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Effects of cooperation on information disclosure in mock-witness interviews

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Purpose. Forensic interviewers often face witnesses who are unwilling to cooperate with the investigation. In this experimental study, we examined the extent to which cooperativeness instructions affect information disclosure in a witness investigative interview.

Methods. One hundred and thirty-six participants watched a recorded mock-crime and were interviewed twice as mock-witnesses. They were randomly assigned to one of four conditions instructing different levels of cooperativeness: Control (no instructions), Cooperation, No Cooperation, and No Cooperation plus Cooperation. The cooperativeness instructions aimed to influence how participants' perceived the costs and benefits of cooperation. We predicted that Cooperation and No Cooperation instructions would increase and decrease information disclosure and accuracy, respectively.

Results. We found decreased information disclosure and, to a lesser extent, accuracy in the No Cooperation and No Cooperation plus Cooperation conditions. In a second interview, the shift of instructions from No Cooperation to Cooperation led to a limited increase of information disclosure at no cost of accuracy. Cooperativeness instructions partially influenced the communication strategies participants used to disclose or withhold information.

Conclusions. Our results demonstrate the detrimental effects of uncooperativeness on information disclosure and, to a lesser extent, the accuracy of witness statements. We discuss the implications of a lack of witness cooperation and the importance of gaining witness cooperation to facilitate information disclosure in investigative interviews.

Witnesses can provide crucial information in a criminal investigation, which later can serve as evidence in court (Fisher, Milne, & Bull, 2011). In an investigative interview,

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witnesses hold first-hand knowledge not available to the police, and thus by definition, witnesses are in control of the information and the onus to elicit accurate, detailed, and complete witness accounts is on the interviewer (Fisher, 1995; Vrij, Hope, & Fisher, 2014). Interviewers consequently rely heavily on witnesses' cooperation and their willingness to disclose information. However, some witnesses do not want to get involved in criminal investigations and are unwilling to divulge information to the police (Spencer & Stern, 2001), which can be detrimental to effective crime management (Tyler & Fagan, 2008). Despite its relevance, the effects of lack of witness cooperation on information disclosure within investigative interviews have received little scientific scrutiny. In this experimental study, we examined the extent to which cooperativeness instructions affected information disclosure and accuracy of witness statements.

Uncooperative witnesses in investigative interviews

Police officers report frequently encountering witnesses who are unwilling to become involved in the investigative process (Confrey, 2017; De La Fuente Vilar, Horselenberg, & Van Koppen, 2018; Wheeler, Gabbert, Clayman, & Jones, 2017). Some witnesses are *reluctant* to talk, *resistant* to engage in the investigation, and can be *hostile* towards the police (Shepherd & Griffiths, 2013). Witnesses who have been *intimidated* are also averse to cooperate with the police (Maynard, 1994). Beyond these labels and legal categories, witnesses' lack of motivation to cooperate with police is what characterizes *uncooperative* witnesses. Their cooperativeness (or lack thereof) is reflected in their behaviour as witnesses, which in the context of an investigative interview, is their willingness to disclose detailed and accurate information.

Lack of witness cooperation can be motivated by fear of retribution from the suspect, a relationship with the suspect, a criminal history or risk of self-incrimination, distrust of the police or the criminal justice system, type and severity of the crime, cultural differences, language barriers, witness apathy, or the inconvenience of legal proceedings (Confrey, 2017; Papp, Smith, Wareham, & Wu, 2017; Shepherd & Griffiths, 2013; Spencer & Stern, 2001; Westera & Powell, 2015).

Witness cooperation and information disclosure in investigative interviews

Individuals regulate their behaviour based on a subjective evaluation of benefits and costs (Homans, 1958). As in other social interactions and interpersonal relationships, civilian cooperation with the police is regulated by moral ideas about society and by any associated consequences and risks (Papp *et al.*, 2017). A behavioural economics approach involving cost–benefit analysis has been proposed to account for decisions to report crime by witnesses (Kidd, 1979) and victims (Bowles et al., 2009; Goudriaan, 2006); as well as to explain information disclosure in interrogations by suspects (Yang, Guyll, & Madon, 2017) and informants (Neequaye & Luke, 2018).

We propose to extend the cost–benefit analysis model for reporting crime by witnesses (Kidd, 1979), to the analysis of witnesses' decision to disclose information in investigative interviews. We argue that interview outcomes depend on the internal motivation of the witness to engage and cooperate with the interviewer, which ultimately determine the quality of witness statements. Consequently, the decision of a witness to disclose information is motivated by the perceived high benefits (and the low costs) associated with cooperating with the interviewer. Conversely, a subjective evaluation of high costs with no perceived benefits can lead to the decision of a witness to not cooperate with the interviewer, thus negatively affecting information disclosure.

A commonly held expectation is that an individual who becomes a witness to a crime will cooperate with the police (Fyfe & Smith, 2007; Roberts, 2010). Given the demands of an investigative interview, interviewers expect disclosure of truthful and relevant information as is required and delivered in an efficient manner (Antaki & Stokoe, 2017). Nonetheless, police officers report that witnesses rarely provide sufficient information during investigative interviews (Kebbell & Milne, 1998). Lack of disclosure of information is often associated with memory limitations. However, due to social and motivational rather than cognitive factors, some interviewees who can remember are unwilling to report what they recall (Granhag, Oleszkiewicz, Strömwall, & Kleinman, 2015; Shepherd, 1993; Westera & Powell, 2015).

Individuals strategically control whether to report or omit pieces of information based on personal and situational goals (Koriat & Goldsmith, 1994). This monitoring process determines the quantity, accuracy, and level of detail of the information disclosed. As a result, in the context of reporting to aid a criminal investigation, there are indications that individuals focus on maximizing accurate and forensically relevant information (Brewer, Vagadia, Hope, & Gabbert, 2018). Findings from eyewitness research indicate that cooperative witnesses in general are highly accurate and provide detailed albeit incomplete statements (e.g., Hope, Gabbert, & Fraser, 2013; Smeets, Candel, & Merckelbach, 2004).

The extent to which lack of witness cooperation regulates information disclosure has not previously been examined. However, similar research in human intelligence gathering demonstrated that uncooperative sources resist cooperating and avoid disclosing information by strategically omitting new or critical information and engage in providing succinct, fabricated, scripted, unrelated, or no answers when being interviewed (Alison *et al.*, 2014). Moreover, in order to appear cooperative, some interviewees aim to strike a balance of disclosing not too much nor too little information (Granhag *et al.*, 2015).

Based on previous research, regulating information disclosure in the context of a witness interview is likely to affect the memory for the event. Researchers have shown that whether withholding information is accompanied, or not, by remembering determines memory preservation or forgetting (Stone, Coman, Brown, Koppel, & Hirst, 2012). On one hand, unreported information may be forgotten due to lack of rehearsal. On the other hand, mental rehearsal facilitates remembering, even when information is not disclosed in conversation (Smith, Roediger, & Karpicke, 2013) and suppression efforts can be unsuccessful when purposefully trying to not remember an event (Anderson & Green 2001). Memory, therefore, is not necessarily impaired as a result of lack of disclosure (Stone *et al.*, 2012). However, findings from experimental research examining the consequences of feigning crime amnesia showed that withholding information produces a memory-undermining effect and genuinely reporting it later comes at a cost for accuracy (Christianson & Bylin, 1999; Van Oorsouw & Merckelbach, 2004, 2006). More recent research on this topic suggests that the undermining memory effects of withholding information are not long-lasting and might be an artefact of testing (Mangiulli, Van Oorsouw, Curci, Merckelbach, & Jelicic, 2018; Sun, Punjabi, Greenberg, & Seamon, 2009). Another likely explanation for these positive effects in memory is the lack of purposeful avoidance and suppression efforts when withholding information (Otgaar & Baker, 2018). While the mnemonic effects of witnesses withholding crime information have not been examined previously, it could mean that if uncooperative witnesses are not motivated to forget the event their memory of it might be preserved despite lack of disclosure. This expected memory preservation effect could be due to the self-rehearsal

practice involved in remembering the event even in the absence of reporting which enhances memory recollection (Mangiulli, Lanciano, van Oorsouw, Jelicic, & Curci, 2019).

The present research

The effects of lack of witness cooperation on the elicited information in an investigative interview have not been empirically tested. To address that shortcoming, we examined the extent to which the witnesses' cooperativeness affects information disclosure and accuracy of witness statements in investigative interviews. Participants were interviewed after watching a recorded mock-crime. We expected a cost–benefit analysis to guide the witness' decision to cooperate (Kidd, 1979) and subsequently disclose information. We manipulated the perception of benefits and costs associated with cooperating with the interviewer. Specifically, we increased the perceived cost of cooperation by placing participants at risk of self-incrimination; inversely, we increased the perceived benefits of cooperating by emphasizing civil duty of serving as a key witness in the investigation (Spencer & Stern, 2001). In addition, participants received instructions designed to encourage cooperativeness or lack of cooperativeness, but independently decided on the extent of their disclosure thus allowing us to examine whether cooperativeness regulates information disclosure.

We hypothesized that cooperativeness instructions would affect information disclosure (measured in number of details) and accuracy. Specifically:

Hypothesis 1. We expected the instructions to cooperate to increase both information disclosure (hypothesis 1a) and accuracy (hypothesis 1b) in the Cooperation condition, and the instructions to not cooperate to decrease them in the No Cooperation and No Cooperation plus Cooperation condition in contrast with the Control condition, in the first interview.

Hypothesis 2. We predicted that the instructions to cooperate would increase both information disclosure (hypothesis 2a) and accuracy (hypothesis 2b) in the Cooperation condition, and the instructions to not cooperate to decrease them in the No Cooperation condition in contrast with the Control condition, in the second interview. Moreover, for the No Cooperation plus Cooperation condition we expected that a new instruction to cooperate, after initial instructions to not cooperate in the first interview, would effectively reframe the costs and benefits associated with cooperating consequently increasing information disclosure in the second interview.

Hypothesis 3. We hypothesized that the new instruction to cooperate would increase disclosure for the No Cooperation plus Cooperation condition in the second interview versus first interview. Considering the different findings regarding the mnemonic effects of withholding information (cf. Stone et al., 2012), we did not provide directional hypotheses for the effects of delayed disclosure on the accuracy of previously withheld information.

Hypothesis 4. We also hypothesized that participants would regulate and strategically control information disclosure to avoid cooperating with the interviewer's requests of information. Therefore, we predicted that participants would use different communication strategies to disclose or withhold information according to the instructions to cooperate and not cooperate in the simulated interviews.

Method

Participants and design

One hundred and forty university students initially participated in the study. They earned either one research credit or a €10 gift card as compensation for their participation. Four cases were excluded (1 participant did not attend the second interview, while the remaining 3 participants were excluded due to technological problems during the interviews). Participants (N = 136, 78.7% female; 18–57 years of age; M = 23.17 years, SD = 6.96) were randomly assigned to four experimental conditions instructing their cooperativeness: Control (no instructions), Cooperation, No Cooperation, and No Cooperation plus Cooperation (with 34 participants in each group), in a between-subjects design with cooperativeness instructions as independent variable and information disclosure (total amount of details) and accuracy as the main dependent variables. This research received approval by the university's ethical committee.

Materials

Stimulus event

Participants watched a recorded mock-crime (Takarangi, Parker, & Garry, 2006). The recording lasts 6 min and 30 s, and depicts a home burglary. A man enters a house and performs different electrical work while stealing some objects from the household.

Post-interview questionnaires

Participants self-reported whether they complied with the experimental instructions and how much complete information they estimated they disclosed in the interview. Participants provided ratings on a 5-point scale, with values ranging from 'Not at all' to 'Extremely', where higher scores indicated higher compliance and higher information disclosure, respectively. Lastly, participants reported the communication strategies they used to disclose information. They provided ratings on a 5-point scale with values ranging from 'Never' to 'Always', where higher scores indicated higher frequency of use (see Table 3 for the listed strategies and descriptive statistics).

Procedure

Interview 1

Prior to watching the stimulus video, participants were asked to pay attention to the footage of a burglary, as they would be asked to provide a statement as an eyewitness to the crime later. During a 10-minute delay interval, participants completed a demographic questionnaire and performed an unrelated distraction task. Then, participants were asked to imagine being at a police station for an investigative interview about what they had

seen. They received the cooperativeness instructions according to their experimental condition (see Appendix S1). As an incentive, participants were warned that failure to follow the instructions would disqualify them from receiving their compensation for participation.

Participants who were in the Cooperation condition were asked to act as the key and only witness in the investigation and instructed to cooperate with the police. They were reminded of the importance of their testimony to advance the investigation. In the No Cooperation and No Cooperation plus Cooperation (Interview 1) conditions, participants received instructions to not cooperate, and were explicitly told they were innocent of any crime but that the police was considering their involvement in the burglary. Participants were instructed to not cooperate with the police, but were not directed on how not to cooperate. As incentive to comply with the instructions to not cooperate, participants received a warning that their statement might incriminate them as they were present at the time of the crime and knew the suspect. In the Control condition, participants were instructed that they were independent witnesses who did not know the victim or the suspect, and they did not receive any instructions regarding cooperation.

All participants provided a verbal free recall account of the event, after which they were prompted once to provide any extra information. All interviews followed the same interviewing script that included evidence-based interviewing guidelines for witness interviews (e.g., rapport-building, mental context reinstatement, instructions to report everything in detail and to avoid guessing; Fisher et al., 2011).

Interview 2

All participants returned to the laboratory a week later, and they all received the same instructions for the second interview, except for the participants in the No Cooperation plus Cooperation condition. Participants in that condition were informed that the police no longer had the suspicion they had committed the crime and therefore they were not at risk of being incriminated. They were instructed to act as independent witnesses and to cooperate in this second interview, and they were reminded of the importance of their new statement to advance the investigation. However, they were not asked to act as the key witness in the investigation, which was the role prescribed for participants in the Cooperation condition in both interviews.

Coding

Participants gave consent to be audio-recorded in both interviews, and verbatim transcripts were used for coding. We coded details as correct if they were reported as presented in the recorded mock-crime or as incorrect if they were in error or not present in the recording. The total amount of details was tallied for each interview as a measure of information disclosure. An index of accuracy was calculated for each interview by dividing the number of correctly recalled details by the total number of details (e.g., the sum of the number of correctly reported details plus the number of incorrect details).

Inter-rater reliability

A random sample of 25% interviews were coded by a research assistant blind to the experimental conditions. The level of inter-rater agreement was high, ICC = 0.96, 95% CI

[0.87, 0.99] and ICC = 0.95, 95% CI [0.85, 0.98] for correct and incorrect details, respectively.

Results

Preliminary analyses

Participants reported themselves to be compliant with the experimental instructions (M = 4.64, SD = 0.50). A one-way between-subjects analysis of variance (ANOVA) showed that participants' self-reported compliance with the experimental instructions to regulate their cooperativeness did not vary between the experimental conditions, $F(3, 132) = 1.20, p = .311, \omega^2 = .005$. This means participants reported to have followed the instructions to cooperate and to not cooperate. Participants also reported how much complete information they believed they disclosed in the interviews, $F(3, 132) = 3.03$, $p = .032$, $\omega^2 = .043$; Control $M = 3.82$, $SD = 0.94$ versus Cooperation $M = 4.09$, $SD = 0.71$ versus No Cooperation $M = 3.53$, $SD = 0.79$ versus No Cooperation/Cooperation $M = 3.82$, $SD = .58$. Post-hoc comparisons with Bonferroni corrections revealed that the participants that received No Cooperation instructions indicated disclosing less information compared to those that received Cooperation instructions, $t(132) = 3.02$, $p = .018$, $d = -.74$, 95% CI [−1.24, −0.26]. All other pairwise comparisons were not statistically different (all ps > .05). These findings show that participants to some extent disclosed information according to the instructions to cooperate and not cooperate.

Hypotheses testing

Interview 1. Does cooperativeness affect information disclosure?

We conducted a one-way between-subjects ANOVA that revealed a significant effect of cooperativeness instructions on information disclosure in the first interview, $F(3, 132) = 13.43, p < .001, \omega^2 = .215$ (see Table 1 for descriptive statistics and outcomes of condition comparisons). Follow-up post-hoc comparisons with Bonferroni corrections showed that information disclosure in the Control condition was significantly higher than in the No Cooperation condition, $t(132) = 4.70$, $p < .001$, $d = -1.06$, 95% CI [−1.58, −0.56]; and the No Cooperation plus Cooperation condition, $t(132) = 5.53$, $p < .001$, $d = -1.33$, 95% CI [−1.85, −0.80]. Similarly, information disclosure was significantly higher in the Cooperation condition compared to the No Cooperation condition, $t(132) = 3.07, p = .016, d = -.75$, 95% CI [−1.24, −0.26]; and the No Cooperation plus Cooperation condition, $t(132) = 3.89, p < .001, d = -1.02$, 95% CI [−1.53, −0.52]. The difference between the Control and the Cooperation conditions was not significant, $t(132) = 1.64, p = .627, d = -.37$, 95% CI [−0.84, 0.11], and neither was the comparison between the two No Cooperation conditions, $t(132) = 0.82$, $p = 1.00$, $d = .22$, 95% CI [−0.70, 0.26]. These results provide partial support to hypothesis 1a, indicating that during the first interview, participants from the No Cooperation and No Cooperation plus Cooperation conditions disclosed significantly less information than those in the Control condition. However, participants in the Cooperation condition did not disclose significantly more information than those in the Control condition. Information disclosure by participants in the Control condition was higher than in the Cooperative condition, but not statistically different.

Table 1. Means and standard deviations for information disclosure and accuracy in interview 1 by condition

	Information disclosure		Accuracy rate	
	M	*SD*	*M*	*SD*
Control	112.15_a	46.51	0.85_a	0.08
Cooperation	96.26_a	40.34	$0.82_{a,b}$	1.00
No Cooperation	66.44_b	39.07	$0.79_{a,b}$	0.19
No Cooperation plus Cooperation	58.47_b	33.19	0.76_b	0.19

Note. Means sharing a common subscript are not statistically different at $p < .05$ according to post-hoc comparisons.

Does cooperativeness affect accuracy in Interview 1?

We conducted a one-way between-subjects ANOVA of cooperativeness instructions on accuracy of the information disclosed during the first interview. The Levene's test indicated inequality of variance ($p < .001$); therefore, we report the Welch *F*-ratio. There was a significant effect of cooperativeness instructions on the overall accuracy of the information disclosed, $F(3, 131) = 3.93$, $p = .012$, $\omega^2 = .05$. Follow-up Games–Howell post-hoc comparisons showed that accuracy means were high and similar across the conditions (see Table 1 for descriptive statistics and outcomes of condition comparisons), except for significantly higher accuracy rates in the Control condition compared to the No Cooperation plus Cooperation condition, $t(131) = 2.71$, $p = .046$, $d = -.62$, 95% CI [−1.11, −0.13]. Overall accuracy rates were high across conditions. However, participants in the No Cooperation plus Cooperation condition disclosed less accurate information (76%) than those in the Control condition (85%). Providing partial support for hypothesis 1b, we found that cooperativeness instructions regulated to a small extent the proportion of accurate information disclosed during the first interview. Specifically, participants in the No Cooperation plus Cooperation disclosed significantly less accurate information, but participants in the Cooperation condition did not provide more accurate information.

Does increased cooperativeness affect delayed disclosure in Interview 2?

We conducted a between-subjects ANOVA of cooperativeness instructions on information disclosure during the second interview (see Figure 1 for the effect of cooperativeness instructions on information disclosure in both interviews). We found a significant effect of cooperativeness instructions on the information disclosed in the second interview, $F(3, 132) = 8.01$, $p < .001$, $\omega^2 = .134$ (see Table 2 for descriptive statistics and outcomes of condition comparisons). Follow-up post-hoc comparisons with Bonferroni corrections showed that information disclosure in the Control condition was significantly higher than the No Cooperation condition, $t(132) = 4.36$, $p < .001$, $d = 1.04$, 95% CI [−1.54, −0.53] and the No Cooperation plus Cooperation, $t(132) = 3.87$, $p < .001$, $d = 0.92$, 95% CI [−1.42, −0.42]. All other pairwise comparisons were not significant ($p > .05$). Providing only partial support for hypothesis 2, we found that No Cooperation instructions decreased disclosure, whereas Cooperation instructions did not lead to higher rates of disclosure compared to the Control condition. Furthermore, those that received a new Cooperation instruction in the No Cooperation plus Cooperation condition did not

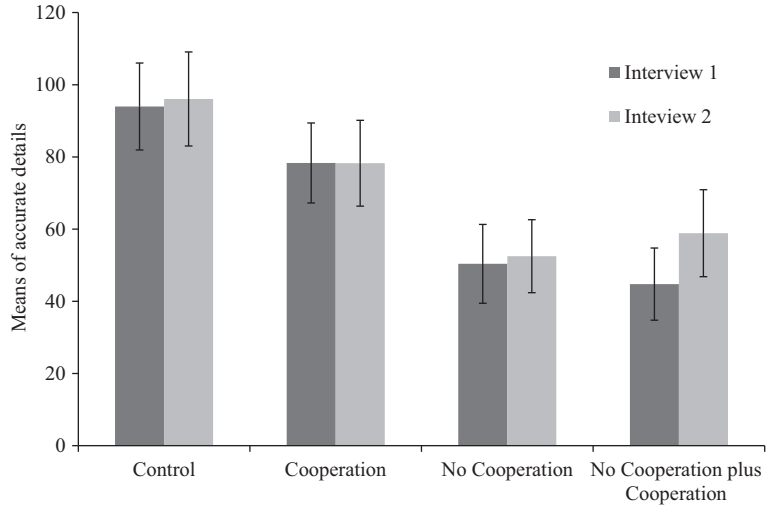

Figure 1. Mean number of disclosed details as a function of cooperativeness instructions (Control vs. Cooperation vs. No Cooperation vs. No Cooperation plus Cooperation). Error bars represent ± 1.96 standard errors (95% confidence intervals)

disclose as much information as those participants in the Control condition during the second interview.

We conducted a paired-sample t-test on the total amount of information disclosed for the No Cooperation plus Cooperation condition across each of the interviews and found that disclosure significantly increased from the first (M = 58.47, SD = 33.19) to the second interview (M = 77.59, SD = 38.74); $t(33) = -2.51$, p = .017, d = .53, 95% CI [0.05, 1.01]. Providing support for hypothesis 3, the No Cooperation plus Cooperation instruction to shift from uncooperativeness to cooperativeness in the second interview significantly increased the total amount of information disclosed for that condition. Nonetheless, the previous finding indicated that the new cooperativeness instruction did not elicit overall comparable delayed disclosure. Together, these findings indicate that instructing cooperativeness after initial uncooperativeness can increase information disclosure only to some extent.

Does cooperativeness affect communication strategies to disclose information?

Self-report ratings were used to explore the extent to which communication strategies to disclose or withhold information are a function of cooperativeness instructions. To test hypothesis 4, ANOVAs were carried out for each communication strategy and followed up with Bonferroni-corrected post-hoc comparisons. For parsimony, only significant effects are reported in this section (see Table 3 for complete descriptive and inferential statistics and Appendix S1 for non-significant effects). When the assumption of homogeneity of variance was violated, corrected Welch F-ratios were computed and Games–Howell post-hoc comparisons calculated. We found that instructed cooperativeness affected participants' willingness to provide accurate information, Welch $F(3, 132) = 4.77$, p = .004, ω^2 = .089. Post-hoc comparisons revealed that participants in the No Cooperation condition indicated including less accurate information in their statements compared to those in the Control condition, $t(132) = 3.09$, p = .017, d = .75, 95% CI

Table 2. Means and standard deviations for information disclosure and accuracy in interview 2 by condition

	Information disclosure		Accuracy rate	
	M	*SD*	*M*	*SD*
Control	118.12_{a}	49.09	0.83_{a}	0.10
Cooperation	$98.79_{a,b}$	45.65	0.80_{a}	0.09
No Cooperation	72.44_{b}	38.32	0.74_{a}	0.21
No Cooperation plus Cooperation	77.59_{b}	38.74	0.74_{a}	0.30

Note. Means sharing a common subscript are not statistically different at $p < .05$ according to post-hoc comparisons.

[0.26, 1.24], and the No Cooperation plus Cooperation condition, $t(132) = -3.03$, $p = .018$, $d = .73$, 95% CI [0.24, 1.23]. Furthermore, participants reported they included both accurate and inaccurate information in their statements according to cooperativeness instructions, $F(3, 132) = 4.67$, $p = .004$, $\omega^2 = .075$. In particular, post-hoc comparisons revealed that participants in the No Cooperation condition more frequently used this communication strategy compared to participants in the Control condition, $t(132) = -3.00$, $p = .020$, $d = -.70$, 95% CI [−1.19, −0.21]; the Cooperation condition, $t(132) = -3.30$, $p = .008$, $d = -.77$, 95% CI [−1.26, −0.28]; and the No Cooperation plus Cooperation condition, $t(132) = 2.80$, $p = .036$, $d = -.62$, 95% CI [−1.10, −0.13]. In addition, there was a significant effect of cooperativeness instructions on participants that frequently did not provide a response, Welch $F(3, 132) = 3.96$, $p = .012$, $\omega^2 = .030$. However, post-hoc comparisons revealed no significant comparisons across conditions. In partial support for hypothesis 4, taken together, these findings indicate that the communication strategies used to disclose and withhold information are different when participants receive Cooperation or No Cooperation instructions. Specifically, participants who received No Cooperation instructions in both interviews were more frequently inclined to disclose less accurate information and more inclined to disclose a combination of accurate and inaccurate information in their statements.

Discussion

We found partial support for the effect of witness cooperativeness on information disclosure during simulated police interviews. In particular, participants who received instructions to not cooperate in both No Cooperation conditions disclosed less information than participants in the Cooperation and Control conditions. Furthermore, we found that cooperativeness instructions only moderately affected the proportion of accurate information disclosed. While most participants disclosed accurate information, participants in the No Cooperation plus Cooperation condition disclosed the least accurate information (76–74% vs. 83–85% Control, in each of the interviews). Contrary to our prediction, instructions to cooperate did not increase disclosure and accuracy across the interviews. Overall, the uncooperativeness instructions negatively affected information disclosure, and accuracy to a lesser extent. Our findings demonstrate that unwillingness to cooperate can regulate the quantity and quality of the information disclosed when serving as a witness in an investigative interview, in line with previous research on civilian cooperation and crime reporting (Kidd, 1979). Furthermore, our

Table 3. Means and standard deviations of self-reported communication strategies per condition with inferential statistics

	Control		Cooperation		No Cooperation		No Cooperation plus Cooperation				
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F* (3,132)	p	ω^2
Accurate information	4.12_{a}	0.48	$3.82_{a,b}$	0.58	3.62_{b}	0.82	4.15_{a}	0.61	4.77	.004*	.089
Inaccurate information	1.85_{a}	0.17	$1.79_{a,b}$	0.17	2.41_{b}	0.17	$2.06_{a,b}$	0.17	2.67	.054	.039
Combination of accurate and inaccurate information	2.15_{a}	1.08	2.06_{a}	1.07	3.03_{b}	1.43	2.21_{a}	1.25	4.67	.004*	.075
Complete information	3.74_{a}	0.93	3.77_{a}	0.74	3.27_{a}	1.08	3.82_{a}	0.90	2.65	.051	.035
Incomplete information	2.59_{a}	1.05	2.56_{a}	0.79	3.03_{a}	1.09	2.65_{a}	1.07	1.61	.190	.013
Statement refuting to engage	1.24_{a}	0.50	1.35_{a}	0.73	1.68_{a}	0.98	1.24_{a}	0.65	2.00	.121	.037
No response	1.41_{a}	0.70	1.41_{a}	0.66	1.27_{a}	0.58	1.09_{a}	0.29	3.96	.012*	.030

Note. Means sharing a common subscript are not statistically different at $p < .05$ according to post-hoc comparisons.
Asterisks indicate significance at alpha level $p < .05$.

findings provide empirical support for the previously proposed detrimental effect of lack of cooperation on information disclosure in investigative interviews (Shepherd & Griffiths, 2013; Spencer & Stern, 2001; Westera & Powell, 2015). This finding highlights the importance of interviewers gaining witness cooperation as lack thereof can negatively affect the outcome of the interview (Vrij *et al.*, 2014).

Our prediction for increased disclosure and accuracy for participants in the Cooperation condition was not supported. It is conceivable this is because participants in the Control condition (no instructions) were forthcoming and disclosed detailed and accurate information by default. This effect could have been enhanced by the type of crime used in this experiment, as burglary is often associated with higher reporting rates (Van Dijk, Van Kesteren, & Smit, 2007). It is also possible that being requested to act as a key witness and to cooperate with the police in the simulated interview failed to instil a perceived high benefit for disclosing information given the low stakes of the experimental situation and the decline in societal responsibility regarding civic participation (Spencer & Stern, 2001), thereby explaining why the rates of disclosure were not significantly different in the Cooperation to the Control condition. However, if the manipulation was effective, participants in the Cooperation condition could have inadvertently perceived that acting as a key witness was associated with increased benefits of withholding (rather than disclosing) information given the weight of their account for the investigation. Individuals tend to strategically control disclosure by meta-cognitively assessing how informative and accurate each piece of information is in order to decide whether to report or omit information (Koriat & Goldsmith, 1994). Given the demands and goals of the current experimental condition, potentially there is an internal request for higher accuracy, at the cost of overall disclosure (Brewer *et al.*, 2018). This latter interpretation of our finding requires further empirical testing, and it is directly relevant for interviewers as it warns them about potential undue responsibility raised by specific instructions that could affect witness accounts.

We also tested the effects of a new instruction to cooperate on delayed disclosure. Participants in the No Cooperation plus Cooperation condition disclosed more information when they were instructed to shift to cooperativeness in the second interview after initial uncooperativeness. However, the instructions to cooperate did not effectively increase disclosure for the No Cooperation plus Cooperation condition compared with the Cooperation and Control conditions. This means that increased cooperativeness can increase information disclosure to a limited extent. Therefore, across interviews, increased cooperativeness led to partial information gain compared with securing cooperativeness from the start. Similarly, research on human intelligence gathering indicates that initial cooperation is a predictor of subsequent cooperative behaviour (Christiansen et al., 2018). Conversely, it could explain that some resistance lingered into the second interview as a result of the experimental suspicion of incrimination instilled in the first interview, which is not conducive to cooperation. Considering a continuum between resistance and cooperation (Kelly, Miller, & Redlich, 2016), this finding indicates a movement towards cooperation given the new Cooperation instruction rather than a complete reversal of the No Cooperation instruction. In operational settings, even a partial shift is a positive investigative outcome in light of the challenging long-lasting effects of uncooperativeness (Alison, Alison, Noone, Elntib, & Christiansen, 2013).

Our complementary analysis showed a significant (albeit small) increase of information disclosure in the second interview across conditions, which could be a result of the memory protective effect of repeated recall attempts (Roediger & Butler, 2011).

Moreover, the moderate increased disclosure came at no significant cost for accuracy. This is crucial when evaluating information reported by uncooperative witnesses who later come forward with information. Thus, we caution the interpretation of this result considering the mixed evidence examining the effects of lack of disclosure in other contexts (cf. Mangiulli *et al.*, 2018; Stone *et al.*, 2012). Further examinations should replicate this finding to test specifically whether cooperativeness affects witness memory and delayed disclosure by witnesses. Specifically, we suggest to examine the effects of different strategies used for not reporting (e.g., fabrication vs. omission). Nonetheless, as increasing cooperativeness can facilitate disclosure of previously withheld information, interviewers should aim (and be encouraged) to gain witness cooperation to gather more complete and detailed witness statements.

Lastly, as expected, we found that participants reported engaging in different patterns of communication to strategically disclose accurate information according to their instructed cooperativeness. Participants instructed to not cooperate were less willing to disclose accurate information and more willing to disclose a combination of accurate and inaccurate information. Similar counter-interrogation strategies have been reported to be used to avoid cooperation in intelligence interviews (Alison *et al.*, 2014). Moreover, these patterns of disclosure are different from the interviewer's expectations of witness cooperation in investigative interviews (Antaki & Stokoe, 2017; Fyfe & Smith, 2007; Kebbell & Milne, 1998). This finding is particularly interesting to understand witness cooperation in relation to the interviewer's goal of gathering information. Therefore, future research can examine whether interviewers are affected by the communication strategies used by uncooperative witnesses, and whether investigative interviews are conducted adjusting to the witness cooperativeness.

Limitations and future research

Our findings should be considered within the limitations of this experimental methodology. We used a mock-crime witness paradigm followed by simulated police interviews with a university student sample, which limits the ecological validity of our findings. Acting as a witness in a real crime investigation involves higher stakes, which are associated with competing motivations to cooperate with the police. Therefore, future research should examine how intrinsic cooperation and lack thereof affect information disclosure in a more realistic scenario, in order to replicate the effects of instructed cooperativeness addressed by this research, and be able to better generalize the results to real investigative interviewing practice. Furthermore, we encourage future replications, using larger samples (Lakens & Evers, 2014), to confirm the reliability of our findings.

The experimental scenario we designed enabled us to examine whether information disclosure varied in relation to instructed cooperativeness. Participants were instructed to cooperate and to not cooperate, and they independently regulated information disclosure. We argued that participants would engage in an analysis of costs and benefits regarding cooperating with the interviewer (e.g., Kidd, 1979), and thus consider whether to disclose or withhold information. While our findings support the effect of uncooperativeness on information disclosure, we cannot unequivocally adjudicate a cost–benefit analysis as the underlying mechanism guiding disclosure behaviour in witness interviews. For that reason, future research ought to explicitly test whether this model can in fact explain the willingness to disclose information according to witness cooperativeness. In addition, moving beyond the effect of instructed cooperativeness on the amount or

accuracy of the information disclosed, research could examine the type of information provided (e.g., central vs. peripheral details).

In our research, the cooperativeness instructions were coupled with a designated role aimed at influencing cooperativeness. Participants in the Cooperation condition received instructions to cooperate in combination with a request to act as key and only witnesses in the investigation, whereas participants who received No Cooperation instructions were asked to not cooperate as they risked self-incrimination. While this design allowed us to provide novel insight on the effects of cooperativeness on information disclosure, the individual contributions of each of these factors that regulate cooperation remain to be examined. For instance, further research on the effects of personal responsibility when being the sole versus one of a number of witnesses on information disclosure is warranted (Kidd, 1979). Second, we cannot rule out that participants in the No Cooperation condition may have considered their relationship to the suspect (i.e., a fictitious colleague) when providing their statements. Thus, future research should explicitly test the relationship to the perpetrator (and the victim) as these factors have been found to affect witness cooperation (cf. Spencer & Stern, 2001). Additionally, given that we only examined cooperativeness after being a mock-witness to a burglary, future research is needed to evaluate whether the observed effects on information disclosure in mock-interviews extend to other types of crime, especially considering that type and severity of the crime influence willingness to report crime and become a witness (Fyfe & Smith, 2007; Nicksa, 2014).

Conclusion

Our findings provide empirical evidence that witness cooperation partially affects information disclosure in an investigative interview. Specifically, lack of cooperation is detrimental to information gathering as it decreases information disclosure and seems to only moderately decrease accuracy. Moreover, gaining cooperation after initial lack of cooperation can moderately increase information disclosure at no significant cost of accuracy in a delayed disclosure. These results are in line with individual's self-reports of disclosing less accurate information, or a combination of accurate and inaccurate information to strategically control disclosure when trying to not cooperate in the interviews. In light of the current findings, it is imperative that practitioners aim to gain witness cooperation from the outset, as this best facilitates disclosure of information and, accordingly, higher quality witness statements.

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Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

Alison, L. J., Alison, E., Noone, G., Elntib, S., & Christiansen, P. (2013). Why tough tactics fail and rapport gets results: Observing Rapport-Based Interpersonal Techniques (ORBIT) to generate useful information from terrorists. *Psychology, Public Policy, and Law*, *19*, 411–431. https://doi.org/10.1037/a0034564

Alison, L., Alison, E., Noone, G., Elntib, S., Waring, S., & Christiansen, P. (2014). The efficacy of rapport-based techniques for minimizing counter-interrogation tactics amongst a field sample of terrorists. *Psychology, Public Policy, and Law*, *20*, 421–430. https://doi.org/10.1037/law0000021

Anderson, M. C., & Green, C. (2001). Suppressing unwanted memories by executive control. *Nature*, *410*, 366–369.

Antaki, C., & Stokoe, E. (2017). When police treat straightforward answers as uncooperative. *Journal of Pragmatics*, *117*, 1–15. https://doi.org/10.1016/j.pragma.2017.05.012

Bowles, R., Reyes, M. G., & Garoupa, N. (2009). Crime reporting decisions and the costs of crime. *European Journal on Criminal Policy and Research*, *15*, 365–377. https://doi.org/10.1007/s10610-009-9109-8

Brewer, N., Vagadia, A. N., Hope, L., & Gabbert, F. (2018). Interviewing witnesses: Eliciting coarse-grain information. *Law and Human Behaviour*, *42*, 458–471. https://doi.org/10.1037%2Flhb0000294

Christiansen, P., Alison, L., & Alison, E. (2018). Well begun is half done: Interpersonal behaviours in distinct field interrogations with high-value detainees. *Legal and Criminological Psychology*, *23*, 68–84. https://doi.org/10.1111/lcrp.12111

Christianson, S.-Å., & Bylin, S. (1999). Does simulating amnesia mediate genuine forgetting for a crime event? *Applied Cognitive Psychology*, *13*, 495–511. https://doi.org/10.1002/(SICI)1099-0720(199912)13:6<495:AID-ACP615>3.0.CO;2-0

Confrey, M. (2017). *Interviewing the reluctant, intimidated, and hostile*. Paper presented at the annual meeting of the International Investigative Interviewing Research Group, Monterey Bay – California, United States of America.

De La Fuente Vilar, A., Horselenberg, R., & van Koppen, P. J. (2018). *What if witnesses are uncooperative? – A glimpse on current interviewing practice in The Netherlands*. Paper presented at the annual meeting of the International Investigative Interviewing Research Group, Porto, Portugal.

Fisher, R. P. (1995). Interviewing victims and witnesses of crime. *Psychology, Public Policy, and Law*, *1*, 732–764. https://doi.org/10.1037/1076-8971.1.4.732

Fisher, R. P., Milne, R., & Bull, R. (2011). Interviewing cooperative witnesses. *Current Directions in Psychological Science*, *20*, 16–19. https://doi.org/10.1177/0963721410396826

Fyfe, N., & Smith, K. (2007). Victims and witnesses in criminal investigations. In T. Newburn, T. Williamson & A. Wright (Eds.), *Handbook of criminal investigation* (pp. 450–465). London, UK: Routledge. https://doi.org/10.4324/9780203118177.ch18

Goudriaan, H. (2006). *Reporting crime: Effects of social context on the decision of victims to notify the police*. Veenendaal, The Netherlands: Universal Press.

Granhag, P. A., Oleszkiewicz, S., Strömwall, L. A., & Kleinman, S. M. (2015). Eliciting intelligence with the Scharff technique: Interviewing more and less cooperative and capable sources. *Psychology, Public Policy, and Law*, *21*, 100–110. https://doi.org/10.1037/law0000030

Homans, G. (1958). Social behavior as exchange. *American Journal of Sociology*, *63*, 597–606. Retrieved from http://www.jstor.org/stable/2772990

Hope, L., Gabbert, F., & Fraser, J. (2013). Postincident conferring by law enforcement officers: Determining the impact of team discussions on statement content, accuracy, and officer beliefs. *Law and Human Behavior*, *37*, 117–127. https://doi.org/10.1037/lhb0000019

Kebbell, M. R., & Milne, R. (1998). Police officers' perceptions of eyewitness performance in forensic investigations. *The Journal of Social Psychology*, *138*, 323–330. https://doi.org/10.1080/10683169908414996

Kelly, C. E., Miller, J. C., & Redlich, A. D. (2016). The dynamic nature of interrogation. *Law and Human Behavior*, *40*, 295–309. https://doi.org/10.1037/lhb0000172

Kidd, R. F. (1979). Crime reporting: Toward a social psychological model. *Criminology*, *17*, 380–394.

Koriat, A., & Goldsmith, M. (1994). Memory in naturalistic and laboratory contexts: Distinguishing the accuracy-oriented and quantity-oriented approaches to memory assessment. *Journal of Experimental Psychology: General*, *123*, 297–315.

Lakens, D., & Evers, E. R. (2014). Sailing from the seas of chaos into the corridor of stability: Practical recommendations to increase the informational value of studies. *Perspectives on Psychological Science*, *9*, 278–292. https://doi.org/10.1177/1745691614528520

Mangiulli, I., Lanciano, T., Van Oorsouw, K., Jelicic, M., & Curci, A. (2019). Do reminders of the crime reverse the memory-undermining effect of simulating amnesia? *Memory & Cognition*, *47*, 1375–1385. https://doi.org/10.3758/s13421-019-00939-z

Mangiulli, I., Van Oorsouw, K., Curci, A., Merckelbach, H., & Jelicic, M. (2018). Feigning amnesia moderately impairs memory for a mock crime video. *Frontiers in Psychology*, *9*, 1–9. https://doi.org/10.3389/fpsyg.2018.00625

Maynard, W. (1994). *Witness intimidation: Strategies for prevention*. London, UK: Home Office Police Department.

Neequaye, D. A., & Luke, T. J. (2018). *Management of disclosure-costs in intelligence interviews*. Retrieved from Open Science Framework preprints: https://osf.io/dfr5v/

Nicksa, S. C. (2014). Bystander's willingness to report theft, physical assault, and sexual assault: The impact of gender, anonymity, and relationship with the offender. *Journal of Interpersonal Violence*, *29*, 217–236. https://doi.org/10.1177/0886260513505146

Otgaar, H., & Baker, A. (2018). When lying changes memory for the truth. *Memory*, *26*, 2–14. https://doi.org/10.1080/09658211.2017.1340286

Papp, J., Smith, B., Wareham, J., & Wu, Y. (2017). Fear of retaliation and citizen willingness to cooperate with police. *Policing and Society*, *29*(6), 623–639. https://doi.org/10.1080/10439463.2017.1307368

Roberts, K. (2010). Great expectations: Relations of trust and confidence in police interviews with witnesses of crime. *Policing: A Journal of Policy and Practice*, *4*, 265–272. https://doi.org/10.1093/police/paq022

Roediger, III, H. L., & Butler, A. C. (2011). The critical role of retrieval practice in long-term retention. *Trends in Cognitive Sciences*, *15*, 20–27. https://doi.org/10.1016/j.tics.2010.09.003

Shepherd, E. (1993). Resistance in interviews: The contribution of police perceptions and behaviour. *Issues in Criminological and Legal Psychology*, *18*, 5–12.

Shepherd, E., & Griffiths, A. (2013). *Investigative interviewing. The conversation management approach* (3rd ed.). Oxford, UK: Oxford University Press.

Smeets, T., Candel, I., & Merckelbach, H. (2004). Accuracy, completeness, and consistency of emotional memories. *The American Journal of Psychology*, *117*, 595–609.

Smith, M. A., Roediger, III, H. L., & Karpicke, J. D. (2013). Covert retrieval practice benefits retention as much as overt retrieval practice. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *39*, 1712–1725. https://doi.org/10.1037/a0033569

Spencer, S., & Stern, B. (2001). *Reluctant witness*. London, UK: Institute for Public Policy Research.

Stone, C. B., Coman, A., Brown, A. D., Koppel, J., & Hirst, W. (2012). Toward a science of silence the consequences of leaving a memory unsaid. *Perspectives on Psychological Science*, *7*, 39–53. https://doi.org/10.1177/1745691611427303

Sun, X., Punjabi, P. V., Greenberg, L. T., & Seamon, J. G. (2009). Does feigning amnesia impair subsequent recall? *Memory & Cognition*, *37*, 81–89. https://doi.org/10.3758/MC.37.1.81

Takarangi, M. K., Parker, S., & Garry, M. (2006). Modernising the misinformation effect: The development of a new stimulus set. *Applied Cognitive Psychology*, *20*, 583–590. https://doi.org/10.1002/acp.1209

Tyler, T. R., & Fagan, J. (2008). Legitimacy and cooperation: Why do people help the police fight crime in their communities. *Ohio State Journal of Criminal Law*, *6*, 231–275.

Van Dijk, J., Van Kesteren, J., & Smit, P. (2007). *Criminal Victimisation in International Perspective: Key findings from the 2004–2005 ICVS and EU ICS*. The Hague, The Netherlands: Boom Juridische.

Van Oorsouw, K., & Merckelbach, H. (2004). Feigning amnesia undermines memory for a mock crime. *Applied Cognitive Psychology*, *18*, 505–518. https://doi.org/10.1002/acp.999

Van Oorsouw, K., & Merckelbach, H. (2006). Simulating amnesia and memories of a mock crime. *Psychology, Crime and Law*, *12*, 261–271. https://doi.org/10.1080/10683160500224477

Vrij, A., Hope, L., & Fisher, R. P. (2014). Eliciting reliable information in investigative interviews. *Policy Insights from Behavioral and Brain Sciences*, *1*, 129–136. https://doi.org/10.1177/2372732214548592

Westera, N., & Powell, M. (2015). Improving communicative practice: Beyond the cognitive interview for adult eyewitnesses. In G. Oxburgh, T. Myklebust, T. Grant & R. Milne (Eds.), *Communication in investigative and legal contexts: Integrated approaches from forensic psychology, linguistics and law enforcement* (pp. 337–358). Chichester, UK: Wiley Blackwell.

Wheeler, R., Gabbert, F., Clayman, S., & Jones, S. (2017). *Information gathering with reluctant witnesses: A practitioner survey*. Paper presented at the annual meeting of the International Investigative Interviewing Research Group, Monterey Bay – California, United States of America.

Yang, Y., Guyll, M., & Madon, S. (2017). The interrogation decision-making model: A general theoretical framework for confessions. *Law and Human Behavior*, *41*, 80–92. https://doi.org/10.1037/lhb0000220

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Supporting Information

The following supporting information may be found in the online edition of the article:

Appendix S1. Materials.