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Social influence in investigative interviews: The effects of reciprocity

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Summary

This study examined how a principle of social influence—reciprocity—affects the informational elements produced in an investigative interview. Participants from 3 ethnic/cultural groups recruited from the community either received a bottle of water or not prior to their engaging in an investigative interview, in which they either told the truth or lied about having committed a mock crime. Three different informational elements (Relevant details, Irrelevant details, and Plausibility) were coded from their responses, and rapport in the interaction was coded from video. Offering water facilitated greater rapport and influenced the informational elements. These effects were moderated by Veracity condition: For liars, offering water produced more Relevant details and greater Plausibility in the statements and this effect was mediated by rapport. Ethnicity/culture did not moderate these findings. These findings suggested the applicability of principles of social influence in investigative interviews across cultures/ethnicities and had theoretical, empirical, and practical implications.

KEYWORDS

culture, deception, rapport, reciprocity, social influence, veracity

1 | INTRODUCTION

Principles of persuasion and influence have been studied for many years, especially in the areas of business and marketing (Cialdini, 2009; Cialdini & Goldstein, 2004; collectively, we refer to these principles as social influence). These principles have potential utility to security professionals as well, as many interviews and interrogations involve a process of guiding uncooperative and unwilling individuals to recall facts, divulge information, make confessions or admissions, or share sources that are held secret. Although many seasoned investigators already engage in various strategies and tactics of social influence, consciously or unconsciously, through trial, error, and experience, to date, there are very few, if any, studies that have empirically assessed the value of those principles in the investigative interview context. The purpose of this study is to address this gap in the literature.

1.1 | A culturally moderated, rapport mediated model of social influence in investigative interviewing

Cialdini (2009) and Cialdini and Goldstein (2004) described six key principles of social influence that lead initially uncooperative individuals to become cooperative and compliant: Reciprocity, Commitment and Consistency, Social Proof, Authority, Liking, and Scarcity. Within

the investigative interviewing/interrogation context, these principles may potentially affect a number of relevant outcomes. For example, social influence processes should positively affect the amount and kind of information offered in an interview. Social influence processes can also be used to enhance interviewee memories and recall and affect the nature of other aspects of an interview or interrogation, such as greater frequencies of admissions of facts or confessions of guilt.

Social influence strategies and tactics should have a positive effect on interview outcomes because of the psychological changes that occur in the minds of the interviewees. These changes are enabled by the facilitation of *rapport* between the interviewer and interviewee. One recent study involving interviews of 123 intelligence and investigative interrogators provided indirect evidence for this notion and reported that social influence principles of liking and reciprocity were most often used in establishing positive rapport with interviewees (Goodman-Delahunty & Howes, 2016).

If social influence processes increase rapport between interactants, increased rapport should enable interactants to communicate more effectively with each other, producing more positive interview outcomes. A positive influence of rapport in investigative interviews has been demonstrated by a few studies in recent years. Increased rapport has been shown to facilitate the disclosure of meaningful and complete information earlier in the interview (Goodman-Delahunty,

Martschuk, & Dhami, 2014), and more accurate information in eyewitness testimony (Kieckhaefer, Vallano, & Schreiber Compo, 2013; Vallano & Compo, 2011). Other studies (see review by Meissner, Kelly, & Woestehoff, 2015) have provided indirect evidence for a positive influence of rapport in the interviewing and interrogation context. Thus, we contend that rapport mediates the relationship between social influence processes and interview outcomes.

Although Cialdini's model of social influence has been tested widely across cultures (Cialdini, Wosinska, Barrett, Butner, & Gornik-Durose, 1999; Petrova, Cialdini, & Sills, 2007; Wosinska, Cialdini, Barrett, & Reykowski, 2000), the degree to which culture moderates the effects of social influence within an investigative interview setting is not known. Arguments can be made for both moderation and nonmoderation. On one hand, these principles are learned behaviors that evolve from aspects of human interaction that should be constant across cultures and are necessary for social cohesion and coordination; as such, they should transcend cultural, geographical, and ethnic boundaries. Because social influence principles refer to basic human processes, and because previous studies in other fields (e.g., sales and marketing) have demonstrated their utility across cultures, there is no reason to believe they would not work in an investigative interview setting. On the other hand, the investigative interview context is unique in that uncooperative interviewees hold onto information that is important to them. Because of cultural differences in values, and in attitudes and beliefs concerning lying itself (The Global Deception Research Team, 2006), the special nature of the investigative or interrogative context may render the production of hidden information impervious to social influence.

Possible cultural moderation of social influence processes within an investigative interview context can be addressed by data. Here, we test a *culturally moderated, rapport-mediated model of social influence* in investigative interviewing. This model suggests that social influence processes have positive effects on interview outcomes, which are mediated by rapport between the interviewer and interviewee. Culture may moderate this mediated model such that the positive effects of social influence on interview outcomes and/or their mediation occur differently in different cultures. It may very well be that the *principles* are universal but the specific *tactics* that address the principles effectively are different across cultures; or it may be that the principles themselves are not universally applicable, at least within the investigative interview context. The current study addressed this important question within an investigative interview context.

1.2 | Overview and hypotheses

Participants from three ethnic/cultural groups—European Americans, Chinese immigrants, and Hispanic immigrants—participated in a mock crime in which they were randomly assigned to either steal a check and lie about it to investigators or to just look at the check and tell the truth. After committing (or not committing) the mock crime, all interviewees participated in an investigative interview that was video recorded. We coded three types of informational elements from the transcribed responses to the main question in that interview—Relevant details, Irrelevant details, and Plausibility. We also coded rapport from the videos of the interactions between interviewer and interviewee.

Although many definitions of rapport exist (see reviews in Abbe & Brandon, 2013; Abbe & Brandon, 2014), for the purposes of this study, we defined rapport as *the quality of an interaction that allows individuals to communicate effectively*.

Here, we focus on the social influence principle of reciprocity, in which people tend to return a favor because of feelings of indebtedness (quid pro quo). The rule of reciprocity and its accompanying sense of obligation is considered one of the most potent weapons of social influence, being pervasive in human cultures and fundamental to genuine interaction (Gouldner, 1960). Reciprocity obligates us to future repayment of gifts, favors, or invitations. All individuals, at one time or another, have been influenced by the psychological obligation embedded within this rule; although many times this greases the wheels of society, at other times, people can become unwitting victims to this social influence tactic. Prior to the interviews, participants were randomly assigned to either receive a bottle of water from the interviewer or not, which constituted a simple manipulation of this social influence principle. We tested the following hypotheses:

> **Hypothesis 1.** *That the offering of water will result in higher rapport between the interactants, and more Relevant details, less Irrelevant details, and more Plausibility in interviewee responses.*

> **Hypothesis 2.** *That rapport will mediate the relations between receiving water and the interview outcomes (informational elements).*

> **Hypothesis 3.** *That ethnicity/culture will moderate the rapport-mediated model of receiving water on interview outcomes.*

2 | METHODS[1]

2.1 | Design and power analysis

The experiment was a three-way, between-subjects design with Water condition (Water vs. No Water), Ethnicity (European Americans vs. Chinese immigrants vs. Hispanic immigrants), and Veracity condition (Truth vs. Lie) as factors. The dependent variables were three informational elements coded from interview transcripts (Relevant details, Irrelevant details, and Plausibility). The mediator was rapport, which was coded from videos of the interviewer–interviewee dyadic interactions. Based on an average effect size in social psychological research of $r = .21$ (Richard, Bond, & Stokes-Zoota, 2003), at $\alpha = .05$ with $df_{numerator} = 2$ and 12 total cells, we estimated $N_{total} = 212$ was required for 80% power.

2.2 | Participants

A total $N = 204$ individuals participated in the experiment. Filtering participants who misunderstood their instructions, did not complete the procedures correctly, or whose sessions were associated with technical problems resulted in a final $N = 181$. (The resulting power

of the 12-cell design consequently dropped to 73%, given the same parameters above.) Participants comprised a community sample who responded to online ads and posted flyers recruiting participants for a study examining cultural differences in how people feel when going through security interviews. Participants came from one of the three ethnic/language groups: European Americans, Chinese immigrants, and Hispanic immigrants. The European Americans were 72 individuals, all born-and-raised in the United States and whose first language was English (49% males, mean age = 43.15). The Hispanics were 48 individuals who were born and raised in Central or South America, or whose parents were born in any of those countries, and whose first language was Spanish (48% males, mean age = 32.12). The Chinese were 61 individuals born and raised in the People's Republic of China, Hong Kong, or Taiwan, or whose parents were born and raised in those countries, and whose first language was Mandarin or Cantonese (34% males, mean age = 27.16). All were randomly assigned to the Water and Veracity conditions.

2.3 | Measures

At the beginning of the experiment, participants completed a series of questionnaires including a brief demographic questionnaire, the General Ethnicity Questionnaire (GEQ; Tsai, Ying, & Lee, 2000), the NEO-Five Factor Inventory (Costa & McCrae, 1992), the Social Dominance Orientation Scale (Pratto, Sidanius, Stallworth, & Malle, 1994), an adapted version of the Schwartz Value Scale (Schwartz, 2006), the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), and the Self-Monitoring Scale (Snyder, 1974). Participants also completed an emotion checklist at the beginning and the end of the experiment. This checklist included 12 emotion words (guilt, fear, anger, embarrassment, worry, contempt, excitement, disgust, amusement, nervousness, surprise, and interest) rated on 9-point scales labeled 0 = None, 4 = Moderate Amount, and 8 = Extremely Strong. All measures except the GEQ were omitted from this study.

The GEQ is a commonly used scale to measure acculturation and ethnic identity and was included as a manipulation check for ethnic/cultural differences. It contained 38 statements, 25 rated on a 5-point Likert scale from strongly disagree to strongly agree and 13 rated on a 5-point scale from very much to not at all. The GEQ was modified to be applicable to each ethnic group.

2.4 | Procedure

After consenting, participants completed the presession measures and then were informed of their random assignment to a Veracity condition. The truth condition required participants not to take a check made out to cash for $200 and to tell the truth about it later. The lie condition required participants to take the check and lie about it. Participants were told that they would be interviewed regarding what they did in the room where the check was located and would have to persuade the interviewers about their honesty. Participants were also told that they would earn a minimum of $30 for their participation and bonuses of anywhere from $0 to $50 depending upon their assigned condition and the judgments of the interviewers. They were also told that if they were not believed, they would have to stay an extra hour to complete a long questionnaire; if they were believed, they could leave early. In reality, the interviewers made no such determinations, all participants received a standard fee of $40 and no one was detained. As a manipulation check, participants rated the severity of these expected consequences if they were judged to be lying in the experiment (the expected consequence when they failed to convince an interviewer), using a scale from 1, No consequence, even slightly pleasurable, to 10, Maximum consequence, even slightly painful. The mean was 5.95, and there were no differences between the three language groups, $F(2,164) = .426$, $p = .654$; thus, the expected seriousness that the participants had about the experiment was at least on a moderate level.

All participants had to complete two interviews. After an initial screening interview to ascertain their intent to commit a crime, participants went to a room (to either steal the check or leave it) and then came out to wait for the next step. Participants were escorted to an interview room and were asked to write a statement about what they did in the previous room. Upon returning to the interview room, the interviewer either provided a bottle of water to the interviewee or not (participants were randomly preassigned to Water condition), after which the investigative interview proceeded using standardized questions. After the interview was completed, participants were escorted out of the interview room to complete the postsession measures, after which they were debriefed about the study, including the standardized compensation fee, which was $40 and no punishment. The experiment generally lasted between 75 and 90 min.

2.5 | Coding procedures and reliability

Three male interviewers (two European Americans, one Asian American) utilizing a standard protocol conducted all interviews. The data reported here came from the second, investigative interview. Participants' responses to the entire interview were transcribed verbatim and their responses to the following prompt were coded: "I've read your statement but I want to hear in your own words what you did in the file room. Tell me what you did."

2.5.1 | Informational elements

We coded participants' responses for Relevant details, Irrelevant details, and Plausibility. Relevant details were defined as any detail reported that was primarily about what the participant did, which likely occurred during the experiment, and was relevant to the question being answered or the context (i.e., in relation to the actual instructions; e.g., "I opened the envelope." "There was a check."). Irrelevant details were defined as any detail reported that may have occurred during the experiment but was not relevant to the question being asked or the context (i.e., the actual instructions to the Ps) or was likely not to have occurred during the experiment (e.g., "I met a friend." "The carpet was brown."). Plausibility was defined as the degree to which the events described in a participant's response were likely to have occurred in reality for the average person in the experimental situation with the specific instructions they were given (i.e., whether the coder believed the story of the participant).

The number of Relevant and Irrelevant details in each of the responses was tallied. To assess reliability, two coders independently

coded all European American responses. (All coders in the study were blind to the experimental conditions for the participants.) Reliability was high and acceptable for both Relevant and Irrelevant details (intraclass correlation coefficient [*ICCs*] = .97 and .99, respectively). Both coders then coded 23 responses by Chinese immigrants and 24 by Hispanic immigrants. Reliabilities for Relevant and Irrelevant details were high and acceptable in all cases (*rs* = .98 and .99, and .99 and .97, respectively). One coder subsequently coded the remaining cases. Plausibility was coded on a 7-point scale labeled 0—*Not plausible at all*, 1—*Minimally plausible*, 3—*Moderately plausibly*, and 6—*Maximally plausible*. To assess reliability, two coders independently coded all European American responses and 20 cases each of Hispanic and Chinese immigrants. Reliabilities were high and acceptable, *r* = .91, .90, and .90, respectively. One coder subsequently coded the remaining cases.

2.5.2 | Rapport

Because the available literature on rapport has indicated that ratings of rapport by individuals in the interaction tend to be unreliable (Abbe & Brandon, 2013; Bernieri, 1988; Bernieri, Davis, Rosenthal, & Knee, 1994; Bernieri & Gillis, 1995; Tickle-Degnen & Rosenthal, 1990), we assessed rapport by third-party coding of the interaction between the interviewer and interviewee along four dimensions that summarized the rapport-related qualities of the interaction: Mutual Attentiveness, which referred to the how attentive, involved, and engaged interactants were with each other; Coordination, which referred to the degree of synchrony, complementarity, or convergence between the interactants and their communicative behaviors; Cooperation, which referred to the degree of mutual respect the interactants gave to each other and their communicative requests and the degree of operational accord between them[2]; and Overall Rapport. Ratings were made using an 11-point scale, labeled 0—*No evidence of this at all*, 1—*Scant evidence*, 5—*Moderate amount of evidence*, and 10 —*Maximum amount of evidence for this concept*. Reliability was assessed by having three coders (who did not code the informational elements described above) independently code 42 cases each of European Americans, Hispanic immigrants, and Chinese immigrants. (The video included a frontal view of the interviewee's whole body and a partial side view of the interviewer that allowed for observation of the interviewer's behaviors. All interviewers maintained a standard posture throughout all interviews.) Intraclass correlations were high and acceptable for all four codes for the European Americans, *ICCs* = .87, .80, .77, and .85, respectively. Similar ICCs were obtained separately for each ethnic group (.96, .85, .75, .88; and .83, .75, .74, .89, for Chinese and Hispanic immigrants, respectively). A single coder subsequently coded the remaining cases.

To examine whether the four rapport ratings assessed relatively independent aspects of rapport, or in reality were part of a single, overall rapport factor, we computed a principal components analysis on the four ratings. The analyses produced a single factor (based on both Kaiser criterion and scree plot) that accounted for 71.32% of the total variance. Overall Rapport ratings loaded the highest on this factor (.97), followed by Mutual Attentiveness (.83), Cooperation (.81), and Coordination (.75). Thus, we used the Overall Rapport ratings in the analyses below instead of analyses utilizing the four ratings as separate variables.

3 | RESULTS

3.1 | Manipulation checks

3.1.1 | Ethnic/cultural differences among the groups

We computed total scores on the GEQ, which was the mean of all items after reverse coding those negatively loaded. The Chinese sample had significantly higher scores than the American born Chinese and Chinese who immigrated to the United States before the age of 12 reported by Tsai et al. (2000), *t*(64) = 14.58, *p* < .001, *d* = .85; *t*(64) = 7.87, *p* < .001, *d* = .46, respectively. Thus, our Chinese sample identified themselves as Chinese and very strongly with Chinese culture, more so than American born Chinese. For the European Americans, the GEQ total mean scores were compared with those for American cultural domains reported by Tsai et al. (2000) and with European Americans reported in Tsai, Knutson, and Fung (2006). There were no differences in either comparison, *t*(61) = −1.39, *p* = .169. *d* = −0.176, and *t*(262) = .69, *p* = .49, *d* = .102. Norms for Hispanics using this measure do not exist, but their scores were comparable to the Chinese and Americans in our sample.

3.1.2 | Relevant details, irrelevant details, and plausibility

We computed univariate three-way, between subjects analysis of variances with Water condition, Ethnicity, and Veracity condition as the independent variables on the dependent variables and mediator. For the dependents, the Veracity condition main effects served as an important manipulation check of the coding procedures. This main effect was significant for Relevant details, Irrelevant details, and Plausibility, respectively, $F(1, 192) = 64.80$, $p < .001$, $\eta_p^2 = .252$; $F(1, 192) = 8.61$, $p = .004$, $\eta_p^2 = .043$; $F(1, 192) = 77.66$, $p < .001$, $\eta_p^2 = .288$. Truth tellers' responses had more Relevant details, less Irrelevant details, and were more plausible, which were to be expected given the coding rules (see Table 1 for descriptives). Also, Relevant details were positively correlated with Plausibility and negatively correlated with Irrelevant details, $r(204) = .84$, $p < .001$; and $r(204) = −.18$,

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[2]Operational accord has been described as the degree to which the interviewer and interviewee understand that there is a goal to the interview and are both willing to contribute to achieving that goal (Kleinman, 2006). In the context of this study, operational accord referred to the degree to which the interviewer and interviewee recognized that the goal of the interview was to extract information and to which the interviewee provided information when prompted by the interviewer (regardless of the veracity of that information).

TABLE 1 Descriptive statistics (Means and Standard Deviations) for the dependent variables and mediator

	Water		No water	
	Truth tellers	Liars	Truth tellers	Liars
Relevant details	8.35 (5.63)	2.83 (4.92)	10.33 (5.47)	1.35 (2.19)
Irrelevant details	5.33 (3.93)	9.02 (6.48)	6.83 (7.61)	9.61 (9.04)
Plausibility	4.26 (2.03)	1.76 (1.96)	4.33 (1.87)	1.08 (1.34)
Overall rapport	6.41 (.91)	6.57 (1.23)	6.33 (.98)	5.88 (1.38)

p = .011, respectively. Irrelevant details were negative correlated with Plausibility, $r(204) = -.37$, $p < .001$.

3.2 | Preliminary analyses

In order to identify the correct moderated mediational model with which to test our hypotheses, identifying the existence of any interactions between the independent variables on the mediator (rapport) or dependent variables was necessary. The same three-way analysis of variances reported above served this purpose. For the dependent variables, only one interaction (Veracity by Water) was significant for Relevant details, $F(1, 192) = 4.75$, $p = .031$, $\eta_p^2 = .024$ (liars who received water produced relatively more Relevant details than truth tellers who received water). No interactions involving Ethnicity or Veracity were significant for either Irrelevant details or Plausibility. For the mediator (Overall Rapport), the Veracity by Water condition interaction was significant, $F(1, 169) = 2.81$, $p = .095$, $\eta_p^2 = .016$; relative to truth tellers, liars who received water had greater rapport than those who had not. Additionally, the main effect of Water condition was significant for Overall Rapport, $F(1, 169) = 5.40$, $p = .021$, $\eta_p^2 = .031$, indicating that in general, participants who received water had greater overall rapport. No interactions involving Ethnicity were significant.

3.3 | Moderated mediational analyses testing hypotheses 1–3

We tested the hypotheses using SPSS PROCESS with different moderated mediational models based on the above preliminary analyses. When testing Relevant details, the moderating effect of Veracity condition needed to be accounted for in the effects of Water condition on both the mediator and the dependent variable. Thus for Relevant details, we utilized Model 8 (Veracity condition interacting with the relationships between both the independent variable and the mediator with the dependent), as this model was consistent with the interactions found in the preliminary analyses above. The overall model was significant, $R(181) = .64$, $F(4, 176) = 29.93$, $p < .001$. Overall Rapport had a marginally significant direct effect, but the Confidence Intervals (CIs) overlapped with zero. Water had a significant direct effect, and

the CIs did not overlap with zero. But the interaction between Water and Veracity conditions was also significant, and the CIs did not overlap with zero. This interaction indicated that examining the conditional direct and indirect effects was necessary. The conditional direct effects of water indicated that offering water to truth tellers produced less Relevant details, but offering water to liars produced more Relevant details. The conditional indirect effects indicated that the CIs for liars did not overlap with zero, suggesting strong support for the mediating effect of Overall Rapport on the relationship between water and Relevant details for liars (Table 2).

When testing the model on Irrelevant details and Plausibility, the preliminary analyses indicated that the moderating effects of Veracity condition needed to be accounted for in the effects of Water condition on the mediator only. Thus, we utilized Model 7 (accounting for the interaction between Water and Veracity conditions on the mediator). For Irrelevant details, the overall model was not significant, $R(181) = .12$, $F(2, 178) = 1.25$, $p = .299$. Neither Overall Rapport nor Water condition had significant direct effects, $B = .49$, $SE_B = .47$, $t(181) = -1.34$, $p = .291$, 95% CI [−.43, 1.42]; and $B = -1.46$, $SE_B = 1.09$, $t(181) = -1.34$, $p = .182$, 95% CI [−3.62, .69], respectively. Both conditional indirect effects produced CIs that overlapped with zero. Thus, there appeared to be no effect of either offering water or rapport on Irrelevant details.

For Plausibility, the overall model was significant, $R(181) = .19$, $F(2, 178) = 3.39$, $p = .036$. Overall Rapport had a significant direct effect, and the CIs did not overlap with zero. The direct effect of Water condition on Plausibility was not significant. Conditional indirect effects indicated that offering water to liars produced a positive effect on Plausibility via Overall Rapport, and the CIs did not overlap with zero (Table 3).

3.4 | Post hoc analyses

Despite that the preliminary analyses did not produce any significant Ethnicity main or interaction effects involving Water or Veracity condition on the dependents or mediator, we recomputed the above main analyses for Relevant details and Plausibility, separately for each of the three ethnic groups. We were interested in whether the same

TABLE 2 Moderated mediational analyses on relevant details

	Coefficient	SE	t	p	Lower Level Confidence Interval	Upper Level Confidence Interval
Direct effects						
Overall rapport	.53	.30	1.75	.08	−.07	1.13
Water	−5.17	2.22	−2.33	.021	−9.55	−.79
Veracity	−11.88	2.20	−5.39	<.001	−16.23	−7.53
Veracity by water	3.14	1.40	2.24	.026	.38	5.91
Conditional direct effects						
Truth tellers	−2.03	.99	−2.04	.042	−3.99	−.07
Liars	1.11	.99	1.12	.260	−.85	3.07
Conditional indirect effects						
Truth tellers	.04	.12			−.15	.34
Liars	.37	.25			.03	1.11

TABLE 3 Moderated mediational analyses on plausibility

	Coefficient	SE	t	p	LLCI	ULCI
Direct effects						
Overall rapport	.31	.15	2.11	.036	.02	.60
Water	.39	.35	1.14	.261	−.29	1.08
Conditional indirect effects						
Truth tellers	.02	.07			−.09	.20
Liars	.22	.13			.02	.55

TABLE 4 Coefficients (and SE) for each of the effects from the main findings on relevant details by ethnicity

	Direct effect of overall rapport	Direct effect of water	Conditional direct effects of water		Conditional indirect effects through overall rapport	
			Truth tellers	Liars	Truth tellers	Liars
Relevant details						
Total group	.53 (.30)	−5.17 (2.22)	−2.03 (.99)	1.11 (.99)	.04 (.12)	.37 (.25)
European Americans	.62 (.39)	−1.77 (3.45)	−.63 (1.60)	.52 (1.30)	.06 (.21)	.37 (.35)
Chinese immigrants	.14 (.64)	−9.01 (4.26)	−3.89 (1.82)	1.24 (2.12)	−.05 (.39)	.07 (.51)
Hispanic immigrants	.63 (.74)	−4.36 (4.14)	−1.11 (1.89)	2.14 (2.05)	.39 (.58)	.96 (.92)
Plausibility						
Total group	.31 (.15)	.39 (.35)			.02 (.07)	.22 (.13)
European Americans	.42 (.20)	.24 (.53)			.04 (.13)	.25 (.23)
Chinese immigrants	.25 (.28)	.43 (.62)			−.09 (.17)	.13 (.22)
Hispanic immigrants	.07 (.37)	.70 (.73)			.04 (.31)	.07 (.47)

effects reported above occurred to approximately the same degrees and in the same directions in each of the three groups compared to the main findings above. We were not interested in examining statistical significance or CIs, as these would be incomparable because of the much smaller sample sizes compared to the total group. (We interpret the bootstrapped results from the total group as the most conservative and reliable tests of effects.)

As seen in Table 4, the coefficients for each of the effects reported above in the main analyses were of the same direction and approximate level for both dependent variables. There were two notable exceptions, however. On Relevant details, the direct and indirect effects of Overall Rapport for Chinese immigrants were relatively low, although in the same directions. Also, the direct effect of Water on Relevant details was significant and the CIs did not overlap with zero, $t(61) = −2.11$, $p = .04$, 95% CI [−17.54, −.48]. On Plausibility, the direct and indirect effects of Overall Rapport for Hispanic immigrants were relatively low, although in the same directions as the findings for the total group.

4 | DISCUSSION

As predicted, offering water facilitated greater rapport in the investigative interview context. Moreover, offering water influenced the informational elements provided in the interviews, and these effects were differentially moderated by Veracity condition. For liars, offering water produced more Relevant details and greater Plausibility in their statements, and these effects were mediated by rapport. Ethnicity/culture did not moderate these findings.

These findings were not generated without limitations, one of which was the fact that the coders for informational elements may have been implicitly influenced by the degree of rapport between the interactants, and vice versa. These influences may have occurred regardless of the fact that the raters themselves were blind to the other coding. Although we mitigated this risk by blind coding, it is somewhat inevitable when the same source records are used for multiple types of codes. Future research may examine whether the same effects occur as reported here when different source records are used for the coding.

Also, the study tested one type of crime (mock crime of theft) in a laboratory context; thus, our findings are limited to that context. The effects of social influence need to be tested in other investigative contexts as well. We also tested participants who had no previous experience with actual investigative situations; thus, the findings were limited to people who were relatively naïve about such contexts (although there is an alternative possibility that people have indirect experiences through media). The findings might be different with people who were already exposed to similar or real investigative contexts, and future studies may examine this possibility.

Despite these limitations, the study provided important support for the notion that social influence strategies and tactics may have cross-cultural application in investigative and security contexts.

Offering water produced better rapport in the interaction between the participants and interviewers. This finding is consistent with a previous study that involved interviews with investigative interviewers that suggested that social influence techniques help to increase rapport among interactants (Goodman-Delahunty & Howes, 2016). The current findings extend the previous study by providing an experimental manipulation of social influence that demonstrated a causal effect of reciprocity on rapport.

Better rapport, in turn, produced better outcomes in terms of informational elements. These effects may have occurred because offering water likely engaged the participants in a "web of indebtedness" (Cialdini, 2009; Cialdini & Goldstein, 2004), to which the participants responded with more truthful responses. This web of indebtedness was likely activated unconsciously and outside awareness, as offering the water bottle appeared as just another normal action of many taken by the interviewers when they re-entered the interview room to begin the interview. These findings are also consistent with previous studies reporting positive effects of rapport on interview outcomes (Goodman-Delahunty et al., 2014; Kieckhaefer et al., 2013; Vallano & Compo, 2011). The current findings extend these previous studies by demonstrating the mediational effect of rapport within a model involving the causal effects of a social influence tactic (reciprocity). These effects speak to the potential power of this influence tactic.

The effects of reciprocity by offering water were more pronounced in liars as opposed to truth tellers. For liars, offering water produced relatively more Relevant details and Plausibility. Although the positive effect on Plausibility may have suggested that offering water would make detecting lies in liars more difficult, we believe the opposite, for a couple of reasons. For one, Plausibility was highly correlated with Relevant details; thus our ratings of Plausibility actually were related to greater truthful elements in the statements. Second, given that the elements discovered in investigative interviews are often corroborated by other sources of evidence, the greater Relevant details and Plausibility offered by liars will be more easily corroborated.

The findings on Relevant details, however, indicated that offering water to truth tellers actually *reduced* the number of Relevant details provided by them, which was contrary to our hypothesis. (We also believe that this effect carried the direct effect of water on Relevant details.) In terms of absolute mean levels, however, truth tellers who did not receive water still offered a considerable amount of Relevant details (see Table 1). And the findings with truth tellers on Plausibility were equivocal, as there were no differential effects of offering the water on Plausibility for them (CIs for the conditional indirect effects included zero). We hope the positive increases in rapport by offering water would provide interviewers with a more effective platform to corroborate the details provided to them. Regardless, these findings definitely deserve attention in the future in order to ferret out any potential negative effects of offering water, or any social influence tactic.

The current findings especially highlighted the potential important role of rapport. As previous writers have noted decades ago (Bernieri et al., 1994; Tickle-Degnen & Rosenthal, 1987, 1990), rapport is useful and beneficial in getting information relevant to a target event. Rapport is important in investigations because interviewers have more opportunities to verify facts and clarify information when they have rapport with the interviewee.

Although our findings suggested that the function of rapport may be applicable across ethnic/cultural groups, they still leave room for much future research on cultural or ethnic differences. We planned for a sample size with 80% power to obtain statistically significant results given a 12-cell study including ethnicity, but the filtering of participants resulted in a lower statistical power for that analysis. This may have affected the nonsignificant findings involving the ethnicity factor and should be followed in the future with larger sample sizes (and thus power). That is why we recomputed all of the main analyses on Relevant details and Plausibility separately for each ethnicity. To be sure, the reduced power in the overall design was less of a concern for the main analyses involving the Water and Veracity conditions because these analyses collapsed across ethnicity to boost sample size and thus increase power. Still, the ethnicity-specific analyses did produce a couple of apparent differences in findings, which should be followed in the future (although the pattern of findings still supported the influence of offering water and the mediating effect of rapport).

Overall, these findings had implications for theory, research, and practice. Theoretically, the findings and the model tested provide a platform for understanding how social factors such as reciprocity and dyadic factors such as rapport function together to produce specific outcomes on the individual level (informational elements of details, Plausibility, etc.). Because the field of investigative interviewing science is relatively new, such models can be used as an important springboard for further theoretical and conceptual mapping of the multiple factors and effects that occur in these contexts. The possible moderation of ethnicity/culture, and other sociodemographic variables, will also need to be included in model development in the future.

Empirically, the current findings are among the first to demonstrate the causal effects of a social influence tactic and rapport in an experimental design and should inspire future studies that replicate, extend, and further refine the findings reported here. For instance, future studies may test other reciprocity tactics; would offering coffee or a warm beverage have the same effects? Future studies will need to examine other weapons of social influence beyond reciprocity, such as authority or liking. Future research may examine other language, cultural, or ethnic groups, and contexts other than a mock crime. Also, there are many other types of interview outcomes that may be examined, such as overall word production, and types of words produced.

Practically, the current findings offer suggestions to practitioners of investigative interviews to consider and strategize about the use of social influence principles and tactics. Reciprocity can be a powerful, unconscious motivator for individuals, and if used wisely, can aid interviewers in eliciting more truthful information, and in gaining admissions and confessions. There are many places in an investigative interview flow to use reciprocity, and many ways to do it, much of which falls to the creativity and imagination of interviewers to achieve their interview goals. The current findings should facilitate such efforts in the field.

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