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# When an Alibi Is Not Enough: Judgments of Evidence Needed to Lay Charges in a Burglary Case

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**Abstract** Laypersons were asked to assume the role of investigators to explore judgments of what evidence is needed to make an arrest in a criminal investigation when an alibi witness is present. Participants were sensitive to the relationship between the alibi witness and the suspect and were more likely to believe an alibi provided by someone unrelated to the suspect, as evidenced by requests for more physical evidence against the suspect than when the alibi corroborator was a family member. In addition, when presented with contradictory evidence, the age of the alibi witness became an important consideration. Age alone did not impact perceptions of evidence adequacy; however, when an (adult) eyewitness provided testimony that contradicted a child alibi witness, participants demonstrated partiality towards believing the child as evidenced by (a) more requests for physical evidence to be convinced the child was wrong and to arrest the suspect and (b) higher ratings of alibi witness credibility. This effect was not seen when the eyewitness's testimony contradicted an alibi provided by an adult. The results provide insight for investigators and legal counsel regarding the influence of varying types of alibi witness evidence.

**Keywords** Alibi witness · Evidence · Burglary · Mock investigation

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## Introduction

In many cases of wrongful conviction, exonerees were convicted despite the presence of an alibi (innocenceproject.org), indicating that this honest testimony was undervalued (Connors et al. 1996; Wells et al., 1998). The study of how alibi evidence is interpreted has really only been undertaken in earnest over the last decade or so (e.g., Burke and Turtle 2003; Dysart and Strange, 2012), with a substantive increase since the publication of Olson and Wells' (2004) taxonomy of physical and person evidence. In that time, researchers have established several alibi characteristics that predictably contribute to perceptions of suspect guilt or innocence (e.g., Allison et al. 2014; Culhane and Hosch 2004; Dahl et al. 2009; Hosch et al. 2011). In this paper, we extended this research by asking participants to assume the role of a mock investigator and indicate what additional evidence they would require to arrest a suspect when an alibi witness testified that the suspect could not have committed the crime. In doing so, we hoped to provide information about how lay examiners view and weigh different types of evidence in cases that contain alibi witness evidence.

When an investigator is pursuing a suspect who presents an alibi witness—a person claiming that the suspect was not at the crime location at the time of the crime—the credibility of this alibi evidence must be evaluated. How important is that alibi witness when deciding how much evidence is needed to build a successful case? Generally, alibis are understood to have an exonerating effect. However, when an alibi is corroborated, who corroborates that alibi is crucial to its believability (e.g., Burke and Turtle 2003; Culhane and Hosch 2004; Dysart and Strange 2012; Eastwood et al. 2016; Olson and Wells 2004; Sommers and Douglass 2007). Alibi witness characteristics, such as age and relationship with the suspect, have been established as having a significant impact on how

alibi witnesses are perceived (Culhane and Hosch 2004; Dahl and Price 2012; Olson and Wells 2004). Previous studies (e.g., Dahl and Price 2012; Price and Dahl 2014) have reported that the presence of an alibi witness can lead mock investigators to be less willing to arrest a suspect. However, we do not know what additional case evidence might contribute to viewing alibi witness evidence as questionable. To explore this question, we examined mock investigators' requests for additional evidence during an investigation as a proxy for perception of evidence strength. That is, we explored whether or not requests for more and for particular types of evidence would be made when the "investigators" perceived the case against the suspect to be relatively weak.

Existing research on the strength of alibi witness evidence has often explored the influence of witness characteristics in isolation. As convincingly argued by Charman (2013), our tendency as a field is to discuss a wrongful conviction as primarily due to a single factor (e.g., a false confession or mistaken eyewitness identification). However, police investigators are expected to integrate multiple pieces of evidence and make a single decision about whether or not to arrest a suspect. As a result, our propensity to focus on single factors overly simplifies the problem and creates a gap between research and application. This may lead researchers to underestimate the influence of any individual factor on the interpretation of other evidence in the case. That is, while a mistaken identification will undoubtedly lead investigators astray, what impact does that identification have on the evaluation of the strength of the evidence that follows (see Kassin et al. 2013)? This tendency to not fully attend to the context in which evidence is encountered is, of course, embedded within experimental designs that deliberately examine different pieces of evidence in isolation and is required for understanding the independent influences of evidence. However, this approach alone may also prevent us from understanding how a particular type of evidence contributes to the overall investigation. In the present work, we explored participants' reports of what they perceived to be the "missing evidence" against a burglary suspect in a case in which an alibi witness has come forward in the suspect's defense. That is, after recording their decisions about how they would proceed in a criminal investigation, we asked participants what additional evidence they would require to change their minds.

## Perceptions of Alibi Strength

In the extant literature, there are several variables that have been demonstrated to influence evaluations of alibi witness evidence (see Burke and Turtle 2003). Given the relative weight these variables lend to a suspect's claim of innocence, we can predict the impact that the presence of different forms of alibi witness evidence will have on a participant's desire for additional evidence prior to deciding to make an arrest.

**Relationship** Perhaps, the most clearly established factor that impacts perceptions of an alibi witness is the relationship he or she has with the suspect. Research has generally found that familial alibi witnesses are perceived as less credible (i.e., weaker alibi) than those who are unrelated to the suspect (e.g., Culhane and Hosch 2004; Culhane et al. 2008; Eastwood et al. 2016; Hosch et al. 2011; Lindsay et al. 1986; Olson and Wells 2004; Price and Dahl 2014). Reviews of wrongful conviction cases in the USA have found that innocent people have been convicted because their case contained "weak alibis" that were provided by someone close to the suspect (Connors et al. 1996; Wells et al. 1998). This more critical evaluation is thought to be due to a perception of the motivation behind a familial alibi witness; family or close friends are likely motivated to keep the suspect out of jail (Sullivan 1971). This is an especially interesting finding considering that, in many cases, a relative or family member is the only person in a position to provide an alibi (i.e., someone who lives in the same household). Although having a familial alibi witness may not necessarily translate into disbelief, previous research has found that familial alibi witnesses are perceived as less credible and, in some cases, may even have an incriminating effect on a suspect's case (e.g., Dahl and Price 2012). For the present research, we hypothesized that participants would require less additional evidence to arrest a suspect when an alibi was provided by a familial than a non-familial witness.

**Alibi Age** Children are generally perceived as being more honest, but less cognitively competent or accurate witnesses than adults (Bottoms and Goodman 1994; Connolly et al. 2010; Eastwood et al. 2016; Nunez et al. 2011; Ross et al. 2003; Wright et al. 2010). Thus, in cases where honesty is relatively more important when evaluating testimony, children may be perceived as more credible witnesses, whereas in cases that require more cognitive competency, children may be perceived as less credible than adult witnesses. For example, recent work by Eastwood et al. (2016) found that university students, law enforcements students, and police officers all rated an adult alibi witness as more believable than a child in an armed robbery case. Conversely, in a study that included a condition of a familial alibi witness, a condition that primes considerations of honesty, Dahl and Price (2012) found that an alibi provided by a child (either son or neighbor) had an exonerating effect on mock investigators' ratings of suspect guilt; however, an alibi provided by an adult son of the suspect had an incriminating effect on his case (i.e., resulted in higher guilt ratings than when no alibi witness was provided). Depending upon the nature of the evidence required, child witnesses of any relation may have more of an exonerating effect because they are seen as more credible sources of information than adults due to the general perception that children are less skillful liars (Ross et al. 1990). We anticipated

that we would observe a similar exonerating effect with the present data, given that our alibi witnesses had existing personal relationships with the suspect. Specifically, we hypothesized that elevated perceptions of believability for children would translate into requests for more incriminating evidence to arrest a suspect when the alibi was provided by a child rather than an adult.

**Eyewitness Identification** Both alibis and eyewitness identifications can be compelling forms of evidence (Dahl et al. 2006; Price and Dahl 2014; Wells and Olson 2003), but they can also contradict one another. The literature is not clear on how these two, potentially competing, forms of evidence are weighed. Some existing research suggests that recently presented evidence may be more persuasive than evidence presented earlier. Dahl et al. (2009), for example, found that when a positive eyewitness identification (ID) opposed a strong alibi, the more impactful of the two pieces of evidence was the one viewed most recently. Similarly, Price and Dahl (2014) found that the order in which the evidence was viewed impacted mock investigators' decisions about a suspect. However, the forensic confirmation bias (e.g., Kassin et al. 2012, 2013) suggests the opposite can occur: evidence received first can bias our interpretation of evidence received later.

The research suggests that both eyewitness and alibi witness evidence are weighed heavily during an investigation, yet it is not clear how these two types of evidence interact to shape perceptions of what evidence is required in a criminal investigation to arrest a suspect. Given that eyewitness evidence is compelling for mock investigators (e.g., Boyce et al. 2008; Price and Dahl 2014) and mock jurors (e.g., Cutler et al. 1990), we hypothesized that a positive eyewitness ID would moderate the exonerating effect of an alibi, as demonstrated through fewer requests for additional evidence to arrest the suspect. Further, we expected that characteristics surrounding the presentation of contradictory evidence (e.g., age) would impact evidence requests. In particular, due to the apparent superior believability of child alibi witnesses when a prior relationship between the suspect and the alibi witness exists (Dahl and Price 2012), we hypothesized that when positioned against the incriminating evidence provided by an (adult) eyewitness, evidence provided by a child alibi witness would have more of an exonerating effect than evidence provided by an adult alibi witness. And as such, we predicted that participants would continue to request additional information to arrest the suspect when an alibi was provided by a child, even when an eyewitness ID was present.

Finally, though the focus of the experimental designs in the alibi literature has typically been on person evidence, evidence can be categorized as either physical or person (Olson and Wells 2004). Physical evidence includes "hard" evidence, such as video, receipts, fingerprints, and DNA. Person evidence includes "soft" evidence provided by a person, such as eyewitness testimony. Both types of evidence can be used to corroborate information provided by an alibi witness; however, physical evidence is often more convincing as it is perceived as more difficult to fabricate than person evidence (e.g., Burke and Turtle 2003; Olson and Wells 2004). As a result, it is likely that when a participant doubts a suspect's guilt (i.e., decide not to arrest), he/she will request more physical than person evidence to be convinced otherwise.

### Present Research

Research has shown that alibi evidence can impact perceptions of other evidence (Kassin et al. 2012) as well as perceptions of suspect guilt (e.g., Dahl and Price 2012). However, it is not well understood how different characteristics of an alibi witness impact laymen's perceptions of what evidence is needed to build a successful case. In the present investigation, we asked participants to assume the role of a mock investigator to examine what type of evidence they believed would be needed to arrest a suspect when an alibi was present. In doing so, this research provides evidence as to what information legal decision makers, such as jurors, might expect to find in similar criminal court cases. Although police and other legal professionals rely on heuristics and biases (Kassin et al. 2005) just as lay people do (e.g., Aamodt and Custer 2006; Porter et al. 2000), we do not assert that these results will generalize to a police sample. It can be reasonably expected that police officers have vastly different experiences than undergraduate students and, thus, may weigh evidence differently (e.g., Burke and Turtle 2003; Casey and Mohr 2005; Sommers and Douglass 2007). Therefore, this research is intended to provide evidence of how laypersons weigh evidence in cases in which alibi evidence is present.

## Method

The present research is an extension of research previously reported elsewhere (Dahl and Price 2012; Price and Dahl 2014). We explored open-ended responses to requests for additional evidence that was collected using a mock investigation paradigm in which laypersons were asked to investigate a case of burglary. These responses are compiled across three experiments, each with different experimental conditions. For ease of interpretation, results are presented by hypothesis, rather than by study. A summary of the hypotheses and whether the evidence supports or contradicts each hypothesis can be found in Table 1.

**Table 1** Hypotheses and related evidence

| Hypotheses | Evidence: | Confirmed? |
|---|---|---|
| Participants would require less additional evidence to arrest a suspect when an alibi was provided by a familial than a non-familial witness | Study 1 (age × relationship) | Overall evidence requests—non-significant findings (low power)—similar pattern to results from Study 3.<br>Evidence type—yes—more physical evidence for neighbor than son alibi witness |
| | Study 3 (relationship × eyewitness ID × order) | Overall evidence requests—yes—more evidence requested for neighbor alibi witness.<br>Evidence type—non-significant findings (low power)—similar pattern to results from Study 1. |
| More incriminating evidence to arrest a suspect when the alibi was provided by a child rather than an adult | Study 1 (age × relationship) | Overall evidence requests—non-significant results indicate no support |
| | Study 2 (age × eyewitness ID) | Overall evidence requests—non-significant results indicate no support |
| When positioned against the incriminating evidence provided by an (adult) eyewitness, alibi evidence provided by a child would have more of an exonerating effect than evidence provided by an adult | Study 2 (age × eyewitness ID) | Overall evidence requests—yes—a significant age × ID interaction, whereby participants requested more evidence when an eyewitness ID counteracted a child's alibi testimony.<br>Evidence type—the above effect was due to differences in requests for physical evidence, not person evidence. |

## General Procedure

University student participants attended the lab individually and were asked to take on the role of a police officer in a mock investigation of a burglary (break and enter, in Canada). A visual diagram of the procedure can be seen in Fig. 1. A research assistant met with the participants and asked them to review a mock police file that provided an eyewitness's description of the crime and culprit. The eyewitness's statement provided a description of a 50-year-old male, Caucasian perpetrator leaving an empty warehouse holding some items that he later placed into his white vehicle and left. The eyewitness description was determined based on verbal reports of a crime video (3 min) provided by participants of a previous study (see Dahl et al. 2006 for full description of crime event). Participants were then asked to examine a computer database containing possible suspects—all with criminal records. The database contained written information about suspects' physical appearance, prior criminal record, current employment, and vehicles registered in their name. Participants were told that the guilty suspect may not be in the database, but were asked to examine all suspects before making a decision.

**Pre-evidence Evaluation** After examining all possible suspects, participants selected (both electronically and verbally to the experimenter) the suspect they thought was most likely to have committed the crime. The database was rigged to make one suspect stand out as the guilty suspect due to the

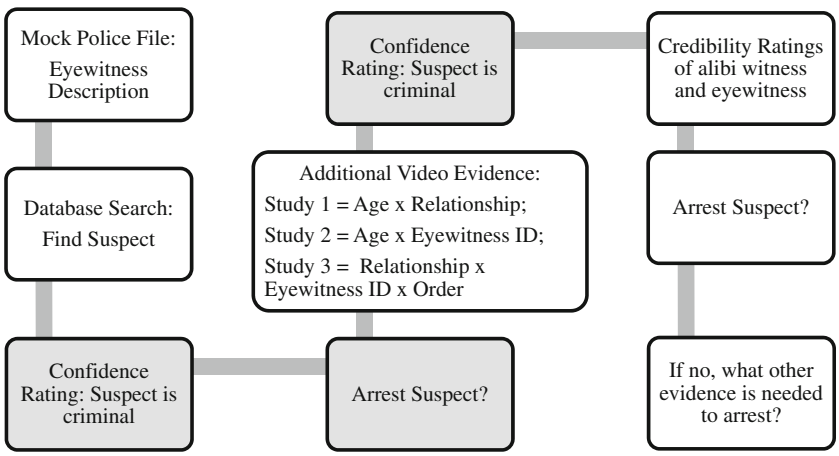


**Fig. 1** General procedure of Studies 1 through 3. Note that *shaded blocks* indicate procedure that was not relevant for the current analyses

physical description, previous criminal activity (i.e., previous burglary charges), and owning a vehicle similar to the one seen leaving the crime scene. Participants who did not select the target suspect did not continue with the study. Those who selected the guilty suspect were asked to rate (on a scale of 1 to 100 %) how confident they were that the suspect committed the crime. In addition, participants were asked to make a decision as to whether they would arrest the suspect with the current information available to them (i.e., did he appear to be the guilty suspect).[1]

**Evidence Manipulation** Next, all participants were presented with additional evidence in the form of video testimony via random assignment. The evidence varied across the three studies, but all videos were filmed in the same location with the same actors (all Caucasian males) and seating position. Two actors were filmed for each form of evidence and within each condition videos were pilot tested to ensure consistent believability across actors. With the exception of the manipulated variables, all scripts were consistent across the video evidence.

**Post-evidence Evaluation** After viewing the video evidence, participants were again asked to rate their confidence that the suspect committed the crime, rate the credibility of the alibi witness and eyewitness, and asked whether or not they would arrest the suspect given the new (i.e., video) evidence. If they said no, participants were asked to write down what additional evidence they would need to arrest the suspect (i.e., be convinced of the suspect's guilt). Responses to this latter open-ended question form the basis for the present analyses. Below is a description of the sample and manipulated variables of the three studies.

**Study 1** Participants included 180 undergraduate students ($N$ = 127 female; $M$ age = 23.13, range 18–60; 10 participants were removed from the full sample of 190 for not selecting the target suspect). Participants watched a video of either a child (6 years old) or an adult (25 years old) provides an alibi for the suspect. The alibi witness identified himself as either the son or neighbor of the suspect. In the video, the alibi witness reported that he was with the suspect for the entire day in question (watching sports on television). Videos were counterbalanced and each condition included two different actors (i.e., two 6 years olds and two 25 years olds) to ensure that results were not due to a particular actor. The scripts used by the child and adult actors during the films were identical, with the exception that the child indicated that he was with the suspect on the day of the crime because his mother was tending his sick grandmother, while the adult alibi witness did not provide justification for spending time with the suspect. This additional piece of information was included to alleviate concerns about an inappropriate relationship between the child and neighbor. This study was a 2 (alibi witness age: 6 years old, 25 years old) × 2 (relationship: son, neighbor) between-subjects design. Recall that inclusion in the present analyses required participants to indicate a lack of willingness to arrest the suspect (because they were asked to indicate what additional information they would need to arrest the suspect). More participants from the 6-year-old condition decided not to arrest the suspect, resulting in more participants in the child alibi witness condition than in the adult alibi witness condition. However, the sample sizes of these two age groups were relatively evenly dispersed across relationship conditions.

**Study 2** Participants were (a separate) 179 undergraduate students ($N$ = 139 female; $M$ age = 22.22, range 17–59; 17 participants were removed from the full sample of 196 for not selecting the target suspect). Participants watched a video of either a child (6 years old) or an adult (25 years old) providing an alibi for the suspect. All actors in this study identified themselves as the suspect's son.[2] In addition, participants saw an eyewitness identify the participant's suspect during a lineup task or indicated that the suspect was not present in the lineup. During the eyewitness video, the interviewer questioned the witness about the crime and physical description of the perpetrator. The video then depicted the eyewitness being presented with a lineup and either selecting the suspect or reporting that the perpetrator was not in the lineup (lineups were the same in both conditions). This study was a 2 (alibi witness age: 6 years old, 25 years old) × 2 (ID decision: ID suspect, not present) between-subjects design. After participants who choose to arrest the suspect were removed, sample size was relatively even across conditions.

**Study 3** Participants were (a separate) 180 undergraduate students ($N$ = 139 female; $M$ age = 22.93, range 18–52; 29 participants were removed from the full sample of 209 for not selecting the target suspect). Participants watched a video of an adult son or neighbor providing an alibi for the suspect (there was no child alibi witness in this experiment). The participants also saw an eyewitness either (i) identify the participant's suspect during a lineup task, (ii) indicate the suspect was not present, or (iii) indicate that they were not sure about the suspect's presence in the lineup. Lastly, this study manipulated the order in which participants viewed the additional video evidence—presenting either the alibi or eyewitness testimony first. This study was a 2 (alibi relationship: son,

[1] This first rating, prior to the introduction of experimental manipulations, was not the focus of the present study and is not discussed further.

[2] Though there is obviously a large age difference between a 6 years old and a 25 years old, many 50-year-old males are now the fathers of a child of either of these two ages.

**Table 2** Requests for additional evidence

| | *M* (*SD*) | Study 1: age × relationship | Study 2: age × ID | Study 3: relationship × ID × order |
|---|---|---|---|---|
| Total sample size (did not arrest) | | *N* = 126 | *N* = 134 | *N* = 125 |
| Participants requesting evidence | | *n* = 58 | *n* = 132 | *n* = 123 |
| Physical evidence | 0.96 (1.31) | .39 | .46 | .46 |
| Concrete/solid evidence | | .39 | .43 | .38 |
| Possession of stolen items | | .27 | .24 | .33 |
| Fingerprints | | .22 | .14 | .12 |
| DNA | | .00 | .05 | .03 |
| Vehicle evidence | | .12 | .13 | .13 |
| Person evidence | 1.07 (1.09) | .56 | .49 | .49 |
| Alibi | | .54 | .38 | .29 |
| Better eyewitness evidence | | .19 | .35 | .26 |
| Interview of suspect | | .08 | .11 | .16 |
| Motive | | .11 | .09 | .14 |
| Background | | .08 | .07 | .12 |
| Polygraph/confession | | .00 | .01 | .01 |
| Other (further investigation) | 0.12 (0.37) | .06 | .06 | .05 |
| Total evidence requested | 2.15 (1.68) | 153 | 362 | 311 |

neighbor) × 2 (order of evidence: alibi first, eyewitness first) × 2 (ID decision: ID suspect, not present, unsure) between-subjects design. After participants who choose to arrest were removed, sample size was relatively even across conditions.

### Coding

Responses to the question "What additional information would you need to convince you to arrest the suspect for the crime?" were coded as either physical evidence (i.e., fingerprints, concrete/solid evidence, DNA, location of stolen items, vehicle evidence) or person evidence (i.e., an/more eyewitnesses, eyewitness identification of suspect, interview suspect, additional alibi information, motive, further investigation into background of suspect, confession/polygraph, information on witness accuracy).[3] Inter-rater reliability was established between two independent coders and the ICC values (Cronbach's Alpha) were high (i.e., there was low variation between raters; Techovanich et al. 1998) and fell well above the acceptable ranged (ICC > .75 = excellent inter-rater agreement, Cicchetti and Sparrow 1981), $\alpha$ = .90 (Person) and .92 (Physical). For a detailed list of the evidence requested, see Table 2.

[3] Note. Most participant responses were coded as either person or physical evidence. There was a small proportion (approximately 5 %) that was too broad (e.g., "more investigation is needed"). These pieces of evidence were excluded from further analysis but are presented in Table 2 for completeness.

## Results

### Overall Evidence Requested

For each of the three studies, approximately two thirds of participants (Study 1 = 70 %; Study 2 = 75 %; Study 3 = 69 %, total *n* = 385) decided against arresting the suspect. Of these, 313 participants specified additional information or evidence that would be needed to arrest the suspect. Across all requests for additional evidence, a total of 826 pieces of additional evidence (*M* = 2.15, *SD* = 1.68) were requested before participants were willing to arrest the suspect. Across all three studies, participants requested more person (50 % of all evidence requested) than physical (46 %) evidence.

The amount of person and physical evidence did not vary statistically within Study 2 [*t* (133) 1.26, *p* = .23] or Study 3 [*t* (124) 1.17, *p* = .24]. In Study 1, however, participants requested significantly more person than physical evidence, *t* (125) 2.54, *p* = .01, Cohen's *d* = 0.27. When looking at specific type of evidence requests, more alibi evidence was requested in Study 1, relative to Study 3, *z* = 2.31, *p* = .03, Cohen's *h* = 0.51. Alibi requests in Study 2 were not different from Study 1 or Study 3, all *p*'s > .05. For a complete breakdown of evidence requested by study, see Table 2.

It is also interesting that notably fewer participants from Study 1 (examining age and relationship of alibi witness) requested additional evidence compared to Studies 2 (age of alibi witness and eyewitness identification) and 3 (adult relationship of alibi witness and eyewitness identification).

Though we did not anticipate this difference across studies, it is possible that requests for evidence (or lack thereof) are due, in part, to the presentation of contradictory evidence. Study 1 was the only of the three studies that did not present evidence that contradicted the alibi witness evidence (i.e., eyewitness identification evidence). It is possible that the presence of this contradictory evidence in Studies 2 and 3 may have created more uncertainty for participants and, in turn, they requested more evidence to make a decision. When participants were not presented with conflicting evidence, such as in Study 1, they may not have felt the need to request more.

### Is More Evidence Requested After Viewing a Non-familial Alibi Witness Statement?

**Total Evidence Requests** To test this hypothesis, data from Study 1 and Study 3 were examined. For Study 3, as expected, participants requested significantly more evidence to arrest the suspect when the alibi was provided by a neighbor ($M$ = 2.75, $SD$ = 1.56) than when the alibi witness was the suspect's son ($M$ = 2.21, $SD$ = 1.05), $F$ (1, 123) = 5.03, $p$ = .03, $\eta p^2$ = .04, suggesting that the neighbor-corroborated alibi was perceived as more credible, and therefore required more evidence to dispute it. A similar, non-significant pattern was found in Study 1 wherein participants requested more evidence when the alibi witness was a neighbor ($M$ = 1.37, $SD$ = 1.74) than when the alibi witness was the suspect's son ($M$ = 1.05, $SD$ = 1.54), $F$ (1, 124) = 1.19, $p$ = .28, $\eta p^2$ = .01. The lack of significant effects in Study 1 may be due to low power (observed power = .19), as there were far fewer responses to analyze in Study 1 than the other studies. However, the similar pattern of responding across these two studies implies that the relationship an alibi witness has with a suspect was an important piece of information taken into account when weighing the adequacy of the evidence and deciding whether or not to make an arrest. To further explore this finding, we next examined the types of evidence requested by participants in each relationship condition.

**Requests for Person and Physical Evidence** Overall, there were no significant differences in the total number of evidence requests by alibi relationship; however, differences emerged when different types of evidence were examined. In Study 1, participants requested significantly more physical evidence when the alibi was provided by a neighbor ($M$ = 0.64, $SD$ = 1.11) than when it was provided by the suspect's son ($M$ = 0.28, $SD$ = 0.71), $F$ (1, 124) = 4.83, $p$ = .03, $\eta p^2$ = .04. In Study 3, though not statistically significant (observed power = .37), $F$ (1, 123) = 2.69, $p$ = .10, $\eta p^2$ = .02, slightly more physical evidence was requested when the alibi was provided by a neighbor ($M$ = 1.32, $SD$ = 1.45) than when it was provided by a son ($M$ = 0.95, $SD$ = 1.09). There were no differences in the amount of person evidence requested in either study (both $p$'s > .31). Thus, it appears that more "hard" evidence is requested when the alibi witness evidence is of a particularly persuasive nature.

### How Did Alibi Witness Age and Eyewitness ID Influence Investigator Requests for More Evidence?

**Total Evidence Requests** Given that an interaction between alibi witness age and eyewitness ID was anticipated, the analyses of these hypotheses are presented together. First, to test for an overall age effect, data from Study 1 and Study 2 were examined. For Study 1, there was no significant difference in the amount of additional evidence requested by participants when the alibi witness was a child ($M$ = 1.28, $SD$ = 1.72) or an adult ($M$ = 1.09, $SD$ = 1.52), $F$ (1, 124) = .40, $p$ = .53, $\eta p^2$ = .003. Likewise, Study 2 revealed similar requests for additional evidence when the alibi witness was a child ($M$ = 2.67, $SD$ = 1.48) or an adult ($M$ = 2.74, $SD$ = 1.75), $F$ (1, 130) = .01, $p$ = .91, $\eta p^2$ = .00. Thus, contrary to expectations, alibi witness' age alone did not contribute to a request for additional evidence.

In addition to our hypothesis that a positive eyewitness ID would result in fewer requests for evidence in order to arrest a suspect, we also hypothesized that the presence of an eyewitness identification may interact with alibi witness age, such that participants would request more evidence to arrest a suspect when an eyewitness contradicted a child alibi witness than when he contradicted an adult alibi witness. To test this hypothesis, data from Study 2 were examined. Study 2 revealed no significant main effect of eyewitness ID, $F$ (1, 130) = 0.19, $p$ = .67, $\eta p^2$ = .001, on the number of additional pieces of evidence requested; however, there was a significant interaction between alibi age and presence of an eyewitness ID, $F$ (1, 130) = 7.18, $p$ = .01, $\eta p^2$ = .05. As can be seen in Fig. 2, when looking only at alibis corroborated by an adult, participants requested similar amounts of evidence when an eyewitness ID was made ($M$ = 2.41, $SD$ = 1.32) as when no ID was made ($M$ = 2.62, $SD$ = 1.69), $F$ (1, 130) = 2.35, $p$ = .13, $\eta p^2$ = .02. However, when alibis were provided by a child, participants requested more

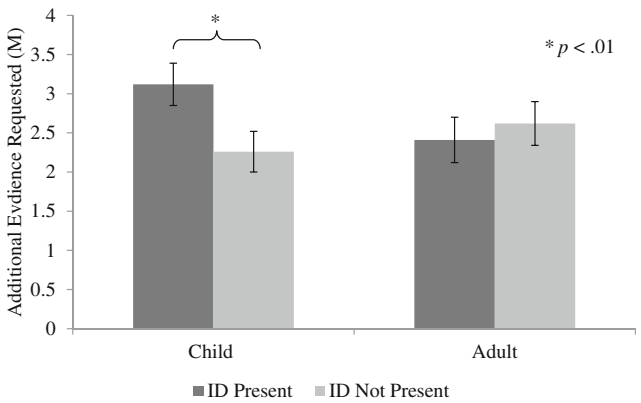


**Fig. 2** Alibi age × eyewitness ID interaction. Note that *error bars* represent standard error

evidence when an eyewitness identified the suspect as the culprit ($M$ = *3.12*, $SD$ = 1.61) than when no ID was made ($M$ = 2.26, $SD$ = 1.25), $F$ (1, 130) = 5.24, $p$ = .02, $\eta p^2$ = .04.

**Requests for Person and Physical Evidence** The above interaction was driven by differences in requests for physical evidence, $F$ (1, 130) = 6.25, $p$ = .01, $\eta p^2$ = .05. For the child alibi witness, participants requested significantly more physical evidence when an eyewitness ID was made ($M$ = 1.44, $SD$ = 1.60) than when no ID was made ($M$ = .76, $SD$ = 1.02), $F$ (1, 130) = 3.85, $p$ = .05, $\eta p^2$ = .03. For adults, there were no differences in the amount of physical evidence requested when no eyewitness ID was made ($M$ = 1.70, $SD$ = 1.86) than when an ID was made ($M$ = 1.10, $SD$ = 1.26), $F$ (1, 130) = 2.53, $p$ = .11, $\eta p^2$ = .02.

**Perceived Credibility of Alibi Provider** Participants asked for more evidence after viewing a child alibi witness combined with an eyewitness identification, but this difference did not exist for adult alibi witnesses. To further understand this interaction, we explored credibility ratings given to alibi witnesses that were provided by participants as part of the previously reported components of this research (Dahl and Price 2012; Price and Dahl 2014). In these studies, following all other dependent measures, participants (taking the role of a mock investigator) were asked to provide judgements of alibi witness credibility on a 10-point scale (where a higher number indicated greater credibility). Separate univariate analyses of variance (ANOVA) were conducted to compare the mean credibility ratings provided to child and adult alibi witnesses when an eyewitness ID was present and when an ID was not present. When an eyewitness ID was not present, participants rated the credibility of the adult alibi witness ($M$ = 2.93, $SD$ = 1.15) similar to the child alibi witnesses ($M$ = 3.22, $SD$ = 1.04), $F$ (1, 87) = 1.56, $p$ = .22, $\eta p^2$ = .02. However, when an ID was present in a case, participants rated the child eyewitness as more credible ($M$ = 2.80, $SD$ = 1.50) than the adult ($M$ = 2.20, $SD$ = 0.92), $F$ (1, 88) = 5.23, $p$ = .03, $\eta p^2$ = .06. These results indicate that the presence of an exculpatory eyewitness identification impacted perceptions of alibi witness credibility, such that the child was seen as more credible (and more evidence was requested) when set against an eyewitness identification than the adult similarly set against an eyewitness identification.

## Discussion

Participants assumed the role of a mock investigator in order to examine how different alibi witness characteristics impacted perceptions of what evidence might be lacking in a criminal investigation. Participants were sensitive to certain characteristics of an alibi witness—namely, relationship with the suspect and, in the company of contradictory evidence, age. These findings shed light on how alibi evidence may be interpreted in a criminal context and also provide support for an additional method through which researchers can explore the weight given to an alibi witness: requests for further evidence.

The relationship between an alibi witness and a suspect continues to be an important factor when weighing evidence in a legal context. In order to be willing to arrest the suspect, participants requested much more (physical) evidence to counteract the exonerating effect of a non-familial alibi witness than a familial alibi witness—further supporting the existing evidence in the literature that a non-familial alibi witness is the stronger of the two types of evidence (Culhane and Hosch 2004; Wells et al. 1998). That is, these findings clearly support the notion that a non-relative alibi witness casts more doubt about a suspect's guilt than a related alibi witness.

A more novel finding was how alibi witness age and eyewitness identification evidence impacted requests for additional information. When contradictory evidence exists in a case (i.e., competing eyewitness and alibi witness testimony), mock investigators have been found to weigh this information using a recency effect; the information presented most recently is more influential on decision-making (Dahl et al. 2009; Price and Dahl 2014). The results from the present investigation indicate that alibi witness age (which, in this study, made honesty a salient factor) is another important consideration when weighing contradictory evidence. Alone, age did not impact evidence requests. However, when an (adult) eyewitness provided testimony that contradicted the child alibi witness, an interesting pattern emerged. Rather than a positive eyewitness ID increasing the belief that the suspect should be arrested, participants required even more physical evidence to arrest the suspect compared to when no contradictory evidence was presented. This effect was not seen when the eyewitness's testimony contradicted an alibi provided by an adult. Dahl and Price (2012) reported a similar pattern; testimony from a child alibi witnesses reduced perception of suspect guilt whereas testimony from an adult witness increased perceptions of suspect guilt.

The exonerating effect of testimony from a child witness is an important finding as it helps inform the discussion regarding credibility of children as witnesses. Children's testimony appears to have been evaluated as credible when it conflicted with an adult eyewitness's testimony. Moreover, these results provide insight into the contexts in which a typically impactful form of evidence, eyewitness evidence, may be overshadowed. As Wells et al. (2006) point out, most criminal cases require a "profound level of proof for exonerating evidence to trump eyewitness identification evidence" (p. 46). To make their case, Wells et al. (2006) describe one case among many (State of Maryland v. Kirk N. Bloodsworth, 543 A.2d 382 (76 Md. App. 23,1988)) in which the existence of

exonerating DNA evidence (i.e., semen) was not enough to counteract what eyewitnesses said happened. Within the context of the studies presented here, a convincing eyewitness provided strong evidence of the suspect's guilt. Hearing persuasive evidence from an eyewitness that counteracted the adult alibi witness's testimony resulted in an expected outcome: participants were more convinced of the suspect's guilt as demonstrated by fewer requests for evidence. However, participants experienced something unique when hearing exculpatory information from a child—they placed more value on the child's testimony. Thus, it appears that the child alibi witness in the present study was perceived as "profound" enough to counteract the eyewitness evidence, supporting previous findings that mock investigators (Dahl and Price 2012) and jurors (Ross et al. 1990) are partial towards believing a child witness.

Why are we driven to believe a child witness even when faced with strong contradictory evidence? A likely answer stems from perceptions of children as less able (due to cognitive ability) to construct elaborate lies to protect someone (Bottoms and Goodman 1994; Ross et al. 1990; Ross et al. 2003). Dahl and Price (2012) argued that mock investigators may not believe that children are capable of lying believably to protect a loved one. Perhaps, belief in a child witness provides evidence that layman examiners value honesty over cognitive ability when evaluating alibi testimony.

An alternative explanation for the increase in requests for additional evidence after receiving alibi evidence from a child that contradicts eyewitness evidence may be that the evaluator believes the child is telling the truth but has concerns about the child's accuracy (e.g., Ross et al. 2003). If someone is concerned about a child's accuracy or others' perceptions of the child's accuracy (e.g., an attorney, judge or jury), he or she may request additional evidence to corroborate the child's account. However, given that credibility evaluations were higher for the child than the adult alibi witness when their testimony was pitted against an incriminating eyewitness identification, the present data suggest this is likely not the driving mechanism. Nonetheless, it is likely that investigators consider a multitude of factors, perhaps including the concerns described above.

This is the first study, to our knowledge, that has investigated the type of evidence laypersons assuming the role of investigators believe they would need to make an arrest in a burglary investigation. Contrary to expectations, participants requested more person evidence than physical evidence overall. The simple frequency of requests for person evidence is worthy of comment. The research design provided participants exclusively with person evidence which may have primed them to think more about person evidence and, ultimately, request more evidence of a similar nature. The frequency of person evidence requests may also point to the lack of knowledge among laymen about the dangers of witness testimony. There is a large literature (e.g., Olson and Wells 2004; Wells et al. 2006) on the persuasiveness of person evidence, despite growing concerns about reliance on such evidence (e.g., Pezdek 2012; Wells and Olson 2003).

Although participants requested large amounts of additional person evidence, it was requests for physical evidence that varied across different alibi witness conditions. Participants wanted more physical evidence in order to arrest a suspect when a child alibi witness or an adult neighbor alibi witness was present. We know from previous reports (Dahl and Price 2012 and Price and Dahl 2014) that these two alibi conditions led mock investigators to believe that the suspect was less likely to be guilty and, as such, suspects were arrested less often. The present investigation supplements those findings by demonstrating that layman examiners would need more physical evidence to feel comfortable arresting the suspect. It is likely that these decisions are strongly influenced by physical evidence because it is perceived as difficult to fabricate (Olson and Wells 2004). Thus, it follows that when an alibi witness is perceived as largely unmotivated to lie for a suspect (i.e., a non-familial or a child), police or triers of fact will ultimately require physical evidence to be convinced of a suspect's guilt.

Requests for additional evidence can translate into perceptions of what evidence is thought to be commonly available in burglary cases. As indicated by the common requests for fingerprint and "solid" physical evidence, these results suggest moderately inflated expectations about the type and quality of evidence needed for charging a suspect in a burglary case. Perhaps, future investigations involving crimes of a more serious nature (e.g., murder) will reveal a more reasonable expectation of available evidence. There has been broad interest in the role of media on laypeople's expectation of physical evidence available for use in criminal convictions (e.g., Baskin and Sommers 2010; Casey and Mohr 2005). Media outlets themselves may contribute to the perpetuation of the belief that forensically related television shows are negatively impacting the public's understanding of forensic evidence (i.e., the *CSI effect*; Cole 2013). However, the evidence for the existence of such an effect and its impact on decisions of guilt are unclear (Holmgren and Fordham 2011; Podlas 2006; Shelton et al. 2006). Conducting studies that examine requests for evidence, such as the present study, is an important step to further explore when and under what circumstances laypeople expect forensic evidence.

## Conclusions

This study examined how alibi witnesses can impact perceptions of what evidence might be lacking in a criminal investigation. The results highlight that, within the context of a burglary, alibi witness evidence can influence the value of other

pieces of evidence differently—depending on the relationship between the suspect and alibi witness and on the age of the alibi provider. The results provide valuable insight for police officers and legal counsel who are responsible for conducting investigations and compiling cases for court. Given that this study evaluated layperson's perceptions of evidence strength, these results may reflect juror's expectations of what evidence should be presented in a burglary trial in which an alibi witness has come forward. If police and attorneys have a case in which a non-familial or child alibi witness has come forward in defense of the suspect, investigators or legal counsel may want to consider the important role that physical evidence has in offsetting the alibi and convincing a jury of a suspect's guilt.

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## References

Aamodt MG, Custer H (2006) Who can best catch a liar?: A meta-analysis of individual differences in detecting deception. Forensic Examiner 15:6–11. doi:10.1007/s10979-008-9151-y

Allison M, Jung S, Sweeney L, Culhane SE (2014) The impact of illegal alibi activities, corroborator involvement and corroborator certainty on mock juror perceptions. Psychiatry Psychol Law 21:191–204. doi:10.1080/13218719.2013.803275

Baskin D, Sommers I (2010) The influence of forensic evidence on the case outcomes of homicide incidents. J Crim Just 38:1141–1149. doi:10.1016/j.jcrimjus.2010.09.002

Bottoms BL, Goodman GS (1994) Perceptions of children's credibility in sexual assault cases. J Appl Soc Psychol 24:702–732. doi:10.1111/j.1559-1816.1994.tb00608.x

Boyce MA, Lindsay DS, Brimacombe CAE (2008) Investigating investigators: examining the impact of eyewitness identification evidence on student-investigators. Law Hum Behav 32:439–453. doi:10.1007/s10979-007-9125-5

Burke TM, Turtle JW (2003) Alibi evidence in criminal investigations and trials: psychological and legal factors. Canadian Journal of Police and Security Services 1:286–294

Casey S, Mohr P (2005) Law-and-order politics, public-opinion polls and the media. Psychiatry Psychol Law 12:141–151. doi:10. 1375 /pplt.2005.12.1.141

Charman SD (2013) The forensic confirmation bias: a problem of evidence integration, not just evidence evaluation. Journal of Applied Research in Memory and Cognition 2:56–58. doi:10.1016/j.jarmac.2013.01.010

Cicchetti D, Sparrow S (1981) Developing criteria for establishing interrater reliability of specific items: applications to assessment of adaptive behavior. Am J Ment Defic 86:127–137

Cole SA (2013) A surfeit of science: the "CSI effect" and the media appropriation of the public understanding of science. Public Underst Sci . doi:10.1177/0963662513481294online first

Connolly DA, Price HL, Gordon HM (2010) Judicial decision-making in timely and delayed prosecutions of child sexual abuse in Canada: a study of honesty and cognitive ability in assessments of credibility. Psychology, Public Policy & Law 16:177–199. doi:10.1037/a0019050

Connors E, Lundregan T, Miller N, McEwan T (1996) Convicted by juries, exonerated by science: case studies in the use of DNA evidence to establish innocence after trial. National Institute of Justice, Alexandria, VA

Culhane SE, Hosch HM (2004) An alibi witness' influence on mock jurors' verdicts. J Appl Soc Psychol 34:1604–1616. doi:10.1111/j.1559-1816.2004.tb02789.x

Culhane SE, Hosch HM, Kehn A (2008) Alibi generation: data from US Hispanics and US non-Hispanic Whites. Journal of Ethnicity in Criminal Justice 6:177–199. doi:10.1080/15377930802243395

Cutler BL, Penrod SD, Dexter HR (1990) Juror sensitivity to eyewitness identification evidence. Law Hum Behav 14:185–191

Dahl LC, Price HL (2012) "He couldn't have done it, he was with me!": The impact of alibi witness age and relationship. Appl Cogn Psychol 26:475–481. doi:10.1002/acp.2821

Dahl LC, Lindsay DS, Brimacombe CAE (2006) Investigating investigators: examining witnesses' influence on investigators. Law Hum Behav 30:707–732. doi:10.1007/s10979-006-9012-5

Dahl LC, Brimacombe CAE, Lindsay DS (2009) Investigating investigators: how presentation order influences participant investigators' interpretations of eyewitness identification and alibi evidence. Law Hum Behav 33:368–380. doi:10.1007/ s10979-008-9151-y

Dysart JE, Strange D (2012) Beliefs about alibis and alibi investigations: a survey of law enforcement. Psychol Crime Law 18:11–25. doi:10.1080/1068316X.2011.562867

Eastwood J, Snook B, Au D (2016) Safety in numbers: a policy-capturing study of the alibi assessment process. Appl Cogn Psychol 30:260–269. doi:10.1002/acp.3200

Holmgren JA, Fordham J (2011) The CSI effect and the Canadian and the Australian jury. J Forensic Sci 56:S63–S71

Hosch HM, Culhane SE, Jolly KW, Chavez RM, Shaw LH (2011) Effects of an alibi witness's relationship to the defendant on mock jurors' judgments. Law Hum Behav 35:127–142. doi:10.1007/s10979-010-9225-5

Kassin SM, Meissner CA, Norwick RJ (2005) I'd know a false confession if I saw one: a comparative study of college students and police investigators. Law Hum Behav 29:211–227. doi:10.1007/s10979-005-2416-9

Kassin SM, Bogart D, Kerner J (2012) Confessions that corrupt evidence from the DNA exoneration case files. Psychol Sci 23:41–45. doi:10.1177/0956797611422918

Kassin SM, Dror IE, Kukucka J (2013) The forensic confirmation bias: problems, perspectives, and proposed solutions. Journal of Applied Research in Memory and Cognition 2:42–52. doi:10.1016/j.jarmac.2013.01.001

Lindsay RC, Lim R, Marando L, Cully D (1986) Mock-juror evaluations of eyewitness testimony: a test of metamemory hypotheses. J Appl Soc Psychol 16(5):447–459. doi:10.1111/j.1559-1816.1986.tb01151.x

Nunez N, Kehn A, Wright DB (2011) When children are witnesses: the effects of context, age and gender on adults' perceptions of cognitive ability and honesty. Appl Cogn Psychol 25:460–468. doi:10.1002/acp.1713

Olson EA, Wells GL (2004) What makes a good alibi? A proposed taxonomy. Law Hum Behav 28:157–176. doi:10.1023/B:LAHU.0000022320.47112.d3

Pezdek K (2012) Fallible eyewitness memory and identification. In: Cutler BL (ed) Conviction of the innocent: lessons from psychological research. American Psychological Association, Washington, DC, US, pp. 105–124

Podlas K (2006) "The CSI effect": exposing the media myth. Fordham Intellectual Property, Media & Entertainment Law Journal 16:429–465

Porter S, Woodworth M, Birt AR (2000) Truth, lies, and videotape: an investigation of the ability of federal parole officers to detect deception. Law Hum Behav 24:643–658. doi:10.1023/A:1005500219657

Price HL, Dahl LC (2014) Order and strength matter for evaluation of alibi and eyewitness evidence. Appl Cogn Psychol 28:143–150. doi:10.1002/acp.2983

Ross DF, Dunning D, Toglia MP, Ceci SJ (1990) The child in the eyes of the jury. Law Hum Behav 14:5–23

Ross DF, Jurden FH, Lindsay RCL, Keeney JM (2003) Replication and limitations of a two-factor model of child witness credibility. J Appl Soc Psychol 33:418–431

Shelton DE, Kim YS, Barak G (2006) A study of juror expectations and demands concerning scientific evidence: does the "CSI effect" exist? Vanderbilt Journal of Entertainment and Technology Law 9:331–368

Sommers SR, Douglass AB (2007) Context matters: alibi strength varies according to evaluator perspective. Leg Criminol Psychol 12:41–54. doi:10.1348/135532506X114301

Sullivan TP (1971) Presentation of the defence. The Journal of Criminal Law, Criminology, and Police Science 62:153–172

Techovanich W, Talbot RC, Wajswelner H, Kelly DH, Bennell KL, Hall AJ (1998) Intra-rater and inter-rater reliability of a weight bearing lunge measure of ankle dorsiflexion. Australian Journal of Physiotherapy 44:175–180

Wells GL, Olson EA (2003) Eyewitness testimony. Annu Rev Psychol 54:277–295. doi:10.1146/annurev.psych.54.101601.145028

Wells GL, Small M, Penrod S, Malpass RS, Fulero SM, Brimacombe CE (1998) Eyewitness identification procedures: recommendations for lineups and photospreads. Law Hum Behav 22:603–647. doi:10.1023/A:1025750605807

Wells GL, Memon A, Penrod SD (2006) Eyewitness evidence improving its probative value. Psychol Sci Public Interest 7:45–75. doi:10.1111/j.1529-1006.2006.00027.x

Wright DB, Hanoteau F, Parkinson C, Tatham A (2010) Perceptions about memory reliability and honesty for children of 3 to 18 years old. Leg Criminol Psychol 15:195–207. doi:10.1348/135532508X400347