially over the following decades, generating dozens of meta-analyses on topics ranging from weapon focus to lineup administration procedures (National Research Council, 2014). Yet even within the

system variable literature, research has concentrated on procedural and structural questions, such as lineup format and administrator influence, leaving the eyewitness's own social and motivational experience comparatively unexamined.It can be said that the cognitive emphasis of eyewitness research could have been reinforced by the DNA exoneration movement of the 1980s and 1990s. As DNA evidence began overturning wrongful convictions at scale, researchers and advocacy organizations quickly identified eyewitness misidentification as the leading contributing factor, with estimates suggesting that roughly 70%of DNA exonerations involved a mistaken eyewitness identification. This statistic, widely cited by organizations such as the Innocence Project (n.d.) and researchers alike (e.g. Wells & Olson, 2003; Smalarz & Wells, 2024)), framed the central research question as a memory problem: why do eyewitnesses misremember, and how can memory-based procedures be improved to reduce error. This framing directed enormous research energy toward understanding and correcting cognitive failures, such as poor encoding conditions or contaminated retrieval, while questions about why an eyewitness might be socially motivated to identify or avoid identifying a suspect received comparatively little attention.

The tools that eyewitness researchers developed to answer these cognitive questions further entrenched this imbalance. Wixted and Mickes (2014) proposed a signal-detection-based model of eyewitness identification that treated a lineup decision as a memory-strength judgment, comparing discriminability and response criterion. This model, along with receiver operating characteristic (ROC) curves, became tools for evaluating lineup procedures (Semmler et al., 2018). These methods were built to isolate memory-based effects, but they were not designed to capture how an eyewitness's social environment, an investigator's expectations, an administrator's demeanor, or a culprit's threats, may shape the decision the model measures. The

sophisticated approach of these cognitive methods, in other words, came at the expense of tools capable of examining social influence with the same rigor.Kovera and Evelo (2021) directly highlighted this imbalance, arguing that as cognitive psychologists became more prominent within eyewitness research, the field increasingly adopted memory-centric frameworks like signal detection theory while neglecting the social context in which real identifications occur—an issue Fitzgerald et al. (2025) also reinforced. They argued that real life investigations are not as clear-cut and controlled as lab experiments, therefore, there are certainly social influences at play. For example, exposure to social media where an image of the suspect could be in circulation thus contaminating the eyewitness's memory. Kovera and Evelo contended that eyewitnesses do not make identification decisions in a social vacuum: administrator behaviour, investigator expectations, and other motivational pressures shape decisions in ways that memory-strength models cannot fully explain. Some progress has been made on this front, but it remains narrow in scope. Research on lineup administrator behaviour shows that subtle, even unintentional, cues from an administrator, such as tone of voice or body language, can shift an eyewitness's confidence and choice of lineup member (Clark et al., 2013). Work comparing double-blind and single-blind lineup administration similarly demonstrated that innocent suspect identifications rise substantially when the administrator knows the suspect's identity and unconsciously signals that knowledge to the eyewitness (Kovera & Evelo, 2017). These findings highlight that eyewitness misidentifications are not just attributable to memory errors but can also be impacted by social influences.Part of the reason social influences remain understudied is practical rather than theoretical. Memory-based estimator variables, such as exposure duration or lighting, are straightforward to manipulate in a controlled laboratory setting and produce clean, replicable effects. Social and motivational variables, such as fear of retaliation or pressure to

satisfy an investigator, are considerably harder to induce ethically and convincingly in a lab, since doing so often requires deceiving participants about real consequences or simulating psychological stakes that approximate danger. This methodological difficulty likely discouraged researchers from pursuing social explanations with the same intensity as cognitive ones, even as case evidence accumulated showing that eyewitnesses sometimes withhold or falsify identifications for social reasons entirely unrelated to memory failure (e.g., *State v Byrd, 2009*). Comparatively little research has asked how being personally threatened by a culprit, or feeling pressured to satisfy an investigator's expectations, shapes an eyewitness's own decision-making process, independent of memory quality or administrator behaviour. This is precisely the gap the present study addresses, by examining two social pressures acting directly on the eyewitness, threat from the culprit and pressure from the investigator, rather than treating the eyewitness solely as a passive memory system or a passive recipient of administrator cues.

The Present Study

The current study examined how social influences impact eyewitnesses' tendencies to engage in deceptive behaviour. Specifically, we explored how the presence of threat by a culprit and investigative pressure affect eyewitness identifications. Based on the literature outlined above, we had several hypotheses. First, consistent with previous findings on compliance under threat (Luckenbill, 1982; Parliament & Yarmey, 2002), we predicted that participants threatened by a culprit would more frequently reject the lineup compared to a control group who experienced neither threats nor investigator pressure. We expected this pattern to emerge in both target-present and target-absent lineups, reflecting eyewitnesses' efforts to protect themselves by avoiding identification of the culprit. Second, aligned with research on administrator expectancy effects (Kovera & Evelo, 2017), eyewitnesses exposed only to investigative pressure—without

any culprit threat—were expected to choose a lineup member more often than controls. Additionally, we also expected more incorrect identifications in the former than the latter condition. Third, we noted that participants experiencing both culprit threat and investigative pressure face conflicting social demands. Drawing on Parliament and Yarmey, we thus expected that participants who were both threatened and pressured would make fewer lineup rejections but select fillers more frequently than those only threatened (across both target-present and target-absent lineups). This outcome would reflect compliance with both pressures—attempting to protect the culprit and satisfy investigative demands simultaneously. Collectively, our hypotheses aimed to clarify how distinct and sometimes competing social pressures shape eyewitness identification accuracy and decision-making.

METHOD

Hypotheses, design, and analyses were preregistered on the Open Science Framework: https://osf.io/azr8q/overview.

Participants

Parliament and Yarmey (2002) reported that, in target-present lineups, participants in the control condition produced a .69 correct ID rate and a .29 filler ID rate. Treating these as two independent proportions and setting $\alpha = .05$ and desired power = 95%, an a priori power analysis indicated that 32 participants per cell would be sufficient to detect this effect. Given the present design, the target sample was a minimum of 256 usable participants which were collected via an undergraduate participant pool and community members. A total of 598 individuals accessed the online study. We excluded anyone that did not consent to participate ($n = 25$), failed two out of three attention checks ($n = 3$), or who had indicated they had technical problems (e.g., unable to

hear audio, unable to watch video, took too long to complete the study) that led them to be unable to make a lineup decision (n = 225), resulting in 345 usable participants.

Participants identified themselves as female (71.40%), male (26.65%), others (1.43%), or preferred not to respond (0.57%). The majority of the participants were White (59.89%); other reported ethnicities included Black (8.31%), East Asian (10.03%), South Asian (8.60%), Latin American (2.58%), Indigenous (3.72), Middle Eastern (2.01) and Other (4.87%). Participants ranged from 17 to 48 years old (M = 21.30, SD = 4.60).

Design

We randomly assigned participants in a 2 (Culprit Threat: Yes, No) x 2 (Investigative Pressure: Yes, No) x 2 (Lineup Type: Target-present, Target-absent) x 2 (Culprit Type: Male, Female) x 2 (Crime Type: Assault, Robbery) mixed design. Culprit Threat, Investigative Pressure, and Lineup Type were manipulated between-subjects while Culprit Type and Crime Type were manipulated within-subjects.

Culprit Threat refers to whether the culprit in the mock-crime video watched by participants appeared to notice the participant and threaten their livelihood. Investigative Pressure refers to whether a participant was pressured by the investigator to make an identification (via the instructions described below). Lineup Type refers to whether the lineup viewed by a participant contained the culprit or not. Culprit Type refers to the apparent gender of the "criminal" in the mock-crime video. Lastly Crime Type refers to whether the mock-crime video depicted an assault or a robbery.

Materials

Guided Imagery

Recent work describes the "MTurkification" of social and personality psychology, in which brief, low-cost online studies with isolated participants have become increasingly dominant, especially via platforms such as Amazon Mechanical Turk (Anderson et al., 2019). This ecology of methods favours relatively simple, high-throughput paradigms and disadvantages research questions that depend on rich social interaction, emotional engagement, and complex decision-making, such as social influence in legal settings. Because social influence manipulations only work if participants psychologically experience the situation, the present study incorporated guided imagery to increase realism in an online environment. Guided imagery uses structured, vivid descriptions to elicit mental simulations of events that can evoke emotional and physiological responses that approximate those seen in corresponding real-world experiences (Baider & Uziely, 2020; Krau, 2020). We therefore used artificial intelligence (AI) voices appropriate to the forensic social setting to deliver scripts that relayed instructions and other information. A first guided-imagery task occurred before the mock-crime video to facilitate a state of emotional arousal; however, different AI voices were used throughout the experiment where we felt audio would be beneficial. See Appendix A for the full guided imagery script.

Mock-crime Videos

Participants viewed a mock-crime video that depicted an individual who had apparently committed a crime from the point of view of a bystander eyewitness and that lasted approximately 35 seconds. Depending on the Crime Type condition, participants either viewed a video of robbery or assault, and depending on Culprit Type, either a male or a female culprit. We incorporated different crimes and culprits due to the potential biases that may arise from using a single stimulus exemplar (Wells & Windschitl, 1999).

Each video depicted took an eyewitness' point of view. Videos depicted the eyewitness then noticing sounds of screaming and then stumbling upon a crime taking place. The culprit then stops and notices the eyewitness. Participants in the No Threat condition then saw the culprit flee the scene while those in the Yes Threat condition saw the culprit say "if you say anything to anyone, especially the police, I'm going to hurt you and your family. I won't forget you." See Appendix B to view the differences between the presentation of the Yes Threat and No Threat videos.

Intervening Task

In line with standard eyewitness paradigms, participants completed a brief intervening task after viewing the mock-crime video to create interference and to provide a retention interval. Although shorter than the retention interval a real eyewitness is likely to experience, the retention interval was long enough to ensure memory for the mock crime was no longer in the participant's working memory (2 minutes), forcing them to rely on their long-term memory for the later lineup identification, as a real eyewitness would. Participants completed a Where's Waldo visual search task, which provided a neutral, engaging activity that occupied attention without introducing additional social or crime-related content. Because the task involves searching amongst (cartoon) faces, it also provided exposure analogous to what an eyewitness may experience going about their lives after witnessing a crime (i.e., interacting with people). See Appendix C for the Waldo task image and questions.

Lineups

Lineups were created using the match-to-description approach (Wells, 1987) and pilot tested. Lab volunteers ($N = 12$) watched the mock-crime videos and described the physical

features of the culprit. Using the most frequently reported features, we identified six filler faces that matched each culprit's description.

Lineup fillers were faces found in the Chicago Face Database (Ma et al. 2015) and Hawaii Face Database (Meyers et al. 2025). Participants viewed a simultaneous lineup presented in a 3x2 array. In target-present lineups, the culprit and five out of six possible filler faces were randomly selected, and their positions within the lineup were randomly assigned. In target-absent lineups, all six filler faces were used and their positions were also randomly assigned. Participants were asked to make a lineup decision, which could either be picking one of the six faces or selecting "not there." See Appendix D for both lineup types for the male and female Culprit Types and the lineup instructions. Immediately following the lineup decision, participants were asked to rate how confident they were in their lineup decision on a scale of 0 (not at all confident) – 100 (absolutely confident) using a slider.

Measures

Lineups

Target-present lineup decisions were coded as incorrect rejections (IR), false identifications (incorrect selections of fillers; FID), or correct identifications (CID). Target-absent lineup decisions were coded as correct rejections (CR) or false identifications (FID). We did not designate an innocent suspect because in an unbiased lineup, all members should be reasonable choices and therefore no lineup member in a target-absent lineup should be any more suitable than any other to serve as an innocent suspect. Any erroneous decision (incorrect rejections and false identifications in target-present lineups, false identifications in target-absent lineups) could indicate deceptive behavior.

Manipulation Checks

Participants responded to several manipulation checks pertaining to Culprit Threat and Investigative Pressure using a 7-point Likert-style scale. These checks indicated whether our manipulations worked the way they were expected to. To see if participants felt threatened by the culprit in the mock-crime video, we asked "Imagine that you personally experienced the event shown in the video. In that moment, how capable would you have believed the offender was of causing serious harm or injury to you?" *1 = Not at all capable* to *7 = Extremely capable*. See Appendix E for a full list of our manipulation checks.

Emotion Checks

Since the experiment manipulated social influence, we wanted to see how emotionally engaged participants were. Thus, we also asked, "How emotionally engaged were you during the experience of being an eyewitness (that is, witnessing a crime and viewing a lineup)?" and participants respond on a 7-point Likert-style Scale from *1 = Not engaged* to *7 = Extremely Engaged*.

Data Quality Checks

At the end of the experiment, participants completed data quality checks. As highlighted above, we excluded participants who reported technical difficulties, responded randomly, or had prior exposure to similar eyewitness experiments or mock-crime videos. See Appendix F for a full list of our data quality checks.

Procedure

Participants responded to a Captcha question and then were asked to consent to participate in the study. After consenting, participants were instructed to ensure they had their volume up and to check that their internet connection was strong. Participants were provided with an option to check that their volume was at an appropriate level. If they were unable to hear

the audio check, they were directed to the end of the study. If they proceeded past the audio check, they then went through the guided imagery task where an AI voice instructed them to immerse themselves in the experiment and set the scene for the mock-crime. It then transitioned into the mock-crime video where participants witnessed the mock crime. They were then asked if they had seen the video in its entirety; if not they were sent to the end of the experiment. Participants then completed the intervening task. They then had an encounter with detective Reid whom we created an AI voice for who spoke to participants (See Appendix G for script). Depending on the condition, he either pressured participants to make an identification or did not. Detective Reid then gave participants a set of lineup instructions, and then they went through the lineup procedure. Following the lineup procedure, participants were told that the experiment had finished and were given the manipulation, emotion, and data quality checks. Lastly, participants were debriefed and given the option to withdraw their data if they wished to do so.

Analytic Approach

All analyses were conducted in R version 4.4.1 (R Core Team, 2024) using ggplot2 (Wickham, 2009), dplyr (Wickham et al., 2021), and tidyverse (Wickham et al., 2019).

We conducted separate logistic regressions using generalized linear models (GLM) with Threat and Investigative Pressure as predictors of lineup decisions and rate of choosing. For example, the model predicting lineup rejections from Threat and Investigative pressure, including their interaction, is expressed as:

$$\text{Lineup Rejection} \sim \text{Threat} * \text{Investigative Pressure}$$

The asterisk denotes that both main effects and their two-way interaction were estimated simultaneously. Below, we report our results by hypothesis, rather than reporting the entirety of

each model (3 hypotheses per model) for each measure to maximize the clarity of our conclusions.

All independent variables were two-level categorical factors. Depending on our hypotheses and lineup type, we dummy coded the lineup decisions as shown in Table 1.

Table 1

Coding for Lineup Decisions

Lineup Decision	Target-present	Target-absent
Rejections	IR = 1, CID and FID = 0	CR = 1, FID = 0
Correct Identifications	CID = 1, IR and FID = 0	
Filler Identifications	FID = 1, CID and IR = 0	FID = 1, CR = 0
Choosing	CID and FID = 1, IR = 0	FID = 1, CR = 0

RESULTS

Impact of Threat

We hypothesized that when the culprit threatened the participant that participants would respond by rejecting the lineup more often (i.e., choosing less). Thus, we predicted rejection rates in a logistic regression model for 1) target-present lineups and 2) target-absent lineups with Culprit Threat as our predictor excluding participants who pressured by the investigator. Table 2 provides a breakdown of all lineup decisions by condition. For target-present lineups, incorrect rejections were similar in frequency when the participant was threatened (35%) compared to when they were not threatened (38%), B = -0.11, SE = 0.45, p = .81, OR = 0.89. However, there was a significant effect of Culprit Threat on target-absent lineup decisions, B = 1.06, SE = .45, p < .01, OR = 2.90. Participants made more correct rejections when threatened (69%) than when

they were not threatened (43%). Therefore, Hypothesis 1 was partially supported: for target-absent but not target-present lineup decisions.

Table 2

Percentages of lineup decisions by Culprit Threat, Investigative Pressure, and Lineup Type

Decision	Culprit Threat			
	Yes Threat		No Threat	
	Investigative Pressure		Investigative Pressure	
	Yes	No	Yes	No
Target-present Lineups				
Suspect ID	50% (26)	37% (19)	24% (11)	24% (9)
Filler ID	21% (11)	28% (14)	37% (17)	38% (14)
Rejection	29% (15)	35% (18)	39% (18)	38% (14)
Target-absent Lineups				
Filler ID	37% (18)	31% (13)	68% (26)	57% (26)
Rejection	63% (31)	69% (29)	32% (12)	43% (20)

Note: The frequency of each decision is provided in parentheses next to the percentage. Columns within a row sum to 100%.

Impact of Investigative Pressure

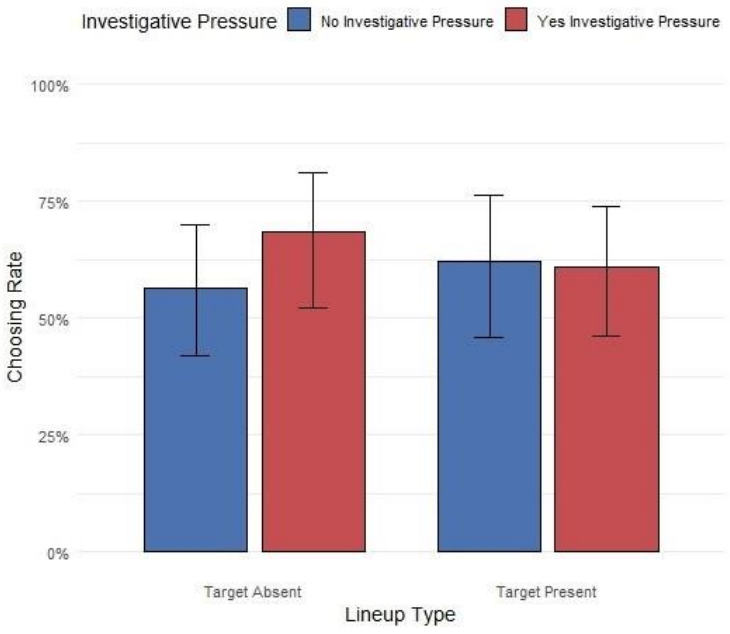
We hypothesized that when the investigator pressured participants that participants would respond by choosing a lineup member more often (regardless of the accuracy of their choice). Thus, we predicted choosing rates from Investigative Pressure in a logistic regression model for 1) target-present lineups and 2) target-absent lineups excluding participants who were threatened by the culprit. For target-present lineups, choosing rates were similar in frequency when the participants was pressured (61%) compared to when they were not pressured (62%), B = -0.05, SE = 0.45, p = .90, OR = 0.95. Similarly for target-absent lineups, there were no significant differences in choosing between participants who were pressured (68%) compared to when they were not pressured (57%), B = 0.51, SE = 0.46, p = .27, OR = 1.67.

In addition to exploring choosing rates, we also wanted to see if there would be an increase in filler ID rates. We predicted filler ID rates from Investigative Pressure in a logistic regression model for target-present lineups only since all choices from our target-absent lineups are of fillers excluding participants who were threatened by the culprit. For target-present lineups, filler ID rates were similar in frequency when the participants were pressured (37%) compared to when they were not pressured (38%), B = -0.03, SE = 0.46, p = .93, OR = 0.96.

Although the effect for target-absent lineups was in the expected direction as seen in Figure 1, it was non-significant; target-present lineups also showed no significant differences, hence Hypothesis 2 was not supported.

Figure 1

Lineup Choosing Rates Based on Investigative Pressure Presence



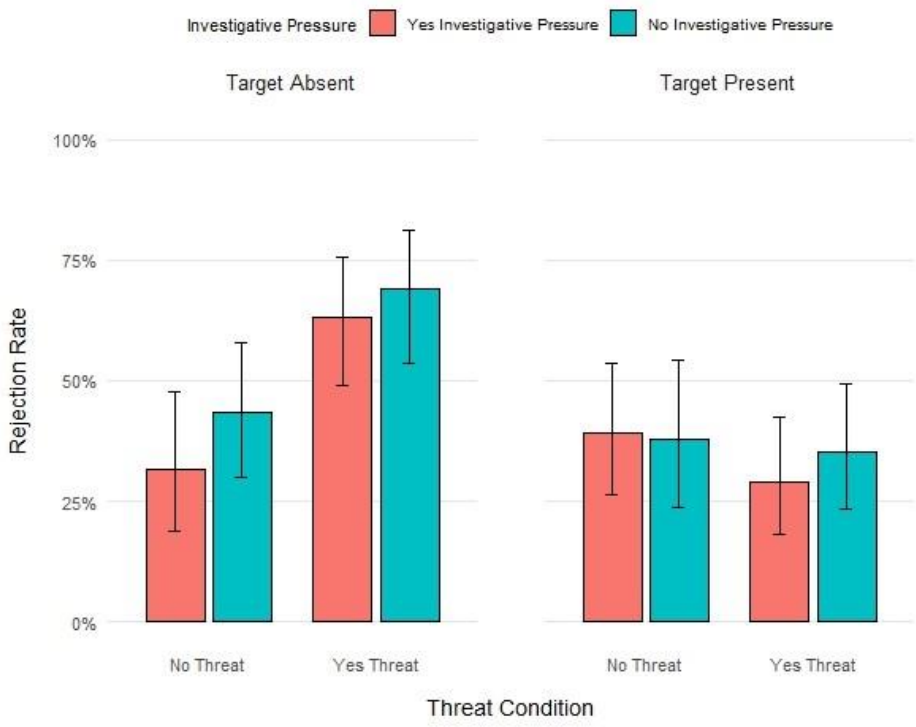
Note. Choosing rates reported separately for both lineup types, based on the Investigative Pressure condition. Participants who had been threatened by the culprit were excluded from this analysis.

Interaction of Culprit Threat and Investigative Pressure

To reiterate, I compared incorrect rejection rates for the Culprit Threat by Investigative Pressure interaction against the Culprit Threat condition alone. Parliament and Yarmey (2002) found that threatened participants rejected lineups more often than non-threatened participants. Based on this finding, I hypothesized that participants who were both threatened by the culprit and pressured by the investigator would reject lineups less often and select fillers more often. This response pattern would satisfy both parties: it avoids incriminating the culprit while still giving the investigator a selection. Figure 2 illustrates the relevant differences in rejection rates. For target-present lineups, incorrect rejections were similar in frequency when the participant was both threatened and pressured (29%) compared to when they were threatened only (35%), $B = -0.35$, $SE = 0.62$, $p = .57$, $OR = 0.70$. Likewise for target-absent lineups, there were minimal differences between correct rejections when the participants were both threatened and pressured (63%) versus when they were only threatened (69%), $B = 0.25$, $SE = 0.63$, $p = .69$, $OR = 1.29$.

Figure 2

Lineup Rejections Rates: Threat x Investigative Pressure Interaction

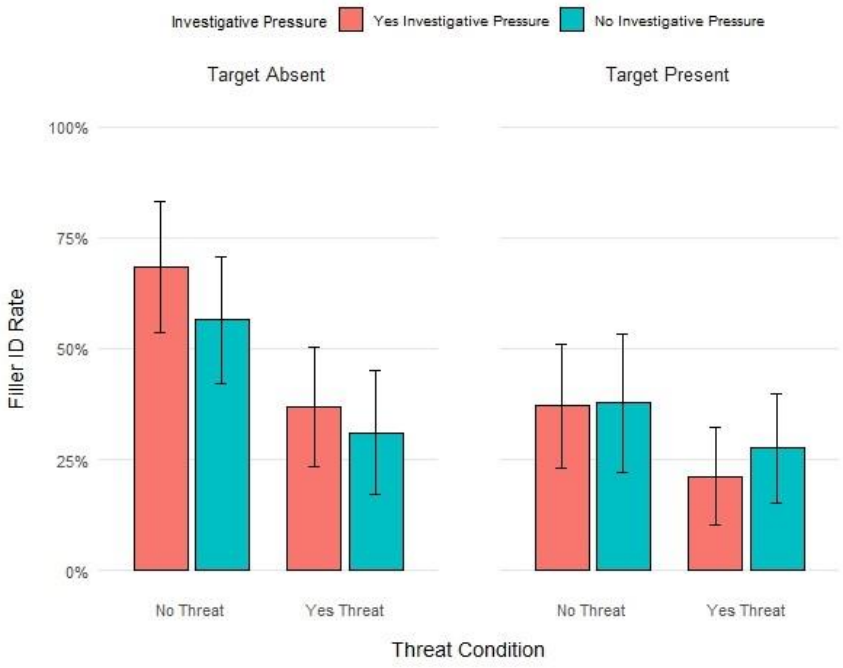


Additionally, we expected more filler IDs when the participant was faced with both Culprit Threat and Investigative Pressure compared to participants faced with Culprit Threat only in target-present lineups. Figure 3 illustrates the differences in filler ID rates. Participants who were both threatened and pressured (21.2%) had similar filler ID rates in comparison to those that were threatened only (27.5%) , B = -0.30, SE = 0.65, p = .64, OR = 0.74, indicating that adding Investigative Pressure to the Culprit Threat did not reliably increase filler IDs rates in target-present lineups.

We did not find any meaningful effects in our analysis here, therefore Hypothesis 3 was not supported.

Figure 3

Lineup Filler ID Rates: Threat x Investigative Pressure Interaction



Exploratory Analyses

Although we took steps to maximize psychological realism in our study, we ultimately were examining social influence effects online. Furthermore, although we collected a much larger sample than Parliament and Yarmey (2002), the study was still relatively low-powered when compared to typical eyewitness identification experiments where 200-500 participants per cell of the experimental design are common (Pennekamp et al., 2024). Nonetheless, we did find a significant, predicted effect: that rejections of target-absent lineups were higher when the participant was threatened than when they were not threatened. The same effect was not found for target-present lineups. However, the analysis of the target-present lineups looked only at rejections versus selections, ignoring the type of selection.

Given that what legal practitioners are likely to be interested in is whether threats affect identifications of the *culprit*, we conducted two exploratory analyses. That is, we examined whether being threatened diverted culprit identifications to fillers or rejections or if it led participants to perhaps feel the situation was more serious, and therefore increased culprit

identifications relative to the no threat condition. We ran a logistic regression analysis with Culprit Threat as our predictor and our analysis yielded a significant difference in correct IDs between participants who were threatened (37%) and not threatened (24%), $B = 0.89$, $SE = 0.32$, $p < .001$, $OR = 2.45$, indicating that the presence of threat reliably increased correct ID rates in comparison to the absence of threat.

We next compared the rate of filler identifications in target-present lineups with Culprit Threat as our predictor. We found minimal difference in filler identifications between participants who were threatened (28%) and those who were not (38%), $B = -0.48$, $SE = 0.46$, $p = .30$, $OR = 0.62$. Thus, our results seem to suggest that threats did not have the effect a criminal would intend; rather, they may have highlighted the importance of the eyewitness' role so that they took the lineup decision more seriously, which led to better performance when the culprit was present.

DISCUSSION

We sought to explore the social mechanisms driving deceptive eyewitness lineup decisions. Specifically, we asked whether being threatened by the culprit and/or investigative pressure motivate eyewitnesses to make different lineup decisions. Drawing on the only study that has looked at deceptive eyewitness lineup decisions (i.e., Parliament & Yarmey, 2002), the present study extended their work using a larger and online sample. Rather than directly instructing participants to deceive, we tested whether deception would emerge naturally as a result of our experimental manipulations.

We found that only being threatened by the culprit impacted lineup decisions; investigative pressure had no effect on participants' lineup decisions. When threatened by the culprit, participants were, surprisingly, more accurate: they made more correct rejections and correct identifications. Although the finding for target-absent lineups is consistent with our first hypothesis, the finding for target-present lineups is not and this implies that threat impacted eyewitness decision making differently than we anticipated. This pattern suggests that threat increased attentional engagement or caution during the identification task. This shift did not reflect avoidance or a motivation to protect the culprit; it reflected a drive toward careful, accurate responding. This finding suggests that investigators should account for an eyewitness's threat exposure when interpreting lineup outcomes, since threat appears to shift decision strategy rather than simply degrade performance—though further work is needed to isolate whether this effect is from encoding or decision-making.

We also found it surprising that we did not find an effect for filler IDs in target-absent lineups. Table 2 shows minimal differences in filler ID rates between pressured and non-pressured participants, though the filler ID rate under pressure was notably high (68%). However, it is worth noting the differences in filler ID rates between participants who were only threatened and only pressured respectively. Their decisions are almost complete opposites of each other, with participants who were threatened exhibiting a far lower propensity to make a filler ID compared to those who were pressured. The divergence in filler IDs between the two social influences suggests that Culprit Threat and Investigative Pressure operate opposing psychological forces on an eyewitness' decision criterion when the culprit is absent from the lineup. Culprit Threat appears to make participants more cautious, leading them to reject the lineup rather than risk an incorrect identification. Investigative Pressure, by contrast, appears to

create a felt obligation to produce an answer, leading participants to select someone even when rejection was the correct choice. When the culprit is absent, this obligation results in a higher filler identification rate, since selecting a filler was the only option left for participants who felt compelled to respond.

To further characterize how Culprit Threat shaped lineup decisions, we considered our results through the lens of signal detection theory, which distinguishes between discriminability, an eyewitness's underlying ability to tell the culprit apart from lineup fillers, and response criterion, an eyewitness's willingness to choose someone from the lineup regardless of accuracy (Wixted & Mickes, 2014). Under this framework, a manipulation that improves or impairs discriminability should move the hit rate (correct IDs) and false alarm rate (filler IDs in target-absent lineups) in opposite directions, whereas a manipulation that only shifts response criterion should move both rates in the same direction, since an eyewitness that is more willing to choose will be more likely to select someone regardless of whether the culprit was actually present. Inspection of Table 2 shows that Culprit Threat produced the opposite pattern as what would be expected if Culprit Threat reduced discriminability. Holding Investigative Pressure constant, correct IDs rose while filler IDs in target-absent lineups fell whenever threat was present, both under No Investigative Pressure (24% to 37%, and 57% to 31%, respectively) and under Yes Investigative Pressure (24% to 50%, and 68% to 37%, respectively). Because an eyewitness who was simply more willing to choose would be expected to show higher rates of both correct and filler ID, this pattern indicates that threats by the culprit improved participants' underlying ability to distinguish the culprit from innocent lineup members, rather than making them generally more "trigger-happy" or more cautious in their responding.Our findings differ somewhat from prior research. Parliament and Yarmey's (2002) main finding was that participants who had been

tasked to protect the culprit rejected both target-present and target-absent lineups significantly more than those that were not given that instruction. Our study, as previously mentioned, encouraged participants to protect the culprit via a slightly different approach—having the culprit threaten the participant. Similar to Parliament and Yarmey, we found a significant increase in correct rejections but unlike them, we did not find the same effect when the culprit was present in the lineup. So, while Parliament and Yarmey's work suggests that motivating people to protect a culprit leads people to avoid choosing, our work suggests it increases accuracy. We next consider why this might be the case.

The key methodological difference between Parliament and Yarmey's (2002) manipulation and ours was that their participants were told the culprit was a friend they wanted to protect, whereas in our study the culprit directly threatened the participant. This distinction creates two different types of decisional conflict. Parliament and Yarmey's manipulation produced a social dilemma: participants had to weigh loyalty to a friend against their duty to identify a wrongdoer accurately. Our manipulation produced an ethical dilemma: participants had to weigh their personal safety against their duty to make an accurate identification. Where the social dilemma centers on relational loyalty, the ethical dilemma centers on self-preservation, and this distinction may explain why our threat manipulation and theirs produced different patterns of lineup responding.

This relational variation also likely explains why participants were highly deceptive in their study but demonstrated greater accuracy in ours. While their participants were motivated to act deceptively out of loyalty to a friend, our participants had no social bond or desire to protect the culprit. Even though the threat in our study was explicitly directed toward the participant and their loved ones, the adversarial nature of the interaction probably shifted the situation from one

of social protection to an ethical framework where identifying the culprit became a matter of justice and self-preservation.

Secondly, the increase in correct decisions (from both target-present and -absent lineups) when threatened may stem from the fact that the culprit operated alone rather than with accomplices. Real-world legal judgments involving similar reporting of threats and pressure (e.g., *People v. Wahidi*, 2013) indicate that a culprit's intimidation is primarily effective when the eyewitness believes external accomplices are available to carry it out (see also Finn & Healy, 1996). Because the culprit in our study was in custody and lacked any known co-offenders, participants had little reason to be wary of being harmed. Consequently, knowing the culprit was safely detained may have actively motivated eyewitnesses to ensure the culprit remained in custody. The need for security and justice likely caused participants to exercise greater care when evaluating the lineup, ultimately driving up the rate of correct identifications.

A limitation worth noting concerns our mock-crime videos, which were filmed from a first-person eyewitness perspective. An issue is the amount of time the culprit was visible across conditions. Across conditions, the culprit's presence in the videos differed by roughly six seconds, with a minimum exposure time of approximately 10-seconds in the no-threat baseline and a longer duration in the yes-threat condition. Exposure duration has been linked to identification accuracy in prior research; Memon et al. (2003) compared a 12-second exposure to a 45-second exposure and found higher accuracy in the longer condition. Bornstein and colleagues' (2012) meta-analysis similarly found an overall effect of exposure duration across identification studies. However, this effect appears concentrated at very brief exposures; once an eyewitness has viewed a face for more than a few seconds, there appears to be diminishing returns comparable to identification accuracy. Since both of our conditions exceeded 10-

seconds—well above this threshold—the six-second difference between conditions is unlikely to account for the accuracy difference we observed between threat conditions.

This exposure difference also does not diminish the psychological impact of the threat itself. One might argue that non-threatened participants were equally motivated to identify the culprit accurately but simply had weaker memories due to shorter exposure. This explanation is difficult to reconcile with the exposure duration literature above: if both exposure durations exceeded the threshold at which viewing time meaningfully affects accuracy, then a memory strength difference driven by exposure time alone cannot fully explain the accuracy gap between conditions. Instead, threatened participants may have used comparable encoding opportunities to produce more accurate identifications and rejections suggesting that threat itself, not exposure duration, is the more plausible driver of the accuracy difference we observed

Parliament and Yarmey (2002) also aimed to examine how creating a sense of social responsibility affected lineup decisions and we aimed to do the same. We derived our investigative pressure manipulation from Parliament and Yarmey's Lie-Convict condition in which participants were told that it was their social duty to convict the suspect. Although this manipulation was intended to increase pressure towards making an identification, it had no effect in either their or our study. A key limitation of this approach is that it frames pressure in general terms, rather than reflecting the specific form of influence often exerted in applied settings. In practice, investigators likely do not pressure eyewitnesses to select *any* member of the lineup. Rather, investigators are more likely to pressure eyewitnesses to identify the suspect because they believe that individual to be guilty. Accordingly, future research should employ an investigative pressure manipulation that encourages participants to identify a specific individual.

However, the pressure that investigators apply to eyewitnesses may be more intense than the techniques used here, therefore studying investigative pressure may be challenging from an ethical perspective. For example, in the Ronald Pondexter case (see *People v Pondexter*, 1996). An eyewitness was pressured to testify against Ronald or lose custody of her baby (2minuteverdict, n.d.). In order to examine investigative pressure in valid ways, future researchers will need to carefully consider how they can employ emotionally salient manipulations that mimic real world incidences while staying within the bounds of ethical conduct. Another example is the Alfred Chestnut case (see *Chestnut v Kincaid*, 2020), three eyewitnesses were pressured to testify and identify a specific suspect they knew was innocent. They faced charges of accessory to murder if they refused. Investigators subjected them to poor conditions and intense racism, using phrases like "you're black and I have a badge, I can do whatever I want with you." (National Registry of Exonerations, 2019)

Ethics are a key challenge for conducting research on deceptive lineup decisions and perhaps account for why almost no research has been conducted on this important facet of eyewitness identification. In practice, such situations are high stake for the eyewitness. In research, that is almost never the case. Most participants in the current experiment and many psychology experiments are first- or second-year undergraduate students doing the experiment for extra credit, and they are normally explicitly told at the consent stage that they will receive credit regardless of how they behave. Because Parliament and Yarmey (2002) conducted the only previous study on deceptive lineup choices, it was unclear how well similar methods would fare in subsequent studies. To maximize statistical power, an online platform was used to allow for a larger sample size. Recognizing the potential risks to emotional engagement and psychological realism online, a guided imagery approach was deployed. This method proved successful, as it

uncovered several meaningful effects. However, because simulating high stakes is difficult in online settings, future research should test whether these effects generalize to in-person settings, where psychological realism and emotional engagement can be more directly manipulated and verified. One productive approach would be a two-study design: an online study to establish statistical power and detect effects, followed by an in-person replication to confirm the effects hold under conditions of greater psychological realism. Alternatively, researchers could begin in-person to establish that the effect is genuine under high-realism conditions, then move online to test whether the effect replicates at greater statistical power.

One such method that may increase stakes while maintaining a reasonable balance of potential benefits and harms is through the use of deception at the start of the study. By telling participants their extra credit—an incentive students would be motivated to protect—may be taken away if they do not respond in a particular way, the research could create circumstances that more closely reflect real-world pressure. This would be easier to do if the research were conducted in person whereby a confederate approaches the participant as if they were a desperate researcher who needs them to identify the suspect in order to complete their graduate degree. Such coercion could conceivably be perceived as real and could be managed through careful debriefing at the conclusion of the experiment.

Beyond directly observing eyewitness behaviour, it would be valuable for future research to investigate how mock-jurors judge an eyewitness who has experienced external threats or pressures. For example, a future study could present participants with a case vignette in which an eyewitness is subjected to Culprit Threat or Investigative Pressure before making a lineup choice. Participants acting as mock-jurors would then answer questions regarding their perceptions of the eyewitness's credibility and the accuracy of their identification. This approach

would clarify how jurors evaluate identification evidence made under extenuating circumstances, providing valuable practical insights in the courtroom. Another option is also to survey people who have been actual eyewitnesses before.

CONCLUSION

One of the primary objectives of the present study was to observe eyewitness behaviour under varying conditions of culprit threat and investigative pressure, rather than explicitly instructing participants to engage in deception. While standard paradigms within the deception decision-making literature frequently direct participants to lie, the current design sought to capture unprompted responses to varying social influences. Interestingly, although this framework was designed to explore the potential emergence of deceptive behaviors, the manipulated conditions yielded the opposite effect—eliciting greater accuracy. This unexpected divergence underscores the critical need for deeper investigation into this domain. Ultimately, exploring how differing social influences impact eyewitness decision-making reflects a real-world issue within the criminal justice system that has historically received inadequate empirical attention.

Furthermore, there seems to be a disconnect between the observed rate of *mistaken* eyewitness identifications and the figures commonly cited in academic and public discourse. Many journal articles and reputable organizations (e.g., Innocence Project, n.d.) report that 70% of wrongful convictions that resulted in exonerations involved erroneous or mistaken eyewitness identifications. While this statement is sometimes technically correct because both mistaken and deceptive identifications are erroneous, this estimate is arguably misleading because it conflates genuine memory errors with intentional deception. The National Registry of Exonerations (2026) separates mistaken eyewitness identifications and deceptive ones (deceptive ones are categorized

under perjury and false accusation). Their data indicate that the rate is closer to 27% and this rate corresponds with the Canadian National Registry of Exonerations (2026), who also differentiate between mistaken and deceptive identifications. Although the Canadian registry tracks similar contributing factors to the National registry, it utilizes far more specific categories. The National registry relies on just five broad classifications, whereas the Canadian registry features 18 distinct categories. As a result, the data in the Canadian registry are more widely distributed across numerous narrow variables, compared to the more concentrated, macro-level groupings found in the American dataset

Ultimately, it is important to highlight that deceptive eyewitnesses who misidentify a suspect on purpose should not be considered as having made a *mistaken* identification, as these misidentifications are not genuine errors in perception or memory. Their occurrence is unlikely to be mitigated by revisions to currently studied system variables, their accuracy will be unaffected by estimator variables, and we cannot predict them using extant reflector variables (Wells, 1978). A completely different approach is needed to mitigate the impact of deceptive identifications on criminal justice. And we have barely scratched the surface of what causes the problem, let alone how to address it. Although both deceptive identifications and genuine mistakes fall under the broader category of "eyewitness errors," they warrant distinct categories. Genuine eyewitness mistakes arise from a myriad of variables that influence memory encoding, retention, and retrieval, whereas deception is driven by motivations, coercion, or external pressures that operate through different mechanisms. Separating them is essential for accurate estimation of mistaken identification rates and for developing targeted interventions to reduce genuine eyewitness errors. Although the current study was perhaps relatively unsuccessful at creating the kind of social pressure that leads to deceptive identifications, we see this work as an

important first step. We hope our research spurs interest in this vital area of research and encourages others to begin exploring this issue.

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APPENDICES

Appendix A – Guided Imagery Script

Close your eyes and breathe steadily. We encourage you to immerse yourself in this experiment, and we want you to picture yourself right inside the scene we're about to describe. You're working late on the twelfth floor, sorting paperwork under buzzing fluorescent lights while the smell of stale coffee lingers. The open-plan office is supposed to be empty, yet faint voices drift in from somewhere down the corridor. At first you brush it off, but a glance at the clock reminds you no one else should be here. Your pulse quickens and a wave of anxiety creeps in. Then the voices sharpen into distant screams. Colour drains from your face and you start breaking out into cold sweat. You then bare the responsibility of seeing what's going on out there. With each step the screams grow clearer, echoing off the glass walls.

Appendix B – Culprit Threat Materials

Supplemental Figure 1 –Yes Threat: Screenshot of one of the videos shown to participants in the experiment. Participants view the full scene where the culprit faces the participant and utters threats towards them.

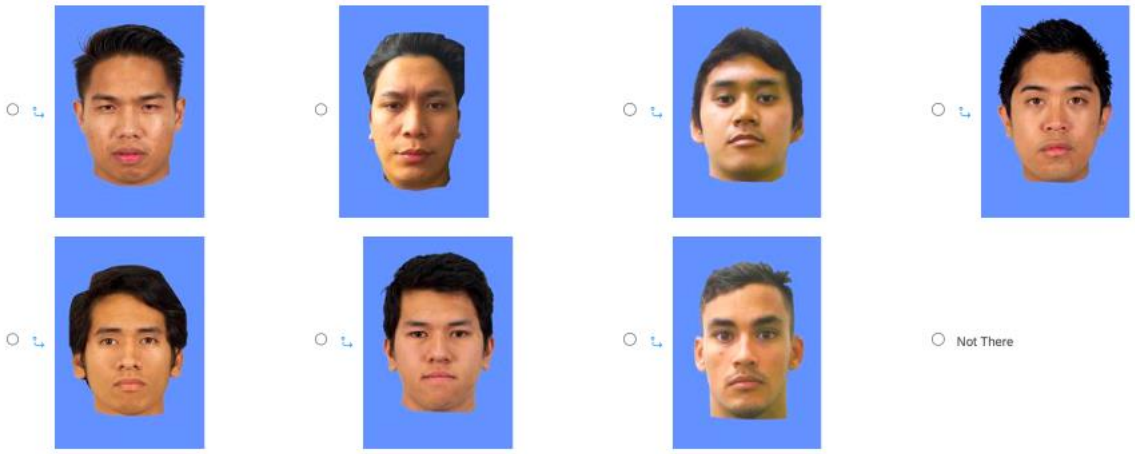
Supplemental Figure 2 –No Threat: Screenshot of one of the videos shown to participants in the experiment. Participants view the full scene where the culprit faces the camera, utters no threats and runs away.

Appendix C – Waldo Task Image and Questions

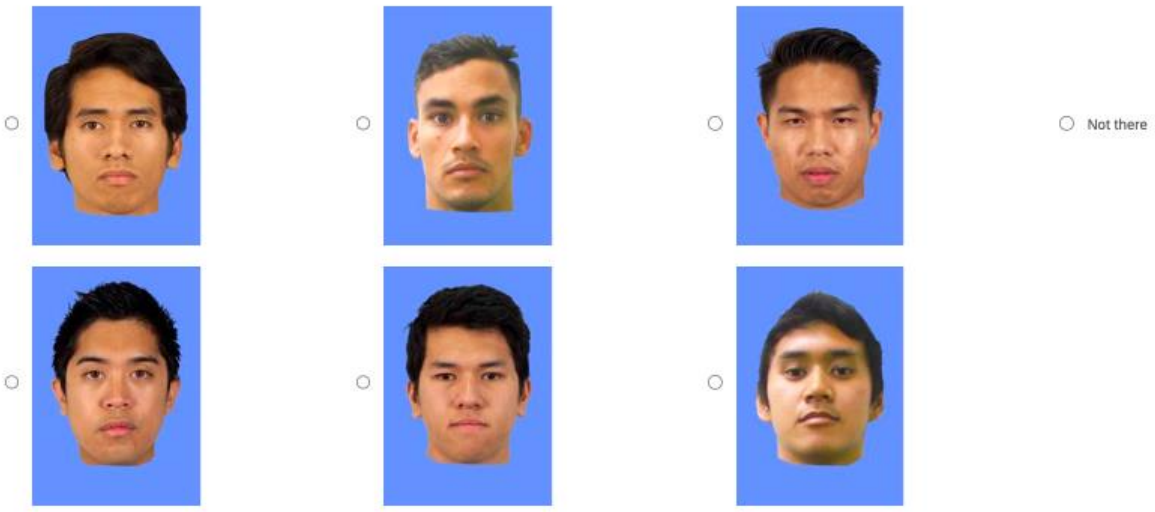
1) How many people in bathing suit can you count?
2) How many mattresses are in the picture?
3) How many people with beards are in the picture?
4) How many things with stripes can you count?
5) How many children are in the picture?
6) How many people are sitting or lying down?
7) How many people are wearing red clothes?
8) How many people are barefoot?

Appendix D – Lineup Materials (lineups and instructions)

Target-Present (Male Culprit)



Target Absent (Male Culprit)



Target Present (Female Culprit)

Target Absent (Female Culprit)

Lineup Instructions

1) The person who is suspected of having committed the alleged offence may or may not be in the photos being presented.
2) It is just as important to eliminate innocent persons from suspicion, as it is to identify the culprit.
3) You are not obligated to choose any of the photos.
4) View each of the photos carefully. Consider that the photos may be recent or old, hairstyles change and people may alter their appearance by growing or removing hair.
5) You will be shown all of the photos at the same time.

6) Please make a decision by selecting a photo or "not there."
7) You will be asked to indicate your confidence in your decision.

Appendix E – Culprit Threat Manipulation and Attention Checks

Question	Response
Imagine that you personally experienced the event shown in the video. In that moment, how capable would you have believed the offender was of causing serious harm or injury to you?	1 = Not at all capable to 7 = Extremely capable
Do you think you would have the capability to defend yourself?	1 = Definitely not to 7 = Definitely yes
How likely did you believe that the offender would have followed through with their threat?	1 = Extremely unlikely to 7 = Extremely likely
What was the crime that was committed?	a. Robbery b. Assault c. Abduction d. Drug Trafficking
What was the culprit wearing?	a. Hoodie b. Dress c. Overalls d. Suit

Appendix F – Data Quality Checks

Question	Response
Did you experience any technical difficulties with viewing the video and/or images? If yes, please describe the nature of the difficulty you experienced.	• No technical difficulties • Technical difficulty with the video • Technical difficulties with images • Technical difficulties with both video and images • Other
Did you cheat in any way? If yes, please explain how. Your answer will not affect your credit.	• Yes • No
Did you respond randomly? Your answer will not affect your credit.	• Yes • No • Sometimes
Have you ever done a study on eyewitness memory before?	• Yes • No
Have you ever seen a mock-crime video like the one we showed you before? That is, with the same scenario or actors, or in the same setting. If yes, when and where?	• Yes • No
Is there any reason why we should not include your data in our study? This will not affect your credit, but it helps us filter our data.	• Yes • No

Appendix G – Investigative Pressure Materials

Yes Investigative Pressure Script

You and Detective Reid walk into the elevator. Detective Reid: I'm sure you've heard of this person, they're dangerous. I'm so glad we finally have a suspect and I'm confident that they're the one, all thanks to you! The community has been in shambles, my kids lost all their friends because none of the neighbours will let their children out anymore! Finally, when you pick them out later there'll be justice served and peace restored. You'll be a real hero.

No Investigative Pressure Script

You and Detective Reid walk into the elevator. Detective Reid: How's it going! Weather's been kinda nice the past couple of days eh? I was thinking of hitting the track for a quick run later. My annual fitness test is coming up and I really need to shave off some of this weight. Let's just say that I've only recently found out how good Crumbl Cookie is...If you haven't tried them before, I suggest you stay away, they're addictive! Oh! Here's us, come with me.

Investigative Pressure Attention Checks and Manipulation Checks

Question	Response
What is the name of the detective?	a. Ron b. Reid c. Randell d. Randy
What was the detective wearing?	a. T-shirt b. Sweater c. Suit d. Uniform
How much pressure did detective Reid place on you?	1 = No Pressure to 7 = Extreme Pressure