



## Children who disclose a minor transgression often neglect disclosing secrecy and coaching

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### ABSTRACT

The present study examined 7- to 12-year-olds' disclosure of a minor transgression as well as their disclosure about being asked to keep a secret and being coached to lie about the transgression. All children interacted with a confederate who allowed children to play with a forbidden object. Children were randomly assigned to one of three coaching conditions: Secrecy coaching (told to keep a secret), Cover story coaching (provided with a cover story), Control (no coaching). Children were later interviewed in one of three honesty-promotion conditions: Promise, Eye Contact, No Instruction. Almost all children revealed the minor transgression; however, children in the Cover Story coaching condition were least likely to disclose. Only a minority of children disclosed being coached or that it was a secret. Children in the Cover Story coaching condition were found to disclose more information when asked to maintain eye contact compared to the No Instruction condition.

#### *The child and his coach were just horsing around*

Freeh Sporkin & Sullivan (LLP) Report of Sexual Abuse Committed by Gerald A. Sandusky (Sporkin & Sullivan, 2012; p. 70).

In recent years, various high-profile child sexual abuse cases have highlighted the importance of obtaining information on the accused's motives to distinguish between accidental and intentional inappropriate touch. For example, in the Jerry Sandusky case, where Sandusky was accused of sexually abusing young boys who he met through his position with Penn State Football, ambiguity surrounded the intention of his actions as he claimed that his touches were accidental and they were just “horsing around”. One way to better understand the motivation behind an act is to determine if the accused coached the child to conceal the behavior. Specifically, coaching occurs when someone tells children what they should or should not report about an event. Coaching can involve asking children to omit information (e.g., asking the child to keep a secret) or coaching children to provide alternative details (e.g., providing children with a cover story). Given that this information may only be known by the child and the accused, it is crucial to understand not only children's disclosure of the transgression itself, but also the disclosure of being asked to keep a secret or provide fabricated reports surrounding the transgression.

To date, there is a large body of experimental research

demonstrating that children are capable of keeping secrets about a transgression at the request of both familiar and unfamiliar adults, but that rates of secret-keeping can be influenced by social-motivational factors (e.g., Bottoms, Goodman, Schwartz-Kenney, & Thomas, 2002; Gordon, Lyon, & Lee, 2014; Pipe & Wilson, 1994; Talwar, Lee, Bala, & Lindsay, 2004; Tye, Amato, Honts, Devitt, & Peters, 1999; Wilson & Pipe, 1989). For example, it has been documented that rates of secret-keeping for a parent decrease in response to direct (30–53% kept the secret) versus open-ended question prompts (89–100% kept the secret; Gordon et al., 2014), and drastically decrease if the child can potentially be blamed for the transgression (0–2% kept the secret; Talwar et al., 2004). The developmental pattern of secret-keeping has been inconsistently documented, with some reporting that secret-keeping increases with age (Bottoms et al., 2002; Gordon et al., 2014), decreases with age (Pipe & Wilson, 1994), and does not differ by age (Talwar et al., 2004).

In addition to asking children to keep a secret, adults can coach children by providing them with alternative information to conceal an event. However, few studies have examined the effects of coaching children to provide alternative reports on children's disclosure rates of transgressions. Initial coaching studies by Lyon, Malloy, Quas, and Talwar (2008) and Fogliati and Bussey (2015) demonstrated that children (4 to 7 and 3 to 8 years of age, respectively) provided more

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dishonest reports in an interview after being coached by an adult to conceal a transgression compared to those who were not coached. A recent study by Talwar, Yachison, Leduc, and Nagar (2017) extended these findings by examining the intensity of coaching, differentiating between light and heavy coaching. In their study, light coaching involved omitting information as children were coached on what *not* to say in their reports, whereas heavy coaching included providing children with alternative fabricated details *to* say in their reports. Talwar et al. (2017) found that, overall, 3- to 7-year-olds were significantly more likely to conceal a confederate's transgression of breaking a toy after heavy coaching compared to light or no coaching. However, the intensity of coaching was particularly important for the youngest children (3- to 5-year-olds), such that they were more likely to conceal the transgression only after heavy coaching. Although the extant research has begun to explore how coaching impacts children's disclosures, no study to date has examined the effects of coaching on disclosures from children over the age of 9 years. Given that older children are better able to tell sophisticated lies (in part because of more developed executive functioning skills; Evans & Lee, 2011), and are more likely to be involved in the legal system as victims and witnesses compared to younger age groups (Statistics Canada, 2015), exploring older children's reports after coaching is particularly important to broaden our understanding of children's disclosures.

Moreover, although current research has investigated children's rate of disclosing the actual transgression after coaching, to our knowledge, only one study to date has explicitly reported whether children reveal that the disclosure was a secret or that they were coached to make an alternative statement. Although not the primary focus of the paper, Malloy and Mugno (2016) found that only three children in their sample (of 73 6- to 9-year-olds) reported that they were coached by their parent to conceal an adult transgression (breaking a puppet). This initial insight into low rates of disclosing coaching calls for continued research investigating this potential issue. That is, although children's disclosures of an initial transgression (e.g., touching) is the first step in understanding what happened during an event, it may remain unclear as to the intentions of the accused (e.g., accidental or inappropriate touch). However, if a child *also* discloses that they were asked to keep the actions a secret or that they were coached on what to report, this suggests the possibility of malice and warrants further investigation. Thus, the first goal of the present study was to examine older children's disclosure of a minor transgression after receiving different coaching strategies (secrecy coaching vs. cover story coaching vs. no coaching), as well as uncover how often children readily disclosed that they were coached and asked to keep the transgression a secret.

Given that coaching can increase children's likelihood of concealing a transgression (e.g., Fogliati & Bussey, 2015; Lyon et al., 2008), it is imperative to uncover methods that help to increase disclosure rates in the face of coaching. One successful honesty promotion technique that has been examined extensively is asking children to promise to tell the truth. Experimental research has demonstrated that children from 5 to 16 years of age are more likely to tell the truth about a prior transgression after promising to tell the truth compared to those who are not asked to promise (Evans & Lee, 2010; Lyon & Dorado, 2008; Lyon et al., 2008; Talwar, Lee, Bala, & Lindsay, 2002; Talwar et al., 2004; but see Astington, 1988; Heyman, Fu, Lin, Qian, & Lee, 2015). Importantly, this technique increases children's honest disclosures without increasing false reports and is effective for both non-maltreated and maltreated children (Lyon et al., 2008; Lyon & Dorado, 2008; Quas, Stolzenberg, & Lyon, 2017). Although promising to tell the truth has been established as an effective tool to promote truthful disclosures, dishonesty can persist after a promise; therefore, continued research is needed to understand if we can implement additional strategies to further promote honest disclosures. Thus, the second goal of the present study was to examine the effectiveness of promising to tell the truth in relation to a novel technique, requesting children to maintain eye contact with the interviewer, on children's disclosures of a transgression and of

coaching.

Eye contact has frequently been examined as a potential lie-detection cue (Hartwig & Bond, 2014; Vrij, Mann, Leal, & Fisher, 2010); however, it has not yet been examined as a potential honesty promoting technique. Maintaining eye contact with others can intensify the nature of social interactions, and individuals often avert eye contact to create distance with others (Kleinke, 1986). Therefore, requesting eye contact with an interviewer may strengthen children's emotions while being interviewed, possibly making it more challenging to be deceptive. For example, asking children to promise to tell the truth has been suggested to be an effective honesty-promotion technique as it places children under a stronger moral obligation to the experimenter (Austin, 1962; Bussey, 2010). Thus, perhaps asking children to maintain eye contact can also enhance one's sense of obligation via a more intense social interaction and can encourage children's honest disclosures of transgressions and secrecy or coaching details. In addition to the social role that requesting eye contact may play in children's dishonesty, research has demonstrated that maintaining eye contact increases children's and adults' cognitive load (Mastroberardino & Vredeveldt, 2014; Natali, Marucci, & Mastroberardino, 2012; Perfect et al., 2008; Phelps, Doherty-Sneddon, & Warnock, 2006). Given that telling and maintaining lies is a cognitively complex act, requesting children to maintain eye contact may increase children's cognitive load and make it more cognitively challenging for children to remain deceptive.

In the present investigation, 7- to 12-year-olds participated in a forbidden activity at their science camp with a confederate and were randomly assigned to either a Secrecy condition (children were coached to keep the event a secret), a Cover story condition (children were coached to keep the event a secret and provided with a cover story to tell in place of the real event), or a Control condition (no coaching). To examine children's disclosures of the transgression and coaching, and to investigate effective interview techniques to promote honest disclosures, all children were subsequently interviewed about what they had done during the camp activity. Children were randomly assigned to one of three interview conditions: Promise (children promised to tell the truth), Eye Contact (children were requested to hold eye contact with the interviewer), or No Instruction (control) condition.

Across participants, it was predicted that children who were coached to conceal the transgression would be significantly less likely to disclose the transgression compared to the Control condition (e.g., Fogliati & Bussey, 2015; Lyon et al., 2008). Within the coaching conditions, we expected that children in the Cover story coaching condition would be less likely to reveal the transgression compared to children in Secrecy coaching condition as a result of their more detailed coaching (Talwar et al., 2017). Similarly, we predicted that children in the Cover story coaching condition would be the least likely to reveal being coached and being told to keep a secret because the more detailed coaching strategy may increase children's fear of revealing the confederate's behaviors. Given that the developmental differences in secret-keeping have been inconsistent and that lie-telling rates tend to remain stable throughout middle to late childhood (see Lee, 2013 for a review), we did not predict disclosure rates to vary by age.

In terms of honesty promotion techniques, given that requesting to maintain eye contact may instill a sense of obligation in children that is similar to the effects demonstrated from requesting a verbal commitment such as a promise (Evans & Lee, 2010; Lyon et al., 2008; Talwar et al., 2002, 2004), we predicted that children would be more likely to disclose the transgression and coaching in the Promise and Eye Contact conditions compared to the No Instruction condition. As requesting to maintain eye contact may instill a social obligation, increase cognitive load, and may remain a factor throughout the entirety of the interview (compared to a more fleeting verbal commitment at the start of the interview), we predicted that children in the Eye Contact condition would be significantly more likely to disclose the transgression and coaching compared to children in the Promise condition. Importantly, we predicted that the *request* to maintain eye contact would produce

these effects as the request sets an expectation for children and may increase children's obligation and cognitive demands both when the request is fulfilled and avoided.

## Method

### Participants

One hundred and eighty 7- to 12-year-olds ( $M_{age} = 9.53$ ,  $SD = 1.49$ , 47% males), who were recruited from a summer science camp, participated in the study. Six children were excluded (1 child was suspicious that the confederates were acting and 5 children did not discuss the target event during the interview). Thus, the final sample consisted of 174 children ( $M_{age} = 9.51$ ,  $SD = 1.46$ , range 7 to 12 years, 48% males). Children were assigned to one of three Coaching conditions (Control, Secrecy coaching, or Cover Story coaching) and one of three interview conditions (No Instruction, Promise, or Eye Contact) using a block randomization procedure. See Table 1 for the number of children in each condition.

### Procedure

#### The event

Children were visited in small groups ( $n = 10$ – $12$ ) at their summer camp by two confederates (one male and one female dressed in lab coats) who came to complete a science experiment with the group. Children were located in a university laboratory and the visitors in lab coats claimed to be university scientists who frequently work in that room. Children were told that the confederates had some “awesome goggles” that they were creating but that the boss of the science camp did not want the confederates to show the children the goggles. In the Control condition, children were told that the confederates were going to show them the goggles anyway because their camp counselor said it would be fine. Thus, in the Control condition children were still doing something that they were not supposed to do, but they were told it was okay and never told that they were to keep it a secret. In the Secrecy coaching condition, children received the Control instructions and were told they would only show it to children if they promised not to tell anyone (the secret) “only if you promise not to tell anyone, because if you tell someone our boss might find out. Okay?” In the Cover Story coaching condition, children received the Control and Secrecy coaching instructions and were also coached to provide a cover Story, “Instead, if someone asks, tell them that we showed you an experiment with an exploding diaper, not the goggles.” Following the instructions, the confederates explained that the goggles were visual impairment goggles and gave a lesson about vision and the brain. Following the lesson, all children had the opportunity to put on the goggles and try to throw a ball back and forth to the confederates or give the confederate a high-five. After completing the demonstration, the confederates thanked children for their time. Prior to leaving, the confederates again reiterated the instructions to children in the Secrecy coaching (“Remember, don't tell anyone that we showed you the goggles.”) and Cover Story coaching (“Remember, don't tell anyone that we showed you the goggles. If anyone asks, tell them it was an experiment with an exploding diaper.”) conditions.

#### The interview

The next day, all children were individually interviewed by an adult interviewer (different research assistants than the confederates) using an open-ended interview protocol about what happened. A structured interview protocol was administered that included both free-recall and cued-recall questions. For the free-recall portion of the interview, children were randomly assigned to one of three interview conditions: Eye Contact, Promise to tell the truth, No Instruction. In the Eye Contact condition, children were told,

**Table 1**

Percentage ( $n$ ) of children who disclosed, reported a secret, or coaching by condition.

Coaching	Interview	Total N	Disclosure % ( $n$ )	Secret	Coaching
Control	No instruction	21	100% (21)	5% (1)	–
	Eye Contact	18	100% (18)	11% (2)	–
	Promise	23	96% (22)	9% (2)	–
	Total	62	98% (61)	8% (5)	
Secrecy	No instruction	17	100% (17)	47% (8)	–
	Eye Contact	19	89% (17)	63% (12)	–
	Promise	13	85% (11)	62% (8)	–
	Total	49	92% (45)	57% (28)	
Cover story	No instruction	23	78% (18)	52% (12)	30% (7)
	Eye Contact	20	80% (16)	50% (10)	40% (8)
	Promise	20	85% (17)	50% (10)	35% (7)
	Total	63	81% (51)	51% (32)	35% (22)

“Yesterday, Dr. Matthew and Dr. Jessica came to your camp. I wasn't here yesterday so I don't know what happened. I'm going to ask you some questions about those visitors. *When you answer my questions, I want you to look me in the eyes. Okay?* Now, tell me everything you can about what happened when the two visitors came to your group.”<sup>1</sup>

If children disengaged eye contact the interviewer reminded them to keep eye contact “Keep looking at me in the eyes.” In the Promise condition, children were given the same instruction except instead of being asked to make eye contact they were asked to promise to tell the truth, “*Before we get started, I want you to promise me you will tell the truth. Do you promise me that you will tell the truth?*” Finally, in the No Instruction condition, children received the same instructions but without a request to make eye contact or promise. All children then received three requests to elaborate (i.e., “What else can you tell me?”, “What else?”, “Is there something else you can tell me?”). Following the recall portion of the interview, all children were asked five cued questions. Three questions were about the confederates (1. What can you tell me about the two people that came? 2. What were the two people wearing?, 3. What did they do while they were in the room?). The fourth question was an indirect probe of children's willingness to disclose (4. Did something else happen?) and the final question was a direct probe about the transgression (5. Other kids told me that they showed you something, what can you tell me about what they showed you?).

#### Coding

Interviews were audio-recorded, transcribed verbatim, and then coded for disclosure characteristics. Disclosure characteristics included whether the child disclosed (0 = concealer, 1 = discloser); children were considered a discloser if they explicitly disclosed the transgression of playing with the goggles (children who said there was a secret but did not disclose the secret were considered concealers), what phase of the interview children disclosed (i.e., free-recall, cued-recall), whether the child reported that the disclosure/transgression was a secret (e.g., stating that it was a secret or they were not to tell anyone. Revealing the specific secret was not required to be coded as reporting a secret), and whether the child reported that they were coached (e.g., stating that they were told to lie or provided with a cover story). The three research assistants who completed the coding coded 33% of the transcripts for reliability ( $n = 60$ ) independently; Kappa values for all coding categories were greater than 0.93.

<sup>1</sup> Seven children did not make eye contact with the interviewer (based on interviewer ratings). Results were run both including and excluding these children and no differences were found in the pattern of the results. Thus, all children, regardless of whether they made eye contact with the experimenter, were included in the analyses.

## Results

Preliminary analyses examined whether the week children attended camp influenced disclosure rates, secret, or coaching reports. All reported analyses were performed including camp week as a variable in the model and it was not found to significantly contribute to the model. Thus, all following analyses were performed collapsed across camp week. Additionally, adding sex to the reported models did not significantly contribute above and beyond all other variables in the models and thus was collapsed across for the following analyses.

To assess any potential age differences across conditions, a 3 (Coaching conditions)  $\times$  3 (Interview conditions) ANOVA on age was performed. There was a significant main effect of coaching condition,  $F(2, 165) = 8.47, p < .001, \eta_p^2 = 0.093$ . Specifically, children in the Cover Story coaching condition ( $M_{age} = 8.98, SD = 0.179$ ) were significantly younger than children in the Control ( $M_{age} = 10.02, SD = 0.181, p < .001$ ) and Secrecy coaching ( $M_{age} = 9.57, SD = 0.205, p = .031$ ) conditions. No other significant age differences were found.

### Disclosure rates

Across conditions, the majority of children disclosed the minor transgression (90%,  $n = 157/174$ ). Of the children who disclosed, a total of 147 children (94%,  $n = 147/157$ ) disclosed during the free-recall portion of the interview and 10 children (6%,  $n = 10/157$ ) disclosed during the cued-recall (1 child disclosed to the first question, 3 children disclosed to the third question, and six children disclosed to the fifth question). A logistic regression was performed to assess whether disclosure rates varied by condition with age in years entered on the first step, Coaching condition (Control, Secrecy coaching, Cover Story coaching, with Cover Story coaching as the reference group) and Interview condition (No Instruction, Eye Contact, Promise, with Promise as the reference group) on the second step with disclosure during the interview (0 = concealer, 1 = discloser) as the predicted variable. The first step with age was not significant,  $\chi^2(1, 174) = 2.71, p = .099$ , Nagelkerke  $R^2 = 0.03$ . However, the second step of the model was significant,  $\chi^2(4, 174) = 19.64, p = .001$ , Nagelkerke  $R^2 = 0.255$ . Specifically, children in the Cover Story coaching condition were significantly less likely to disclose (81%) compared to children in the Secrecy coaching (91.8%,  $B = 1.40, Wald = 4.62, p = .032$ , odds ratio = 4.05) or Control (98.4%,  $B = 3.33, Wald = 10.16, p = .001$ , odds ratio = 38.93) conditions. See Table 1 for the pattern of disclosure rates across conditions.

### Secret

Overall, 37% of all children ( $n = 65/174$ ) disclosed that there was a secret. A similar logistic regression was performed as above to assess whether reporting that there was a secret varied by condition with age in years entered on the first step and Coaching condition (Control, Secrecy coaching, Cover Story coaching, with Cover Story coaching as the reference group) and Interview condition (No Instruction, Eye Contact, Promise, with Promise as the reference group) entered on the second step with secret (0 = did not report secret, 1 = reported secret) as the predicted variable. The first step with age was not significant,  $\chi^2(1, 174) = 0.990, p = .320$ , Nagelkerke  $R^2 = 0.008$ . However, the second step of the model was significant,  $\chi^2(4, 174) = 40.85, p < .001$ , Nagelkerke  $R^2 = 0.291$ . Only the Coaching condition significantly contributed to the model above and beyond all other variables such that children in the Control condition were significantly less likely to report a secret (8%) compared to the Cover Story coaching (51%;  $B = 2.55, Wald = 21.77, p < .001$ , odds ratio = 12.82). There was no significant difference between the Cover Story and Secrecy coaching conditions (57%;  $B = 0.208, Wald = 0.393, p = .597$ , odds ratio = 1.23). See Table 1 for the pattern of disclosing a secret across conditions.

### Coaching

Only 12% of all children ( $n = 22/174$ ) reported being coached by the confederates (e.g., stating that they were told to lie or provided with a cover story). In particular, none of the children in the Control or Secrecy coaching conditions reported being coached and 35% of children in the Cover Story coaching condition ( $n = 22/63$ ) reported being coached. Given that children in the Secrecy coaching condition were only asked to keep the event a secret, and not coached to provide a cover story, the lack of reporting being coached was unsurprising. Since no children reported coaching in the Control and Secrecy coaching conditions, statistical differences could not be examined for Coaching conditions. A Chi-square analysis indicated no significant difference in disclosing coaching by Interview condition,  $\chi^2(2, 174) = 0.176, p = .916$ . See Table 1 for the pattern of disclosing coaching across conditions.

## Discussion

The present study investigated the influence of coaching (Secrecy coaching and Cover Story coaching) to conceal a transgression and the use of honesty promotion techniques (promising and maintaining eye contact) on 7- to 12-year-olds' disclosure of a minor transgression, including children's disclosure of being asked to keep a secret and being coached. The majority of children revealed the minor transgression; however, significant differences were found based on coaching instructions.

While the majority of children revealed the transgression during the free-recall portion of the interview, significant differences in disclosure rates were found across coaching conditions, such that children in the most detailed coaching condition, Cover Story coaching, were significantly less likely to report the transgression compared to the Secrecy coaching and Control conditions. These findings are consistent with Talwar et al.'s (2017) results with younger children. Talwar et al. (2017) found that only the heavy coaching, where children were provided alternative fabricated details, reduced disclosure rates for 3- to 4-year-olds, whereas both the light coaching (telling children what not to say) and heavy coaching decreased disclosure rates for 5- to 7-year-olds. In contrast to Talwar and colleagues' findings, no significant age differences were found in the present study and secrecy coaching was not found to reduce disclosure rates for older children. However, it should be noted that the coaching utilized by Talwar et al. (2017) was more intensive, involving practice questions with the confederate. It is possible that the lighter secrecy coaching in the present study may have been effective in reducing disclosure rates had practicing been utilized. Future studies are needed to assess how different types and intensities of coaching (e.g., practicing) impact older children's disclosure rates.

The present study found a very high rate of disclosure compared to previous studies examining children's disclosure of their own or co-transgressions (e.g., Evans & Lee, 2010; Lyon et al., 2008; Talwar & Lee, 2002). One contributing factor to the high disclosure rates may have been the group transgression. Our high rates of disclosure are consistent with Fu, Evans, Wang and Lee (2008) who examined children's disclosure rate of their class's group transgression (cheating in a school-board competition) and found similar rates of disclosure (93%, 83%, and 70% of 7-, 9-, and 11-year-olds disclosing, respectively). It is possible that with multiple witnesses to the group transgression children were more likely to disclose as they felt there was a greater likelihood that someone else would disclose the transgression, in turn revealing their own lies. Although our Control condition demonstrated ceiling effects of disclosure rates, we did find significant condition differences. Future studies should attempt to reduce these ceiling effects by either eliminating or changing the nature of the group transgression component of the study design.

We also examined whether children would report that they had been asked to keep a secret. This information can be integral in abuse cases as it can inform as to the accused's intentions. Children in the

Secrecy coaching and Cover Story coaching conditions were significantly more likely to report that there was a secret compared to the Control condition. This is not surprising given that children in the Control condition were never explicitly told that the transgression was a secret or not to tell. However, it is concerning to note that of those children who were explicitly told the transgression was a secret, only approximately half of the children reported that there was a secret. Taken together with Malloy and Mugno (2016)'s findings, it suggests that children rarely report being coached to keep a secret about a stranger's or parent's transgression. Given that the disclosure of the presence of a secret helps inform the motives of the accused, failing to reveal the secret may reduce the chances of the case being successfully prosecuted. From the present results, it appears that additional probing may be necessary to encourage children to reveal this vital information.

Similar results were found in terms of children's disclosure of being coached. While none of the children in the Control or Secrecy coaching conditions reported being coached to provide an alternative cover story, only 35% of children in the Cover Story coaching condition reported being coached, regardless of interview condition. Given that children are not naturally disclosing secrets or coaching (only 35–50% reported secrets and coaching when no specific questions about coaching were asked), future studies are needed to examine direct yet non-suggestive methods for obtaining this information. For example, asking children about conversations with the accused (e.g., "What did he say?") may assist in obtaining this information without being suggestive. Thus, examining the influence of conversation questions on children's reports of coaching is the next step for assessing methods for increasing children's truthful disclosures of coaching.

The present study also examined the effectiveness of a novel honesty promoting technique, maintaining eye contact, in comparison to an established effective technique, promising to tell the truth. Contrary to our predictions, there was no significant effect of either honesty promoting technique in their rates of disclosure. This is likely due to the high rate of disclosure in the Control condition leaving no room for improvement in the honesty promotion conditions. Future studies may consider examining eye contact in a situation where children are more likely to conceal a transgression (e.g., the temptation resistance paradigm, Polak & Harris, 1999; Talwar & Lee, 2002).

Although there were age differences across conditions, such that children in the Cover Story condition ( $M_{age} = 8.98$  years) were significantly younger than children in the Secrecy ( $M_{age} = 9.57$  years) and Control ( $M_{age} = 10.02$  years) conditions, no significant effects of age were found in any of the disclosure analyses. This is likely due to the age range being examined in the present investigation (7 to 12 years) as previous studies have demonstrated consistent disclosure rates of a transgression between four and 12 years of age (see Lee, 2013 for a review). After four years of age, children's ability to maintain their lie improves with age (which was not the focus of the current investigation). Thus, it appears that age did not play a significant role in the present study's findings.

There are several limitations to the present investigation. First, given the high rate of disclosure, it appears that children may have perceived the transgression to be fairly minor. Given the potential application to allegations of abuse, future studies need to investigate the influence of coaching and honesty promotion techniques in the face of a more serious transgression. This is particularly important as children may be more reluctant to disclose abuse due to potential consequences for the self or the transgressor, the shame that is often involved in reporting abuse, and the lack of physical evidence or eye witnesses in these situations. Additionally, because we were interested in the depth of children's disclosures, we did not include a condition in which there was no transgression. As such, we are unable to speak to the potential for false disclosures. However, it is important to note that in our no coaching Control condition there were no false accusations of secrets or coaching and in our Secrecy coaching condition where no cover story was provided, no child falsely accused the confederate of coaching. An

additional limitation of this study may be the delay between the event and interview. This time delay may have resulted in natural conversations occurring between peers about the event prior to the interview (Principe & Schindewolf, 2012). These discussions may have shaped children's reports, potentially resulting in our high rate of disclosure. However, this may also be considered a strength of the study design as the delay and opportunity to discuss the event may be more ecologically valid. Future studies examining children's disclosure rates may consider tracking peer conversations and their influence on disclosure rates.

The results of this study provide insight into children's disclosure of what they may perceive to be a minor transgression. We found that 7- to 12-year-olds are willing to reveal a stranger's minor transgression during an interview using open-ended and cued recall questions. However, they infrequently disclosed being coached to conceal the transgression or being asked to keep a secret. Because these pieces of information can help inform the intentions of the accused, it is important for future studies to focus on methods for obtaining information on coaching and secrets from children's reports to understand the best techniques for retrieving this information.

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## References

- Astington, J. W. (1988). Children's understanding of the speech act of promising. *Journal of Child Language*, 15, 157–173. <https://doi.org/10.1017/S0305000900012101>.
- Austin, J. L. (1962). *How to do things with words*. Cambridge, MA: Harvard University Press.
- Bottoms, B. L., Goodman, G. S., Schwartz-Kenney, B. M., & Thomas, S. N. (2002). Understanding children's use of secrecy in the context of eyewitness reports. *Law and Human Behavior*, 26, 285–313. <https://doi.org/10.1023/A:1015324304975>.
- Bussey, K. (2010). The role of promises for children's trustworthiness and honesty. In K. Rotenberg (Ed.), *Interpersonal trust during childhood and adolescence* (pp. 155–176). Cambridge, MA: Cambridge University Press.
- Evans, A. D., & Lee, K. (2010). Promising to tell the truth makes 6-to-8-year-olds more honest. *Behavioral Sciences and The Law*, 28, 801–811. <https://doi.org/10.1002/bsl.960>.
- Evans, A. D., & Lee, K. (2011). Verbal deception from late childhood to middle adolescence and its relation to executive functioning skills. *Developmental Psychology*, 47, 1108–1116. <https://doi.org/10.1037/a0023425>.
- Fogliati, R., & Bussey, K. (2015). The effects of cross-examination on children's coached reports. *Psychology, Public Policy, and Law*, 21, 10–23. <https://doi.org/10.1037/law0000036>.
- Fu, G., Evans, A. D., Wang, L., & Lee, K. (2008). Lying in the name of the collective good: A developmental study. *Developmental Science*, 11, 495–503. <https://doi.org/10.1111/j.1467-7687.2008.00695.x>.
- Gordon, H. M., Lyon, T. D., & Lee, K. (2014). Social and cognitive factors associated with children's secret-keeping for a parent. *Child Development*, 85, 2374–2388. <https://doi.org/10.1111/cdev.12301>.
- Hartwig, M., & Bond, C. F. (2014). Lie detection from multiple cues: A meta-analysis. *Applied Cognitive Psychology*, 28, 661–676. <https://doi.org/10.1002/acp.3052>.
- Heyman, G. D., Fu, G., Lin, J., Qian, M. K., & Lee, K. (2015). Eliciting promises from children reduces cheating. *Journal of Experimental Child Psychology*, 139, 242–248. <https://doi.org/10.1016/j.jecp.2015.04.013>.
- Kleinke, C. L. (1986). Gaze and eye contact: A research review. *Psychological Bulletin*, 100, 78–100.
- Lee, K. (2013). Little liars: Development of verbal deception in children. *Child Development Perspectives*, 7, 91–96. <https://doi.org/10.1111/cdep.12023>.
- Lyon, T. D., & Dorado, J. S. (2008). Truth induction in young maltreated children: The effects of oath-taking and reassurance on true and false disclosures. *Child Abuse and Neglect*, 32, 738–748. <https://doi.org/10.1016/j.chiabu.2007.08.008>.
- Lyon, T. D., Malloy, L. C., Quas, J. A., & Talwar, V. (2008). Coaching, truth induction, and young maltreated children's false allegations and false denials. *Child Development*, 79, 914–929. <https://doi.org/10.1111/j.1467-8624.2008.01167.x>.
- Malloy, L. C., & Mugno, A. P. (2016). Children's recantation of adult wrongdoing: An experimental investigation. *Journal of Experimental Child Psychology*, 145, 11–21.

- <https://doi.org/10.1016/j.jecp.2015.12.003>.
- Mastroberardino, S., & Vredeveldt, A. (2014). Eye-closure increases children's memory accuracy for visual material. *Frontiers in Psychology, 5*(241), 1–6. <https://doi.org/10.3389/fpsyg.2014.00241>.
- Natali, V., Marucci, F. S., & Mastroberardino, S. (2012). Long-term memory effects of eye closure on children eyewitness testimonies. *Applied Cognitive Psychology, 26*, 730–736. <https://doi.org/10.1002/acp.2853>.
- Perfect, T. J., Wagstaff, G. W., Moore, D., Andrews, B., Cleveland, V., Newcombe, S. M., ... Brown, L. (2008). How can we help witness to remember more? It's an (eyes) open and shut case. *Law and Human Behavior, 32*, 314–324. <https://doi.org/10.1007/s10979-0079109-5>.
- Phelps, F. G., Doherty-Sneddon, G., & Warnock, H. (2006). Helping children think: Gaze aversion and teaching. *British Journal of Developmental Psychology, 24*, 577–588. <https://doi.org/10.1348/026151005X49872>.
- Pipe, M., & Wilson, J. C. (1994). Cues and secrets: Influences on children's event reports. *Developmental Psychology, 30*, 515–525. <https://doi.org/10.1037/0012-1649.30.4.515>.
- Polak, A., & Harris, P. L. (1999). Deception by young children following noncompliance. *Developmental Psychology, 35*, 561–568. <https://doi.org/10.1037/0012-1649.35.2.561>.
- Principe, G. F., & Schindewolf, E. (2012). Natural conversations as a source of false memories in children: Implications for the testimony of young witnesses. *Developmental Review, 32*, 205–223. <https://doi.org/10.1016/j.dr.2012.06.003>.
- Quas, J. A., Stolzenberg, S. N., & Lyon, T. D. (2017). The effects of promising to tell the truth, the putative confession, and recall and recognition questions on maltreated and non-maltreated children's disclosure of a minor transgression. *Journal of Experimental Child Psychology, 166*, 266–279. <https://doi.org/10.1016/j.jecp.2017.08.014>.
- Sporckin, F., & Sullivan, L. L. P. (2012). *Report of the special investigative counsel regarding the actions of the Pennsylvania State University related to the child sexual abuse committed by Gerald A. Sandusky*.
- Statistics Canada (2015). *Table 4.1. Victims of police-reported violent crime, by age group of victim and type of offence*. Canada: Statistics Canada, Canadian Centre for Justice Statistics, Incident-based Uniform Crime Reporting Survey. Retrieved online from <https://www150.statcan.gc.ca/n1/pub/85-002-x/2017001/article/14698/tbl/tbl4.1-eng.htm>.
- Talwar, V., & Lee, K. (2002). Development of lying to conceal a transgression: Children's control of expressive behavior during verbal deception. *International Journal of Behavioral Development, 26*, 436–444. <https://doi.org/10.1080/01650250143000373>.
- Talwar, V., Lee, K., Bala, N., & Lindsay, R. C. L. (2002). Children's conceptual knowledge of lying and its implications for court competence examinations. *Law and Human Behavior, 26*, 395–415. <https://doi.org/10.1023/A:1016379104959>.
- Talwar, V., Lee, K., Bala, N., & Lindsay, R. C. L. (2004). Children's lie-telling to conceal a parent's transgression: Legal implications. *Law and Human Behavior, 28*, 411–435. <https://doi.org/10.1023/B:LAHU.0000039333.51399.f6>.
- Talwar, V., Yachison, S., Leduc, K., & Nagar, P. M. (2017). Practice makes perfect? The impact of coaching and moral stories on children's lie-telling. *International Journal of Behavioral Development, 42*, 416–424. <https://doi.org/10.1177/0165025417728583>.
- Tye, M. C., Amato, S. L., Honts, C. R., Devitt, M. K., & Peters, D. (1999). The willingness of children to lie and the assessment of credibility in an ecologically relevant laboratory setting. *Applied Developmental Science, 3*, 92–109. [https://doi.org/10.1207/s1532480xads0302\\_4](https://doi.org/10.1207/s1532480xads0302_4).
- Vrij, A., Mann, S., Leal, S., & Fisher, R. (2010). "Look into my eyes": Can an instruction to maintain eye contact facilitate lie-detection? *Psychology, Crime, and Law, 16*, 327–348. <https://doi.org/10.1080/10683160902740633>.
- Wilson, J. C., & Pipe, M. (1989). The effects of cues on young children's recall of real events. *New Zealand Journal of Psychology, 18*, 65–70.