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Does Video Recording Inhibit Crime Suspects? Evidence From a Fully Randomized Field Experiment

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In partnership with a small city police department, we randomly informed or did not inform 122 crime suspects that their interrogations were being video-recorded. Coding of all sessions indicated that camera-informed suspects spoke as often and as much as did those who were not informed; they were as likely to waive *Miranda* at the outset and later; they were as likely to make admissions and confessions, not just denials; and they were perceived no differently by detectives on a range of dimensions. Looking at distal outcomes, we observed no differences in ultimate case dispositions. In terms of policy and practice, results did not support the hypothesis that recording—even when transparent, as required in 2-party consent states—inhibits suspects or alters case dispositions. At least for now, this conclusion is empirically limited to situations in which cameras are concealed and to interrogations that do not involve juveniles, homicides, or drug crimes, which we a priori excluded from our sample.

Public Significance Statement
In recent years, many police departments have begun to record interrogations. Some departments inform suspects as such; others do not, believing it will adversely affect processes and outcomes. We tested this hypothesis in a study of real suspects who were randomly informed or not informed that their interrogations would be recorded. No significant differences were found in terms of how often or how much they spoke, their tendency to waive *Miranda* rights or make admissions of guilt, the extent to which detectives perceived them to be talkative and cooperative, or final case dispositions.

Keywords: police interviews, interrogations, confessions

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In recent years, numerous wrongful conviction cases in which false confessions were a contributing factor and research on the causes and consequences of false confessions have inspired calls for reform. Some proposals seek ways to protect vulnerable suspects such as juveniles and people with intellectual or emotional impairments; others call for the reform of police interrogation practices, banning the use of certain confrontational tactics in favor of investigative interviewing (for reviews, see Gudjonsson, 2018; Kassin & Gudjonsson, 2004; Lassiter & Meissner, 2010; for a survey of experts supportive of these reforms, see Kassin, Redlich, Alceste, & Luke, 2018). Perhaps the most significant proposed safeguard is to require the electronic recording of interrogations—the entire process, not just the confession. As stated in a American Psychology-Law Society white paper: "Without equivocation, our most essential recommendation is to lift the veil of secrecy from the interrogation process in favor of the principle of transparency" (Kassin et al., 2010, p. 25).

At present, 25 states and the District of Columbia require the full recording of custodial interrogations; 25 states do not (the FBI and other federal agencies adopted this policy only recently; see Harvard Law Review, 2015). This split betrays a history of debate regarding what constitutes good policy and practice. On the one hand, various professional organizations have favored mandatory recording (e.g., American Bar Association, 2004; American Psychological Association, 2014) and surveys of individual law enforcement investigators have yielded supportive results (Geller, 1993; Kassin et al., 2007; Sullivan, 2004). For example, Sullivan, Vail, and Anderson (2008) interviewed police from hundreds of departments that recorded custodial interrogations and found that they cited numerous benefits of recording (e.g., it allows detectives to attend to the suspect without concurrent note-taking; it allows them to review the sessions for any incriminating comments initially unnoticed; it reduces the need for detectives to defend their interrogation practices in court). Yet others have opposed recording either on pragmatic grounds (e.g., citing the scope of such a requirement; financial costs; the evidentiary consequences of a failure to comply; and issues of consent, especially in two-party consent states) or out of concern for how recording will alter the behavior of both police and suspects during interrogation and the subsequent decision-making of judges and juries (for a summary of these arguments, see Sullivan, 2008; Thurlow, 2005; for historical overviews, see Drizin & Reich, 2004; Leo, 2008).

What are the actual effects of video recording on the behavior of police, suspects, judges and juries? To inform this debate, recent research has begun to examine the effects of recording on relevant participants. In one study, Kassin, Kukucka, Lawson, and DeCarlo (2014) tested the hypothesis that recording would deter the use of psychologically coercive interrogation tactics, presumably by increasing accountability. At a police station, experienced investigators interrogated male suspects who were either guilty or innocent of a mock theft. By random assignment, researchers informed some investigators but not others that their session would be surreptitiously recorded. As predicted, camera-informed police were less likely than those uninformed to use both maximization and minimization tactics; suspects also perceived them as trying less hard to get them to confess.

In a second study, Kassin, Kukucka, Lawson, and DeCarlo (2017) examined another purported benefit of recording interrogations—that it would provide a more accurate record and thereby improve the fact finding of juries. In Phase 1, experienced officers investigated a mock crime scene, interrogated two innocent suspects, and filed an incident report. Covertly, the researchers recorded all sessions. In Phase 2, lay observers read about the case, after which they read either a police report or a verbatim transcript of the interrogation. Results showed that police understated within the reports their use of various tactics. As such, Phase 2 observers who read a report, compared to those who read a transcript, perceived the process as less pressure-filled and were more likely to misjudge suspects as guilty.

Although the benefits of recording interrogations are substantial, there remains a lingering concern: that the physical or imagined presence of a camera will distract suspects or, worse, inhibit suspects knowing that others will later view their statements. Inherent in this argument is the hypothesis that suspects who know they are being recorded (either because a camera is physically present or because they are told that the sessions are being taped) will invoke their *Miranda* rights, refuse to talk to police, and/or decline to incriminate themselves (Inbau, Reid, Buckley, & Jayne, 2001; e.g., see affidavits filed by Massachusetts law enforcement officers in *Commonwealth v. DiGiambattista,* 2004, No. 09,155; for a fuller account of these arguments, see Sullivan, 2008).

Self-awareness theory may help justify these law enforcement concerns. Over the years, research has shown that accountability cues—as triggered, for example, by the presence of a camera, tape recorder, large mirror, or audience—induce an attentional state of self-awareness. This state of mind is measurable, for example, by the subject's use of first-person pronouns, and it can inhibit an actor's tendency to engage in socially undesirable behaviors (Buss, 1980; Carver & Scheier, 1981; Wicklund, 1975). Yet other research has suggested two reasons why cameras may not have this same effect in the interrogation room. The first is that suspects will experience a baseline of high self-awareness even without a camera due to the physical presence of detectives and/or an audience of observers behind two-way mirrors. Each of these cues may be sufficient on its own to heighten self-awareness (Morin, 2011). Second, suspects may exhibit a classic habituation effect, defined as a response decrement resulting from repeated stimulation (Domjan, 2018; Harris, 1943). Hence, although a camera may initially inhibit suspects, the effect of that stimulus should diminish over time. This type of habituation was observed in an experiment on the effects of TV cameras on mock jurors (Kassin, 1984).

Overview of Current Study

To test the hypothesis that recording will alter a suspect's behavior and decision-making, we observed real suspects caught up in real investigations. With cooperation from a small city police department in the U.S. Northeast, a unique opportunity presented itself. Consistent with statewide practice, this department records all suspect interrogations involving capital felony cases (i.e., those in which the suspect faces the possibility of life in prison; as a matter of departmental practice, many but not all other suspect interviews are also recorded). Operating within a one-party consent state, this department has the option by law to inform or not inform suspects of this practice. This combination—a police department that records, can do so without a suspect's consent, and was interested in partnering on the present study—enabled the first fully randomized field experiment of police interrogations.

With a total of 122 suspects brought into custody for questioning, we randomly assigned some but not others to be informed that their session was to be recorded by a concealed camera. We sought to guard against experimenter bias, a form of reactivity in which experimenters' expectations can unwittingly influence the behavior of the participants with whom they interact (Rosenthal, 1966). Hence, our experimental protocol called for the lead detective to be blinded regarding condition.

All recordings were then made available for transcription and coding, allowing us to compare the two groups on a number of objective behaviors—including the frequency with which suspects gazed in the direction of the camera (a behavioral measure of self-consciousness) as well as indicators of possible inhibition such as the number of suspects who invoked and/or waived their *Miranda* rights, the average total duration of interrogation, the length—in time and word count—of suspects' responses to questions, the frequency with which suspects made full or partial admissions and confessions, and the nature and level of detail in their statements. After each session, the lead detective rated the suspect on a number of relevant dimensions (i.e., forthcoming, cooperative, truthful, inhibited, anxious, talkative, relaxed, and self-conscious). After all data were collected, we tracked case dispositions for both groups.

Method

As noted earlier, all participants in our study consisted of individuals brought in for questioning as crime suspects to our partnering police department. These individuals were all adults who would have been questioned, and their sessions recorded, per standard practice. They were not aware that their sessions would be used in a research study. Our involvement, therefore, was limited to imposing random assignment to the informed versus uninformed condition rather than leaving it to a detective's personal choice, having the interviewing detectives fill out a questionnaire after each session, and subsequently coding the suspect's behavior and decision making (by prior agreement with our police department, we did not code for interrogation tactics used). The Institutional Review Board (IRB) of the first author's institution approved this study and granted a waiver of consent.

Sample

In collaboration with a police department in a small northeastern U.S. city, located in a one-party consent state where recording was widespread, we collected recordings of all custodial suspect interrogations over the course of one year that met our inclusion criteria. In the state wherein data were collected, best practice recommendations are to record all custodial interrogations in cases in which the defendant faces a possible life sentence. However, individual departments may choose to record more broadly; the participating department routinely records most sessions.

A total of 14 detectives were employed in the Major Crimes Unit during the period of data collection. Drug crimes, which are handled by a separate unit, were not included (that unit does not typically record, because of the frequent use of confidential informants). An a priori decision was made to include all other interrogations except those involving juvenile suspects (per IRB approval) and those involving homicide investigations (the latter were excluded because informing suspects was discretionary and some detectives expressed a reluctance to engage in random assignment in these high-stakes investigations). For suspects questioned more than once, only their first session was included.

In total, we collected 127 interrogations. We later excluded three sessions that involved a non-*Mirandized* witness or victim rather than a suspect and two that represented repeat sessions with the same suspect. These exclusions left a final sample of $N = 122$ (64 camera-informed; 58 uninformed). As shown in Table 1, crimes ranged in severity from minor (e.g., prank phone calls, disorderly conduct) to serious (e.g., child abuse, felony assault).

Facility and Equipment

We equipped two interview rooms in the police department with recording equipment. Specifically, we furnished each room with two covert cameras (one capturing the entire room from above, which showed both the detective and suspect; the other, also from above, focused on the suspect). Both angles were visible through a picture-in-picture output.

The cameras and microphones connected through a software program called Case Cracker (https://www.casecracker.com/), an interview room management system designed for law enforcement and uploaded to a Linux workstation in a control room. When recording is initiated, the password-protected system allows the user to enter case information (e.g., suspect's name, incident number, detective's name), which then appears on the screen at the outset of each recording. The time and date are also automatically recorded. The system does not allow for pausing. If the user stops the recording, that file closes and the user would have to initiate a second recording. This feature prevents users from pausing and later restarting a session unbeknown to the viewer (for more details on the specifications, see https://www.casecracker.com/wp-content/uploads/2017/09/Stationary-Tech-Specs-07SEP17.pdf).

Table 1
Crimes Investigated and Their Frequency Within the Present Sample of Cases

Crime	*n*
Robbery, larceny, theft	22
Felony assault	14
Fraud, forgery, counterfeiting	14
Simple assault	10
Domestic assault	8
Breaking and entering	7
Child abuse	5
Automobile, bicycle theft	5
Vandalism	4
Sexual assault	4
Harassment	4
Second degree molestation	3
Disorderly conduct	3
Car jacking	2
Prank phone calls	2
Other	15

Note. In sessions in which more than one crime was cited, the primary focus of the questioning is listed. The *other* category contains crimes that appeared only once (e.g., cyberstalking, firing a weapon without a landowner's permission, obtaining property by false pretenses, indecent exposure, passing counterfeit bills, filing a false report) or could not definitively be discerned through the interrogation.

Design and Procedure

All interrogations involved a primary detective, who was the lead investigator; an accompanying second or third detective; and a single suspect. Whereas all detectives knew that their interrogations were being recorded by concealed cameras, each suspect was randomly assigned to be informed ($n = 64$) or uninformed ($n = 58$).

Prior to the start of data collection, one of the authors trained detectives in the study protocol. They were instructed to turn on the camera before bringing suspects into the interview room, seating them, and then leaving them alone in the room. Ideally, the primary detective would find a third person—such as a colleague not involved in the interrogation—to administer the experimental manipulation. If this was not possible, the second investigating detective was supposed to do it. Either way, the individual administering the condition was directed to consult a condition sheet created with a random number generator to determine suspects' condition assignment and to record the incident number. In the informed condition, this individual was instructed to tell the suspect that the session would be recorded, point at the hidden cameras, and state that the primary detective would return shortly. In the uninformed condition, detectives were instructed merely to tell the suspect that the primary detective would return shortly.

In real life, detectives know whether their suspects are informed as to recording. In an effort to assess the direct effect on our suspects, however, apart from any indirect effects elicited through possible experimenter bias, we sought to blind primary detectives from knowing each suspect's condition. According to our research protocol, "it is very important that the primary detective is *not told* what condition the suspect is in. Ideally, neither of the interrogating detectives should know what condition the suspect is in." The third person, who administered the manipulation, was thus instructed that, to the extent possible, the primary and secondary detectives conducting the interrogation should be kept blind to condition. When a third person was not available to administer the experimental manipulation, however, the secondary detective was instructed to do so (while keeping the primary detective blind to condition).

To determine whether detectives adhered to this aspect of the protocol, we sought clues from two sources: First, obtaining self-report evidence, we asked in the postsession questionnaire, "Were you aware of whether this suspect was informed or not that the session was being recorded?" In response to this yes−no question, 59.32% of primary detectives said they were blind (i.e., not aware) as to the suspect's condition. Through conversations with detectives afterward, we feared that some may have misinterpreted the question to mean: "Were you aware that the condition was administered?" To the extent that this occurred, these self-reports would underestimate adherence to the blindness protocol. Second, we also consulted video evidence to see whether the primary detective personally administered the manipulation or was in the room when it was administered by someone else. Using this latter criterion, we identified 90.16% as blind (i.e., not physically present). Although this criterion is objective, it may have missed possible occasions in which the primary detective was informed off-camera. To the extent that this occurred, the video evidence may overestimate adherence to the blindness protocol.

Once the manipulation was executed, the primary detective reentered the room, typically accompanied by the second detective, and conducted the interrogation following normal protocol. The protocol stated that "instead of announcing the date, time, location, introduction, etc. as one would do if 'broadcasting' on camera, the detective(s) should state the set-up details in conversation with the suspect." If the suspect asked whether the session was being recorded, detectives were instructed to answer as they normally would and to report as such. Once the session was terminated, the primary detective completed a brief postsession questionnaire to rate the suspect on a number of relevant dimensions.

Dependent Measures

On the brief postsession questionnaire, the primary detectives reported the extent to which the suspect seemed forthcoming, truthful, cooperative, relaxed, inhibited, anxious, talkative, and self-conscious. All ratings were made on a 10-point scale from 1 (*not at all*) to 10 (*completely*). Then they also indicated (1) whether this was the first time the suspect had been questioned about the crime, (2) whether they were aware of the suspect's experimental condition, (3) whether the suspect had expressed a belief or inquired about the session being recorded—and if so, what the suspect was told, and (4) whether the manipulation was administered by the primary detective, the secondary detective, or a third person.

All digital recordings were later transcribed and deidentified by a professional transcription service and independently coded by two of the authors. On the basis of recordings and transcripts, each session was coded for a number of variables, including (1) whether and how often suspects glanced at the camera, asked about the camera or being recorded, and/or requested that the camera be turned on or off; (2) the length of the interrogation (in minutes and word count); (3) the relative number of words spoken and utterances, operationally defined as transcript line entries, attributed to suspects and detectives; (4) whether suspects were informed of their *Miranda* rights; (5) whether suspect waived or invoked the right to silence and/or counsel at the outset or at some later time; (6) whether and how often suspects explicitly denied involvement; (7) whether suspects at any point made a partial or full admission of guilt, or a full narrative confession; (8) how often, if at all, suspects minimized personal responsibility or the seriousness of the offense; (9) the type and number of details provided by suspects (categorized as crime-relevant or -nonrelevant and as incriminating or nonincriminating); (10) whether suspects were left alone in the interrogation room—and if so, whether they spoke while alone; and (11) whether suspects cried at any point during the interrogation.

Although we had intended for coders to be condition-blind while viewing the recordings and transcripts, each suspect's condition was typically disclosed on camera at the start of each session. As a result, coders were not blind to condition. For objective variables (e.g., word counts) and quasi-objective variables (e.g., whether suspects were *Mirandized*), this did not pose a problem. For two behaviors that were more subjective (i.e., whether suspects glanced at the cameras or made self-incriminating statements), we trained additional condition-blind coders to reexamine the results. Interrater reliabilities varied. Ob-

jective and quasi-objective variables yielded high, often near-perfect, agreement rates. Others that involved greater subjectivity yielded more modest rates (Cohen's κs ranged from .46 to 1.00; $M = .81$; intraclass correlations ranged from .34 to .99; $M = .80$; all $ps < .05$). In all cases, conflicts were resolved in one of two ways. For continuous variables, we averaged the two codings; for categorical variables, disagreements were resolved by discussion. A full listing of variables coded is posted in the online supplemental materials.

Results

Camera Awareness

To look at whether our informed manipulation elicited camera awareness, coders counted the number of times, if at all, the suspect glanced up in the direction of the cameras. Suggesting a modest effect, camera-informed suspects (48.44%) were significantly more likely than -uninformed suspects (25.86%) to glance toward one or both cameras at least once during the interrogation, $\chi^2(1, N = 122) = 6.60$, $p = .01$, $\varphi = .23$, $OR = 2.69$, 95% confidence interval [CI: 1.25, 5.79]—and they did so more often ($M = .56$, $SD = .81$, and $M = .27$, $SD = .58$, respectively), $t(120) = 2.30$, $p = .02$.

Further analysis, however, suggested that this difference may be artifactual. Coders were not blind to condition, which was administered on the recordings (indeed, at least some recorded camera glances occurred at that time); Cohen's kappa was modest ($\kappa = .48$); and despite the protocol, we observed that police who administered the manipulation pointed to the cameras as per protocol in only 35 out of 64 informed sessions. To reassess this variable, therefore, we trained a new coder not affiliated or familiar with the study and deleted the manipulation portion of each recording. On the binary question of whether suspects ever glanced at a camera, results indicated that those in the informed condition were not significantly more likely to do so than were those in the uninformed condition (45.31% vs. 41.38%, respectively), $\chi^2(1, N = 122) = .19$, $p = .66$. Likewise, no difference was found for the average number of glances per suspect ($Ms = .94$ vs. .74, respectively), $t(120) = .88$, $p = .38$ (see Table 2). The difference between conditions was also not significant when only the 35 informed suspects at whom a camera was pointed were included in the analysis: on the binary eye-gaze measure, $\chi^2(1, N = 35) = 2.72$, $p = .26$; on the continuous measure, $t(91) = -1.70$, $p = .09$.

Particularly notable about these data, indeed the "headline" result, concerns the infrequency with which suspects in general attended to the camera. Regardless of who coded, blind or not, whether the detective pointed or not, and regardless of condition, the frequency of this behavior was so low that the average number of glances per suspect was <1 in all analyses. Consistent with this result, more important from a practical standpoint, and in light of the often-expressed concern that suspects will shun and refuse to speak in the presence of a camera, only three camera-informed suspects (4.69%) asked about the recording of their interrogations ("Oh, that's a camera?" "This is being recorded?" "You're recording me right now?")—and none requested that the camera be turned off. It is noteworthy, too, that not a single camera-uninformed suspect inquired as to whether the session was being recorded.

Length of Interrogations

At the most basic level, we sought to determine whether informing suspects about the camera inhibited the process of interrogation in terms of how long it lasted and how actively suspects participated. On average, sessions lasted for 25.97 min ($SD = 30.62$; range = 3–163), featured multiple interrogators (97.54%; $M = 2.03$ interrogators, $SD = .31$; range = 1–4), and contained 4,641.26 words ($SD = 3{,}298.42$; range = 820–22,321) and 261.24 total utterances (i.e., transcript line entries; $SD = 196.19$; range = 37–1,284). On average, 46.50% of all utterances were spoken by the suspect as opposed to the detectives ($SD = 4.40$; range = 27.72–60.32). Of importance, Table 2 shows that none of these metrics differed between the camera-informed and -uninformed conditions (all $ts \leq 1.23$, $ps > .22$).

Miranda Decisions

At the outset, all but two suspects (98.36%) waived their *Miranda* rights. In these two instances, the session was terminated shortly thereafter; no one was interrogated with an attorney present. At some point during their interrogations, 15.57% did invoke

Table 2
Effects of Camera Manipulation on Measures of Interrogation Length and Suspect Behavior

Variable	Uninformed: *M* (*SD*)	Informed: *M* (*SD*)	*t*	$\chi^2(1, N = 122)$	*p*	*d* [95% CI]	*OR* [95% CI]
Camera awareness							
Suspect glances at cameras	.74 (1.10)	.94 (1.34)	.88		.38	.16 [−.649, .248]	
Interrogations							
Length (min)	28.22 (30.62)	23.92 (15.37)	−1.00		.32	−.18 [−.54, .18]	
No. interrogators present	2.05 (.38)	2.02 (.22)	−.65		.52	−.10 [−.45, .26]	
Total word count	4,844.39 (4,097)	4,457.18 (2,373)	−.65		.52	−.12 [−.47, .24]	
Total no. utterances	271.59 (243.16)	251.87 (142.29)	−.55		.58	−.10 [−.46, .26]	
% utterances made by suspect	47.01 (3.36)	46.03 (5.15)	−1.23		.22	−.22 [−.58, .13]	
Miranda decisions							
% invoked right to silence	6.90%	6.25%		.02	.88		.90 [.22, 3.78]
% invoked right to an attorney	8.62%	15.63%		1.38	.24		1.96 [.63, 6.13]

Note. CI = confidence interval.

their right to silence (6.56%) and/or an attorney (12.30%). It is important to note that no support was obtained for the hypothesis that informing suspects about video recording would have an impact on the waiver rate. Camera-informed and -uninformed suspects were similarly likely to waive their rights at the start of the interrogation (96.88% vs. 100%, respectively), $\chi^2(1, N = 122) = 1.84$, $p = .18$, $\varphi = .12$, and similarly likely later in the session to invoke their right to silence (6.25% vs. 6.90%), $\chi^2(1, N = 122) = .02$, $p = .89$, $\varphi = .01$; their right to an attorney (15.63% vs. 8.62%), $\chi^2(1, N = 122) = 1.38$, $p = .24$, $\varphi = .11$; or either of these (17.19% vs. 13.79%), $\chi^2(1, N = 122) = .27$, $p = .61$, $\varphi = .05$ (see Table 2).

Degrees of Self-Incrimination

We observed all sessions for the extent to which suspects incriminated themselves. Specifically, we coded for (1) whether suspects denied involvement—and how often; (2) whether they indicated guilty knowledge by disclosing awareness of either a specific fact or merely that the crime was committed (e.g., "I knew about it"; "When I went upstairs is when they must have been fighting and all that went down"); (3) whether they made an admission of guilt not accompanied by a narrative (e.g., "I did this. I was involved"; "I weren't going to do that shit but—I got caught up in shit"; "Just doing it for my kids"); and (4) whether their admission of guilt was accompanied by a full narrative confession detailing the crime and how it was executed (e.g., "When I went to take a left onto [deidentified], the lady came up over the white line, and I hit the passenger side of her car. I got nervous. She started yelling at me. I mean the lady flipped out on me. I jumped on the curb and took off").

Overall, 80.33% of suspects denied guilt on at least one occasion; on average, they denied guilt 6.33 times ($SD = 9.06$). Of importance, camera-informed and -uninformed suspects were equally likely to deny guilt at least once (81.25% and 79.31%, respectively), $\chi^2(1, N = 122) = .07$, $p = .79$, $\varphi = .02$, $OR = 1.13$, 95% CI [.46, 2.76]. In terms of frequency, the two groups did so an equivalent number of times ($M = 5.83$, $SD = 5.87$, and $M = 6.88$, $SD = 11.64$, respectively), $t(120) = -.64$, $p = .52$, $d = -.12$, 95% CI [−.47, .24].

Although four out of every five suspects denied involvement at some point, many eventually went on to incriminate themselves. With respect to degree of self-incrimination, 30.33% of suspects disclosed or suggested guilty knowledge, as previously defined; 9.84% made an explicit admission of guilt; and 24.59% made an admission accompanied by a narrative confession. A total of 35.25% of suspects made no self-incriminating remarks during the course of their interrogation. Between-groups comparisons were conducted on each of these levels of self-incrimination. Results showed that although camera-informed suspects indicated guilty knowledge somewhat less often than did camera-uninformed suspects (21.88% vs. 39.66%, respectively), a linear-by-linear association test revealed that the overall relationship between camera condition and the degree to which suspects incriminated themselves was not significant, $\chi^2(1, N = 122) = .42$, $p = .52$. Also not significant were the between-groups differences in full admissions (6.90% vs. 12.50%, respectively), $\chi^2(1, N = 122) = 1.07$, $p = .30$, $\varphi = .09$, and confessions (25.86% vs. 23.44%, respectively), $\chi^2(1, N = 122) = .10$, $p = .76$, $\varphi = -.03$.

In light of the concern that video recording would inhibit self-incrimination, we thought it important to train two new students, unfamiliar with the study, to blind-code transcripts in which the camera-informed manipulation at the start was deleted. To simplify the task, we also reduced the number of categories from four to three and coded for only explicit admissions of guilt (i.e., not mere indications of guilty knowledge). For each suspect, these coders were asked "What best describes the suspect's highest degree of self-incrimination?" on this 3-point scale: 0 (*Did not make any incriminating statements*), 1 (*Made an admission/self-incriminating statement*), and 2 (*Made an admission accompanied by a full narrative confession*).

To ensure acceptable interrater reliability, we had each condition-blind coder rate 20 transcripts, discuss points of disagreement, then code an additional 20 transcripts. Ultimately, they achieved a 70% agreement rate (weighted $\kappa = .68$). It is important to note that the agreement rate on the binary question of whether a suspect self-incriminated was perfect; all disagreements pertained to whether a statement constituted an admission or full confession and were resolved by discussion. Results showed that 45.08% of all suspects made an explicit admission of guilt or full confession. Consistent with the original coding, a linear-by-linear association test indicated no significant difference between camera-informed and -uninformed conditions (44.83% vs. 45.31%, respectively), $\chi^2(1, N = 122) = .25$, $p = .62$. The full breakdown is presented in Figure 1.

After we completed analysis of all sessions and reported the foregoing results to our participating police department, two detectives suggested a hypothesis that we had not previously considered: that the presence of a camera might inhibit suspects from implicating *others* in the crimes being investigated. In response to this hypothesis, we reviewed each session again and coded for whether the suspect (1) implicated someone else and/or (2) openly expressed a reluctance to implicate someone else (two authors independently coded 10 sessions; interrater reliability [IRR] was 1.00, so remaining sessions were allocated to one author or the other).

Overall, 45.90% of suspects did incriminate someone else during their interrogation. Compared to camera-uninformed suspects (53.13%), those in the informed condition were somewhat less likely to do so (37.90%), though this difference was not significant, $\chi^2(1, N = 122) = 2.83$, $p = .09$, $\varphi = .15$, $OR = 1.86$, 95% CI [.90, 3.82]. Only 6.56% of suspects openly expressed a reluctance to incriminate someone else during their interrogation. On this latter measure, camera-informed (6.25%) and -uninformed (6.90%) suspects were similarly unlikely to express such reluctance, $\chi^2(1, N = 122) = .02$, $p = .89$, $\varphi = .01$, $OR = .90$, 95% CI [.22, 3.78].

Minimization of Culpability

We coded for the extent to which suspects who incriminated themselves also at some point sought to minimize their own culpability or the seriousness of the offense. This analysis showed that 47.54% of all suspects minimized their role in one of these ways and that the average interrogation contained .93 minimizing remarks ($SD = 1.55$). Of importance, between-groups comparisons showed that suspects were not significantly more likely to minimize their role when camera-informed than when -uninformed (42.19% vs. 53.45%, respectively), $\chi^2(1, N = 122) = 1.55$, $p =$

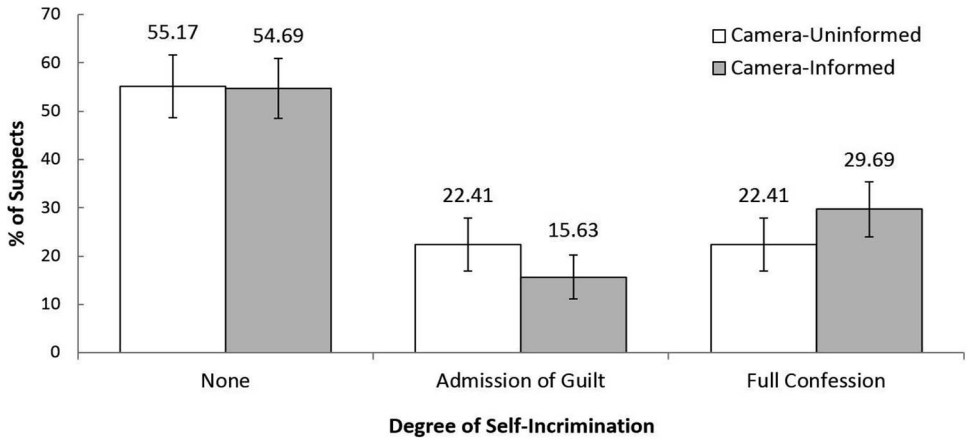

Figure 1. Percentage of suspects who incriminated themselves in the camera-informed and uninformed conditions.

.21, φ = .11, *OR* = .64, 95% CI [.31, 1.30]; moreover, there was not a significant difference in the number of minimizing remarks they made, $t(120) = .59$, $p = .56$.

Levels of Detail

We also coded for the type and number of details provided by each suspect; specifically, we categorized each detail as crime-relevant or -nonrelevant and as either incriminating or nonincriminating. In light of interrater disagreement as to what constituted a discrete detail and to increase levels of IRR, we had coders sort the precise number of details they had counted into four ordinal categories: 0, 1–6, 7–14, and >14 (mean κ = .576). Overall, suspects most often gave over 14 crime-relevant−nonincriminating details during their interrogations (47.54%), whereas most gave only 1–6 crime-relevant−incriminating details (62.30%), nonrelevant−incriminating details (e.g., about an unrelated crime; 53.28%), and nonrelevant−nonincriminating details (40.98%). As shown in Table 3, camera-informed and -uninformed suspects did not significantly differ in the number of details provided of any type (all χ^2s < 1, *p*s > .48).

Extraneous Behaviors

In 88.52% of interrogations, the detective(s) left the suspect alone in the interview room on one or more occasions ($M = 1.40$, $SD = 1.08$). Within this subsample of individuals, 26.85% could be heard talking to themselves while alone. There was no difference in this behavior between camera-informed and -uninformed suspects (25.00% and 29.17%, respectively), $\chi^2(1, N = 108) = .24$, $p = .63$, φ = .05, *OR* = .81, 95% CI [.35, 1.90].

A total of 31 suspects (25.41%) cried at some point during their interrogation. A comparison of the two groups showed that the incidence of crying at least once did not significantly differ between the camera-informed and -uninformed conditions (23.44% and 27.59%, respectively), $\chi^2(1, N = 122) = .28$, $p = .60$, φ = .05, *OR* = .80, 95% CI [.36, 1.82].

Table 3
Number of Details Provided by Camera-Uninformed and -Informed Suspects (%)

	No. details provided						
Crime relevancy and suspect type	0	1–6	7–14	>14	$\chi^2(1)$	*p*	*V* [95% CI]
Crime-relevant, incriminating							
Uninformed	31.03	68.97	.00	.00	.49	.48	.17 [−.01, .34]
Informed	40.63	56.25	3.13	.00			
Crime-relevant, nonincriminating							
Uninformed	3.45	17.24	31.03	48.28	.02	.88	.02 [−.16, .20]
Informed	3.13	18.75	31.25	46.88			
Crime-nonrelevant, incriminating							
Uninformed	46.55	51.72	1.72	.00	.00	.96	.10 [−.08, .28]
Informed	45.31	54.69	.00	.00			
Crime-nonrelevant, nonincriminating							
Uninformed	8.62	36.21	34.48	20.69	.19	.66	.24 [.06, .42]
Informed	1.56	45.31	43.75	9.38			

Note. Values reflect the percentage of suspects who provided a number of details in the corresponding range. Chi-square, *p*, and Cramér's *V* values reflect the results of linear-by-linear association tests comparing camera-uninformed and -informed suspects. Each test includes data from $N = 122$ suspects (64 informed; 58 uninformed). CI = confidence interval.

Detectives' Perceptions of Suspects

After each session, the primary detective rated the suspect on eight dimensions of relevance to the hypothesis that camera awareness will inhibit or otherwise adversely affect the suspect's behavior. A two-group multivariate analysis of variance revealed no overall differences in detectives' perceptions of camera-informed and -uninformed suspects (Wilks's $\Lambda = .94$), $F(8, 109) = .91$, $p = .51$, $\eta_p^2 = .06$ (see Table 4). Regardless of condition, detectives rated suspects as generally talkative (overall $M = 7.03$, $SD = 2.61$) and cooperative ($M = 6.56$, $SD = 3.26$)—and as moderately forthcoming ($M = 6.00$, $SD = 3.25$), truthful ($M = 5.46$, $SD = 3.29$), and relaxed ($M = 5.07$, $SD = 2.67$). Although detectives perceived suspects in both conditions as somewhat anxious ($M = 6.08$, $SD = 2.68$) and inhibited ($M = 4.52$, $SD = 2.52$), they also did not rate suspects in either group as self-conscious about the possibility of being recorded ($M = 1.80$, $SD = 1.67$).

Case Dispositions

Perhaps the most consequential possible effect of recording interrogations would be that the practice somehow interferes with the resolution of cases. Fourteen months after all data were collected, we obtained case dispositions from our participating police department. Across all 122 suspects, 100 cases (81.97%) had been resolved, 17 (13.93%) had not, and five (4.09%) could not be classified (e.g., suspect deceased, information restricted).

Within the population of cases that were resolved, 48 resulted in a form of guilty outcome, via a nolo contendere or guilty plea ($n = 44$); conviction at trial ($n = 2$); or diversion, a form of sentence involving rehabilitation or other remedy ($n = 2$). In contrast, 52 cases resulted in a form of not-guilty outcome, via the decision not to charge the suspect ($n = 31$), the charges being dismissed and/or expunged ($n = 20$), or an acquittal at trial ($n = 1$). Among the 17 cases that were not resolved, the disposition was still open ($n = 9$) or none was recorded ($n = 8$).

Regarding the frequency with which the cases in our sample were resolved, there was no significant difference between camera-informed and -uninformed suspects (resolution rates were 84.4% and 79.3%, respectively), $\chi^2(1, N = 122) = 1.08$, $p = .58$, $\varphi = .09$. With specific regard to the 100 cases in which an outcome was produced, there was also no significant difference between camera-informed and -uninformed conditions in terms of the frequency with which suspects ultimately received a guilty outcome, via plea, diversion, or trial conviction (50.0% and 45.7%, respectively), versus a not-guilty outcome, via charges not filed or dropped or trial acquittal (50.0% and 54.3%, respectively), $\chi^2(1, N = 100) = .19$, $p = .66$.

Discussion

To address a concern cited by opponents of the recording of interrogations, and in partnership with a police department in the northeast United States, we conducted the first fully randomized field experiment involving interrogations of real crime suspects. Within a sample of 122 interrogations that were video recorded via concealed cameras, we randomly assigned suspects to be informed or not informed that their sessions were being recorded. Our objective was to test the hypothesis that recording will inhibit or otherwise adversely affect the behavior and decision-making of suspects who are informed. We thus compared the two groups of suspects on a range of measures pertaining to process, proximal and distal outcomes, and detectives' perceptions.

Results in general did not support the claim that recording would have inhibitory effects. To begin with, suspects exhibited little awareness or concern about the presence of a camera. Not a single suspect refused or expressed a reluctance to proceed because of being recorded. This simplest of results is important in light of the contrasting fact that 22 of 25 mandatory recording statutes across the United States contain a recording exception in the event that a suspect refuses to speak if recorded (Rebecca Brown, Innocence Project, personal communication, January 8, 2018). Nor did we observe significant differences in other extraneous behaviors, such as whether suspects talked to themselves when left alone or cried during their interrogation. From a historical perspective, the finding that no suspects refused to proceed on camera resembles early experiences with the videotaping of confessions. Beginning in 1975, Bronx New York District Attorney Mario Merola initiated a new program to videotape confessions after suspects had been interrogated. Relative to written statements, the effect in court was powerful, yielding, according to Merola, a conviction in virtually every case. It is interesting that at a time when video cameras were not commonplace in society, the experience revealed that suspects were remarkably willing participants: "Only 1% of all suspects in the Bronx have refused to be videotaped" (Chambers, 1983; p. 30).

In terms of what followed in our study, the average interrogation lasted for just under 30 min. Many of the sessions in our sample were thus relatively brief compared to the results of studies in the

Table 4
Primary Detective Ratings (1–10) of Camera-Uninformed and -Informed Suspects

Dimension	Camera-uninformed: *M* (*SD*)	Camera-informed: *M* (*SD*)	*t*	*p*	*d* [95% CI]
Talkative	6.91 (2.68)	7.15 (2.55)	.49	.63	.09 [−.27, .45]
Cooperative	6.11 (3.30)	6.97 (3.20)	1.44	.15	.27 [−.10, .63]
Forthcoming	5.70 (3.32)	6.27 (3.19)	.96	.34	.18 [−.19, .54]
Truthful	5.23 (3.23)	5.66 (3.36)	.71	.48	.13 [−.23, .49]
Relaxed	4.95 (2.71)	5.18 (2.64)	.47	.64	.09 [−.28, .45]
Anxious	6.07 (2.78)	6.08 (2.61)	.02	.98	.00 [−.36, .37]
Inhibited	4.86 (2.52)	4.21 (2.50)	−1.40	.16	−.26 [−.62, .10]
Self-conscious	1.68 (1.52)	1.90 (1.80)	.73	.47	.13 [−.23, .49]

Note. Four interrogators (two per condition) neglected to complete a postsession questionnaire. Hence, these analyses are based on $N = 118$. CI = confidence interval.

United States indicating that most interrogations last from 30 min to 1 or 2 hr (Feld, 2013; Kassin et al., 2007; Leo, 1996a; Wald, Ayres, Hess, Schantz, & Whitebread, 1967). This is perhaps not surprising given that homicides and drug offenses were excluded from the sample. Of importance, no differences were observed between camera conditions in terms of the length of interrogation or the number of words spoken in total or by the suspect.

One might also predict that if suspects were inhibited by the recording manipulation, they would be more likely to invoke their *Miranda* rights. We found no evidence for this hypothesis. After having been apprised of the camera—or not—almost all suspects waived their rights at the outset; 84.43% continued to waive their rights throughout their interrogations. This high waiver rate is quite similar to levels consistently found in U.S. studies of both adults (Domanico, Cicchini, & White, 2012; Leo, 1996b) and juveniles (Cleary & Warner, 2016; Feld, 2013; Grisso & Pomicter, 1977). Because we are not aware of prior studies that documented the number of times suspects invoked *Miranda* after initially waiving their rights, the 15.57% we observed is interesting and worthy of further inquiry. Without rendering judgment as to the desirability of these results, we note that significant differences were not found between the camera-informed and -uninformed groups in their decision to invoke or waive their rights to silence or an attorney at any time.

Turning to the substance of the interrogations—namely, the extent and manner with which suspects incriminated themselves or others, and the level of detail they provided—the results further suggested that recording did not inhibit suspects. Approximately four out of every five suspects denied involvement at some point in their interrogations; on average they did so six times. Neither the tendency to deny guilt nor the number of denials differed as a function of condition. There were also no significant differences in the number of crime-relevant or nonrelevant details, inculpatory and not, that suspects gave in response to questions. As the sessions proceeded, however, a good number of suspects made some form of remark that could be construed as self-incriminating—whether it was a disclosure of guilty knowledge, an explicit admission of guilt, or a full narrative confession. In doing so, nearly half of all self-incriminating suspects at some point minimized either their own responsibility or the seriousness of the offense. Once again, no significant differences appeared between conditions on any of these measures.

Although no significant differences were found on admissions of guilt or confessions, it is worth noting that—in response to a hypothesis suggested by detectives—subsequent coding and analyses indicated that although few suspects openly expressed a reluctance to implicate someone else during their interrogations, camera-informed suspects were somewhat less likely to actually incriminate another person. It is important to caution that this tendency was not significant. Still, we think this hypothesis deserves additional testing, perhaps in a larger sample that contains more homicide investigations and drug crimes, which may involve gang-related activities that invite the possibility of implicating others.

Reasonably, one might question whether our null effects can be attributed to a weak manipulation or lack of power. The manipulation itself—which consisted of informing some suspects but not others about a concealed camera—was not a mere laboratory analog; it epitomized actual practice in jurisdictions that both record and inform (i.e., "it is what it is"). It is possible that effects would be observed in situations in which a camera is stationed inside the interrogation room, visible as a constant reminder. Our study did not address this variant of a recording policy. On the question of statistical power, 122 suspects were randomly split into only two conditions and exhibited a good deal of variability in their behavior. Indeed, it is important to note that the lack of effects was obtained on objective metrics, binary and continuous; on coding of the suspects' behavior, binary and continuous; on detectives' perceptions of their suspects on a range of dimensions; and on subsequent case dispositions. Moreover, these results were consistent with police self-reported satisfaction data previously obtained (Sullivan, 2004; Sullivan et al., 2008).

Consistent with the actual behavior of suspects, detectives' perceptions of their suspects were also not influenced by the camera condition. After each session, the primary detective rated the suspect on a brief questionnaire. On average, they saw the suspects as generally talkative, cooperative, and forthcoming, even while anxious; as moderately truthful and relaxed; and as not particularly inhibited. No condition differences were obtained on any of these measures. On the most direct question of all concerning the effect of the camera, detectives did not rate suspects in either group as seeming self-conscious about the possibility of being recorded. At 1.80 on a 10-point scale, this rating was the lowest of all ratings in both conditions.

Turning from proximal to distal outcomes, we tracked case dispositions 14 months after all data were collected. In what is arguably the most important data point, we found no differences in the extent to which the cases of camera-informed and -uninformed suspects were resolved—and of those that were resolved, no differences in the extent to which suspects were convicted.

Limitations

Three aspects of our data set may limit the generality of our results. The first concerns our coding of the video recordings and transcripts. The condition was administered on camera before the primary detective entered the room. As a result, our original coders were not blinded to condition while reviewing the video recordings and transcripts. Whereas some of the behaviors coded were objective or quasi-objective, and hence elicited high rates of interrater agreement (e.g., length of interrogations, word counts, *Miranda* waivers, suspect denials), other behaviors involved some degree of subjectivity, eliciting lower rates of agreement (e.g., glances at the cameras, degree of self-incrimination). On these latter measures, subsequent condition-blind recodings revealed no effect on glances at the cameras and confirmed a lack of effect on self-incrimination. Regarding all other behaviors, despite the consistency of results with detective perceptions and case dispositions, we cannot completely eliminate the possibility that expectations influenced these codings.

A second possible limitation is that interrogations conducted as part of homicide investigations and drug crimes, as well as those involving juveniles, were a priori excluded from testing (ironically, homicides were excluded because some members of our participating police department, concerned about the camera-informed condition, were reluctant to commit to random assignment in these highest of stakes cases). With false-confession rates higher in homicides than in other types of

wrongful conviction cases (Innocence Project, 2018, www.innocenceproject.org/; National Registry of Exonerations, 2018; www.law.umich.edu/special/exonerations/Pages/about.aspx), additional research is needed to examine the extent to which our results generalize to these domains.

Third, our experiment was conducted in interrogation rooms equipped with cameras and microphones that we hidden from view. Hence, although camera-informed suspects knew they were being recorded, no camera was physically present and visible to serve as a reminder. As such, our confidence in the conclusion that recording does not adversely affect suspects is limited, at least for now, to departments equipped with unobtrusive cameras.

Policy Implications

At present, 25 states in the United States mandate the recording of interrogations, at least for serious crimes. Among those that do, 22 contain exceptions in the event that a suspect refuses to speak if recorded. Some of these states have one-party consent laws that enable police to record interrogations covertly. Others are two-party states that require the suspect's knowledge and consent (some make exceptions for custodial police interrogations). Among states that do not have a recording requirement, a concern often expressed is that the real or imagined presence of a camera will unduly inhibit suspects, causing them to "clam up," become tense, and refuse to speak, thereby obstructing law enforcement efforts to investigate crimes (Sullivan, 2004; e.g., see affidavits filed by various Massachusetts law enforcement officers in *Commonwealth v. DiGiambattista,* 2004, No. 09,155).

It is interesting that the same argument was made by early opponents of *Miranda v. Arizona* (1966). President Nixon at that time commented that *Miranda* constituted a victory for the forces of crime (for an overview of this argument, see Leo, 1996b; for opposing views on the effects of *Miranda,* see Cassell, 1996, and Schulhofer, 1996). Yet after 50 years, especially in light of high waiver rates (e.g., Domanico et al., 2012; Leo, 1996b), most researchers have concluded that these fears have proved unfounded—that, if anything, *Miranda* has functioned as a "safe harbor" for police (Weisselberg, 2017, p. 1236; also see Smalarz, Scherr, & Kassin, 2016).

Regarding the recording of interrogations, Sullivan and colleagues interviewed investigators in police and sheriff's departments and found that these fears seemed unfounded in their own experience (Sullivan, 2004; Sullivan et al., 2008). By observing and coding the behavior, decision-making, and case dispositions of suspects who were randomly informed or not informed, the present study supports these prior self-report results. In terms of policy and practice, these results should allay fears in two-party consent states that are reluctant to mandate recording and offer guidance to one-party states that can inform or not at their discretion.

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