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Meta-analysis of the effects of two interviewing practices on children's disclosures of sensitive information

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Meta-Analysis of the Effects of Two Interviewing Practices on Children's

Disclosures of Sensitive Information: Rapport Practices and Question Type

Abstract

Background & Objective. The forensic interview is an important part of the investigative process with child witnesses, and ensuring evidence-based practices is crucial to its success. This meta-analysis examined the overall effect of rapport practices and question type on children's disclosures during forensic interviews to determine (a) how large of an influence existing practices have on children's tendency to disclose information, and (b) how consistent the effect sizes of interviewing practices are across studies, given that inconsistent results have been found.

Method. A systematic review of child interviewing practices was conducted, and 35 studies met the inclusion criteria. Articles were categorized thematically according to interviewing practice. Two practices were predominantly represented in the literature and were selected for review and meta-analysis: rapport techniques, including interviewer support, ($n = 9$), and question type ($n = 25$ samples, 23 studies). Random-effects meta-analytic models were computed separately for rapport practices and question type, and moderator analyses were conducted to test for differences according to age and interviewing protocol.

Results. Rapport techniques had a medium overall effect on children's disclosures ($d = 0.55$, $p < .001$), and was moderated by the interviewing protocol used, but not children's age. Open-ended questions compared to closed-ended questions had a medium overall effect on children's descriptions of sensitive events ($d = 0.52, p < .001$), and was not moderated by age or interviewing protocol.

Conclusions. These findings provide overarching support for the use of rapport and support, and the use of open-ended questions in forensic interviews with child witnesses.

Keywords: child, adolescent, interviewing practices, disclosures

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Children's disclosures of sensitive information play a key role in uncovering information about hidden experiences of violence, abuse, and neglect in their lives. When experiences of violence or abuse are covert, such as sexual maltreatment, disclosures are a catalyst to beginning the investigation process (Rush, Lyon, Ahern, & Quas, 2014). However, even children who initially disclose in an informal setting, for example to a friend, can be hesitant to disclose to the authorities in a formal setting (Hershkowitz, Lamb, & Katz, 2014; Priebe & Svedin, 2008). Yet for justice to be meted out, the formality of a structured, unbiased interview process is needed. Therein lies the great challenge for forensic interviewers: facilitate children's ease and comfort in talking about sensitive subjects, while remaining a neutral party to the fact-finding process.

Given that children are such an important part of the fact-finding process in child welfare and criminal investigations, there is a considerable body of literature on experimental and field report studies related to interviewing children (e.g., Ahern, Hershkowitz, Lamb, Blasbalg, & Winstanley, 2014; Brubacher, Malloy, Lamb, & Roberts, 2013; Malloy, Katz, Lamb, & Mugno, 2015; Quas, Davis, Goodman, & Myers, 2007; Saykaly, Talwar, Lindsay, Bala, & Lee, 2013). Unsurprisingly, given the size of this body of knowledge, there are instances of inconsistent findings across the various interviewing practices (e.g., Korkman, Santtila, & Sandnabba, 2006; Lewy, Cyr, & Dion, 2015; Melinder & Gilstrap, 2009; Phillips, Oxburgh, Gavin, & Myklebust, 2012). For example, although many studies have found that open-ended questions tend to yield richer (more substantively detailed) narratives, other studies have found that closed-ended questions are necessary to elicit information from children because open-ended questions may leave room for evasive responses, especially with specific victim populations who may be

defensive or reluctant to disclose in an interview setting (e.g., Lindholm, Cederborg, & Alm, 2015 in victims of sex trafficking). It is possible that additional factors that are examined more broadly across the body of literature on child interviewing can explain such differences, for example, the type of interviewing protocol being used, and the developmental differences in language, cognitive, and social-emotional skills that are associated with age and maturation.

At the same time, the inconsistencies in the literature point to more substantial questions: Can we determine with confidence the effectiveness of specific interviewing practices across the body of existing knowledge? And can additional factors, such as a child's age, help to explain inconsistencies across the body of knowledge to provide more confidence in the type of interviewing practice being used? The fact that the outcomes of such interviewing practices have far-reaching implications only serves to underscore the importance of these questions.

The current study systematically reviewed the empirical literature on interviewing practices that facilitate child witness disclosures to aggregate results according to specific practices, which were subsequently analyzed meta-analytically for their effect on children's disclosures of sensitive events. The goal of this approach was to survey the child interviewing literature holistically to examine current practices and identify future directions for interviewing children to increase children's disclosures in forensic settings.

Disclosures and Concealment

During forensic interviews, children may wrestle with the internal decision to disclose or to conceal information, and previous findings suggest that children can and do withhold information at times (Goodman-Brown, Edelstein, Goodman, Jones, & Gordon, 2003; London, Bruck, Wright, & Ceci, 2008). There is general agreement among researchers that it is not uncommon for children to be reluctant to disclose, whether by concealing information or by

delaying disclosures (Hershkowitz, Lanes, & Lamb, 2007; Paine & Hansen, 2002; range of 4-75% non-disclosures across reviewed studies by London, Bruck, Ceci, & Shuman, 2005).

One question that is relevant for measuring whether children have disclosed a sensitive experience is how "disclosure" is defined and consequently measured. At the broadest level, disclosures can be measured in a binary sense, that is, either the child disclosed or they did not (e.g., Hershkowitz, Orbach, Lamb, Sternberg, & Horowitz, 2006; Lyon et al., 2014). However, treating disclosures as binary overlooks the question of whether the child provided a full (detailed) disclosure, one that is detailed enough for accuracy and credibility to be assessed (Wood & Garven, 2000), and for legal professionals to determine whether the act fulfills the legal criteria for charges against the perpetrator (e.g., extent of force or violence being used). It also overlooks the complexity of disclosure as a process that can unfold over time (Alaggia, 2004), which can also have forensic implications. Thus, the question of the degree to which the child fully discloses their experiences is relevant in applied forensic settings.

Researchers to date have defined and operationalized disclosures in many different ways (Jones, 2000; Lyon, 2007); as binary disclosures or allegations (e.g., Hershkowitz et al., 2006; Lyon et al., 2014), as partial disclosures that provide some information about an event but are not complete (e.g., Lyon & Dorado, 2008), and at a more micro-level, as substantive details about an alleged event (e.g., Dion & Cyr, 2008; Hershkowitz, 2009; Lyon et al., 2014). For our purposes, we use the term disclosure to refer globally to any of the above-listed methods. We use the most specific measure or operationalization of disclosure available in each study (e.g., children's allegations, children's descriptions of sensitive events) to refer to children's disclosures.

Several factors can affect whether children disclose or conceal information, for example, the child's age. Some studies have found that younger children are less likely than older children

to spontaneously disclose a sensitive or negative event (e.g., Leach, Powell, Sharman, & Anglim, 2017), and that they tend to disclose fewer details of the event (Hershkowitz et al., 2012; Lamb et al., 2003), perhaps due to less developed language and narrative sequencing skills (Miragoli, Camisasca, & Di Blasio, 2017). Conversely, other studies have found that older children are more reluctant to disclose a sensitive or negative event (e.g., Goodman-Brown et al., 2003; Hershkowitz et al., 2007), especially adolescents (Leach et al., 2017), yet at the same time they are likely to provide more substantive details in their responses to an interviewer when questioned (Alonzo-Proulx & Cyr, 2016).

In a meta-analysis of the prevalence of children's disclosures during a forensic interview, studies of children with a higher mean age tended to report higher disclosure rates than those with a lower mean age (Azzopardi, Eirich, Rash, MacDonald, & Madigan, 2019). Thus, although the findings regarding whether younger or older children are more likely to disclose a negative event are quite nuanced, they suggest that age is a factor in explaining whether or not children are likely to disclose. As such, age is included as a moderator analysis in our study.

Interviewing Practices

Across the body of knowledge on child forensic interviewing, there are many practices that have been tested and implemented with child witnesses. Specific interviewing protocols have outlined procedures for integrating such practices, but the broad components that comprise the protocols are similar. For example, the Memorandum of Good Practice was established in the United Kingdom in 1992 to guide forensic interviewers on how to best interview child witnesses (Davies & Westcott, 1999), which has since been revised to Achieving Best Evidence guidelines that recommend Enhanced Cognitive Interview practices (United Kingdom Home Office Ministry of Justice 2002, revised 2007 and 2011). In Canada, the Step-Wise Interview (Yuille,

1993) was introduced to facilitate developmentally-appropriate methods for conducting

investigative interviews with children, and remains a common interviewing method, along with

the National Institute of Child Health and Human Development (NICHD) protocol (Westman,

2018). The NICHD introduced an additional interviewing protocol based on evidence-based

practices for conducting developmentally-appropriate interviews (Orbach et al., 2000), and has

undergone revisions to include a stronger emphasis on rapport (Hershkowitz et al., 2014;

Hershkowitz & Lamb, 2020), both establishing rapport at the beginning of the interview and

maintaining rapport throughout the interview. The broad components within these protocols

include a rapport-building period, open free-recall questions, and closed-ended direct questions.

   Interviewer-child rapport and interviewer supportiveness. One area that has been of

particular interest of late for researchers and professionals interviewing children is the practice of

establishing rapport, both early in the interview ("rapport-building") and throughout the

interview. The goal of establishing rapport at the beginning of the interview is to build a basic

level of trust with child witnesses (e.g., ice-breaking). It can also allow the child to practice

providing narrative responses about neutral or positive events, which can act as a baseline for

how forthcoming the child generally is when talking with the interviewer about neutral events

(Hershkowitz, Orbach, Lamb, Sternberg, & Horowitz, 2006). Many of the current child

interviewing protocols recommend establishing rapport with the child witness before beginning

the substantive part of the interview, with the expectation that this will make the child

comfortable enough with the interviewer to disclose sensitive information later during the

substantive portion of the interview (Hershkowitz, Lamb, Katz, & Malloy, 2015; Leander, 2009;

Saywitz et al., 2015). Interviewer supportiveness is a form of maintaining rapport (Hershkowitz

et al., 2014) and refers to the actions of the interviewer throughout the interview that work to

enhance and maintain a trusting and comfortable environment for the child and interviewer. Specific actions include providing unconditional positive reinforcement, personalizing the questions by using the child's name, and acknowledging the child's emotions that the child references during the interview (Hershkowitz et al., 2006).

Both rapport-building and interviewer supportiveness serve to build trust with the child, but definitional and operational distinctions between the two constructs have not been clear in past literature, with some researchers asserting that supportiveness is a form of rapport-building and some asserting that rapport-building includes supportiveness (see Saywitz et al., 2015 for a discussion). In the current study, we consider "rapport practices" to be an umbrella term that incorporates supportive practices – both meant to achieve and maintain interpersonal trust and comfort in the interview context. Regarding interviewer supportiveness specifically, Saywitz, Wells, Larson, and Hobbs (2016) conducted a meta-analysis of eight experimental studies in which children responded to different types of questions under experimental conditions that included suggestive and leading conditions, and found that interviewer support (that was not dependent on the child's behavior) was associated with higher accuracy, even when children were asked suggestive questions. This finding demonstrates the value of interviewer support when speaking with children, and complements the findings of field studies that have analyzed the impact of using rapport with children during forensic interviews regarding alleged maltreatment (e.g., Ahern et al., 2014; Hershkowitz, 2009).

Question type. Open-ended invitation, or free-recall, questions may be used early in an interview to encourage children to recall all the information they can about an event (e.g., "tell me what happened that day"). Children's responses are then used to create non-suggestive follow-up questions (e.g., "did anything else happen" or "what happened next?"), to make

clarifications and to obtain more information (Lamb, Orbach, Hershkowitz, Esplin, & Horowitz, 2007; La Rooy et al., 2015). Open-ended invitation or free-recall reports are generally longer, more informative, and more accurate than responses to closed-ended questions in typically-developing (Orbach & Pipe, 2011) and in special needs populations (Cederborg & Lamb, 2008). However, the broad nature of these questions can lead to uninformative responses (e.g., "we played games"), in young children, in those with limited language skills (Hershkowitz, Lamb, Orbach, Katz, & Horowitz, 2012), and with specific victim populations (Lindholm et al., 2015).

Closed-ended questions are frequently asked by interviewers to obtain specific information from children (Johnson, McWilliams, Goodman, Shelley, & Piper, 2016). Common types include yes or no questions (e.g., "was your parent there while this happened?"), option-posing questions (e.g., "did the crime happen during the day or at night"), and leading or suggestive questions (e.g., "where did he touch you?", which leading if the child has not disclosed any touch). Closed-ended questions have been criticized for being suggestive and leading, which can result in inaccurate information as the child may feel forced into choosing a specific answer (Bowles & Sharman, 2014; Ceci & Bruck, 1995). Moreover, these questions encourage short, specific responses, which can lead to the omission of important facts (Okanda & Itakura, 2010), obscuring details or events germane to a full disclosure. However, closed-ended questions can be useful for clarifying information from free-recall narratives when they are presented in a non-suggestive format, such as through close-ended directive wh-questions (e.g., "what was the color of the car you described earlier?"), especially with children who are unable or unwilling to openly discuss the event (Klemfuss, Quas, & Lyon, 2014; Lyon, 2014).

Current Study

Although there is a vast body of empirical research on child forensic interviewing, there has been very little aggregation of this work to examine the overall effects of specific interviewing practices on children's disclosures. Three review or meta-analytic studies exist and have focused on accuracy and suggestibility in experimental child studies (e.g., for a review of rapport-building in child interviews, see Saywitz et al., 2015; for a review and meta-analysis of the effects of interviewer support on accuracy, see Saywitz et al., 2016), or on protocol differences (for a comparison of NICHD protocol to standard interviews, see Benia, Hauck-Filho, Dillenburg, & Stein, 2015). To establish best-practices for interviewing children, an aggregate analysis of literature is necessary to determine how effective certain individual practices are across studies (i.e., the size of the effects), and to explore whether there are contradictory results across the body of literature and whether these differences can be explained by specific variables or methodological differences. We conducted a systematic review and meta-analysis to examine the magnitude of effects of interviewing practices on children's tendencies to disclose sensitive information, as well as the consistency of effects across studies.

Method

Search Strategy

We conducted a systematic review of the literature on interviewing practices with children to gather our sample to meta-analyze, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009). Five psychology and law databases were searched with similar terms that had been mapped to the preferred terminology of each database, based on the recommendations of two specialist university librarians as well as the recommendations of two senior experts in the field of forensic child psychology: PsycInfo, PsycArticles, Scopus (social sciences and humanities), Proquest

research library (criminology and social work databases), and HeinOnline. Searches were

conducted concurrently by two individuals (first and second authors) to reduce possible human

errors in entry of search terms and criteria. Search terms included variations of "interview,"

"testimony," "disclosure," "allegation," and "report," to ensure that a broad range of articles on

interviewing processes with children was gathered. Sources were limited to peer-reviewed

journals to introduce a baseline quality control for the meta-analyses, and articles that were

published after 1992, based on the introduction of established child interviewing protocols

during or after that year (e.g., the Memorandum of Good Practice, 1992; the Step-Wise

Procedure; Yuille, 1993). Individual hand searches of key authors' professional or informal

websites or online depositories were also conducted, based on recurring author names within the

disclosure literature, the culling of key article reference lists, and author recommendations by

two senior experts in the field of child forensic psychology. This method was chosen rather than

emailing authors directly given that initial contact attempts with several authors were

unsuccessful, and the method of culling key author websites and depositories was less likely to

introduce a response bias from non-responses of key authors. Twenty-nine key author websites

were culled for relevant sources in total, and hits were added to the database search results (see

Supplemental Figure 1 for a complete flow diagram).

Eligibility Criteria

Database and journal searches yielded 10,657 articles, and hand searches of individual

key authors yielded an additional 20 articles. After duplicates were removed, 9972 articles were

screened for relevance, and articles that successfully passed the screening underwent a full

review for eligibility ($n = 85$; see Supplemental Figure 1). Inclusion criteria included: (1) an

empirical study published in English or French in a peer-reviewed journal; (2) typically-

developing participants under 18 years of age, given that the United Nations Convention on the

Rights of the Child considers "children" to be under the age of 18 years and asserts that children

should be cared for and protected until such an age (UNICEF, 2015); (3) findings that reported

the results of an interviewing approach (i.e., an interviewing effect on child disclosures) with a

child witness or alleged victim; (4) child participant(s) must have had a motivation to keep a

secret, for example they were being interviewed about a sensitive event such as alleged

maltreatment or the child was motivated to keep a secret to avoid getting in trouble (mainly

relevant for experimental studies that focused on the effectiveness of interviewing practices after

a child experienced a staged sensitive event, such as witnessing a parent break an off-limits

object while in the laboratory, and being asked by the parent to keep the event secret so the

parent would not get in trouble); (5) protocol could not include a purposeful introduction of bias

or coaching from the interviewer for the participants if an experimental study, unless the

introduction of bias came at the end of the interview and the effect of the earlier interviewing

approach was extractable without the bias portion of the interview (i.e., only the "pure" condition

was extracted); and (6) enough information had to be provided in the results section to extract an

interviewing effect on children's disclosures of sensitive information to be included in the meta-

analysis. Studies that satisfied each of the inclusion criteria were included in the review. Each

included study was reviewed for an overall risk of bias assessment and passed a minimum

threshold for low risk of bias, based on clarity of the method and results sections.

Article Preparation for Analyses

A broad range of articles on interviewing practices with children was obtained through

this search process. The purpose of seeking such a broad range was to select interviewing

practices with an extensive enough literature base to be synthesized and analyzed to determine

how effective such practices are, based on the corporate results of the body of literature. To

meta-analyze this broad range, interviewing practices were grouped under similar themes to

ensure similar construct effects (Borenstein, Hedges, Higgins, & Rothstein, 2009). That is,

articles that passed the eligibility screening were organized thematically according to the specific

interviewing practices they included. Two interviewing practices emerged as most prevalent

across the studies: rapport practices (including supportiveness; $n = 10$) and (2) question type ($n =$

30 samples within 25 studies). Rapport practices and question type were each analyzed meta-

analytically for their effects on children's disclosures of sensitive information.

Meta-Analytic Strategy

A random-effects model for Cohen's d-family effects was conducted using the

DerSimonian-Laird approach (Schulze, 2004; Schwarzer, 2015) for rapport practices and

question type interviewing practices. Data were extracted from each study and effect sizes were

calculated using the Practical Meta-Analysis Effect Size Calculator (Wilson, 2001). Overall

effect sizes and heterogeneity analyses were conducted in R using the Meta-Analysis with Mean

Differences (MAd) and Meta-Analysis Package for R (metafor) packages. The type of

interviewing protocol used in the study (i.e., codes included not specified/not applicable,

Cognitive Interview technique, National Institute of Child Health and Human Development or

close variant; Orbach et al., 2000) and the level of disclosure (coded as an allegation, provision

of substantive details, or informativeness according to how it was measured in each study, 20%

of cases coded by two raters, there was substantial agreement with interrater reliability = 89%,

Cohen's kappa = 0.78) were categorized to account for potential differences in study

methodology (listed in Table 1).

Following the calculation of overall effect sizes, outlying effect sizes were removed from the remainder of the analyses, following the method proposed by Hedges and Olkin (1985). Specifically, a visual inspection of the effect sizes and confidence intervals as well as an examination of the residuals and heterogeneity after each suspected outlier was removed was conducted to determine which studies were unduly influencing the overall results, and to determine whether heterogeneity was spread across the samples or contained within a handful of outlying samples. This method ensures that effect sizes that were outliers did not affect the pooled results (indicated by "-" in Table 1). Based on this method, one sample was removed from the rapport practices meta-analysis (a comparison study of specific protocol training and integration in a field study), and five samples were removed from the question-type meta-analysis (four of which were pre-post comparisons after specific protocol training and integration in field studies, one of which had no outstanding methodological differences other than using a different interviewing protocol to others in the meta-analysis sample), for a final total of nine samples in the rapport practices meta-analysis and 25 samples in the question type meta-analysis. Following meta-analyses, meta-regression analyses were used to explore whether differences between the article methodologies (e.g., interviewing protocol, level of disclosure) explained any of the variance in the effect sizes between the studies in the two meta-analyses.

Results

Rapport Practices

There were a total of 1041 participants, ages 3 to 18 years old, across the 9 studies in the meta-analysis (see Figure 1 for forest plot). The rapport practices across the articles were coded according to how they were operationalized in the study as: (a) rapport-building practices; (b) interviewer supportiveness; or (c) combined effect of both rapport and support. There were no

significant differences in effect size according to the type of rapport, $p = .994$, thus we included

both rapport-building and rapport-maintaining (i.e., interviewer supportiveness) for the meta-

analysis of rapport practices, and we use the term rapport practices through the results and

discussion to encompass both approaches.

The overall d-effect of rapport practices was 0.55 ($z = 4.73$, $k = 9$, $p < .001$, 95% CI 0.32,

0.77), which can be classified as a medium effect (Cohen, 1988; see Table 2 for model

information). There was significant heterogeneity in effect sizes among the studies, $Q_T(1) =$

22.41, $p < .001$, which suggests that the rapport practices had a different level of influence on

children's disclosures of sensitive information among the various studies. Specifically,

approximately 95% of the variance in effect sizes could be attributed to differences between the

studies, $I^2 = 94.59$ (95% CI 87.02, 98.47). We assessed for differences in effect size according to

the level of disclosure as operationalized by the studies using a moderator regression analysis,

but found no significant differences, $p = .480$, as such, we did not further differentiate between

the level of disclosure in the rest of the rapport meta-analysis findings.

To explore moderator variables (covariates; Borenstein et al., 2009) that might explain

some of the variance in effect sizes, a meta-regression was conducted with two covariates: the

interviewing protocol that was used in the study (protocol not specified/not applicable, NICHD

or a very close variant), and the mean age reported in each study to assess possible age

differences (when not specifically reported, we used the midpoint between the lowest age and the

highest age). The model was significant, $Q_{bet}(2) = 8.18$, $p = .017$. The interviewing protocol used

in the study did significantly explain differences in effect sizes between studies, $p = .005$, but age

did not explain any differences in effect sizes between studies. Specifically, studies that used a

non-specified protocol were more likely to report higher effect sizes than studies that used the

NICHD or close variant interviewing protocol (see Table 3 for moderator effects). However, there was residual heterogeneity of effects beyond those tested by the covariates, $Q_{within}(6) = 40.64$, $p < .001$, which suggests that additional moderator variables in the reviewed studies may influence the magnitude of effect of rapport techniques on children's disclosures.

Question Type

Twenty-five samples in 23 studies were included in the question type meta-analysis, for a combined total of 1861 participants from 3 to 17 years old (forest plot in Figure 2). In two studies, the methodology (interviewing protocol) differed between groups of participants, and the effects for each group were extracted separately. Effects were also extracted for different types of questions, specifically open-ended and closed-ended on children's disclosures. When multiple subtypes of open-ended or closed-ended questions were included in a study, subtypes were combined using a weighted average score to generate one open-ended value and one closed-ended value. In the case of WH- questions in particular (e.g., What happened?), question types were considered based on the context of the question, as outlined by the authors of each study that focused on WH questions specifically. For example, WH- questions that could elicit a narrative, such as an invitation would, were categorized as open-ended (e.g., What happened?), whereas WH- questions that could elicit a brief response were categorized under close-ended (e.g., What color was his shirt?; Gagnon & Cyr, 2017).

The combined effect size of open-ended questions compared to closed-ended questions on children's disclosures was 0.52 ($z = 4.15$, $k = 25$, $p < .001$, 95% CI 0.27, 0.76; see Table 2 for model information). This is a medium effect (Cohen, 1988), and suggests that using open-ended questions over closed-ended questions did have a significant positive effect on children's disclosures. There was significant heterogeneity among the study effect sizes, $Q_T(1) = 17.20$, $p <$

.001, with approximately 99% of the variance in effect sizes attributable to differences across the

studies, $I^2 = 98.60$ (95% CI 97.62, 99.30). This suggests that the effect of using open-ended

questions on children's disclosures was inconsistent across the studies included for review, with

a wide range of effect sizes. We used a moderator regression analysis to test for differences in

effect size according to the level of disclosure, as operationalized by each study, the protocol

type, and the mean age of children in the sample, and found that although the overall model was

not significant, $Q_{bet}(3) = 4.60$, $p = .203$, there were significant differences according to the level

of disclosure only, $p = .033$. As such, we divided the samples according to the level of

disclosure, as allegations (binary) or substantive details for further examination. (We did not

further analyze the one study, Myklebust & Bjørklund, that operationalized disclosure as

informativeness due to too little variance for further analyses.)

Disclosures as binary allegations. Four studies operationalized disclosures as binary

allegations (first authors and year only: Hamilton, 2016; Malloy, 2016; Patterson, 2009; Talwar,

2004), with a combined total of 197 participants. We reran the meta-analysis to determine the

overall effect size between question type and children's disclosures as binary allegations, and

found a non-significant effect size, 0.02 ($z = 0.57$, $k = 4$, $p = .569$, 95% CI -0.04, 0.07, model

information in Table 2). Due to the small combined sample size, we tentatively present this result

and note the results should not be considered conclusive. We did not rerun moderator analyses

with this subsample due to the small combined sample size.

Disclosures as provision of substantive details. Twenty samples within eighteen studies

operationalized children's disclosures as the provision of substantive details (first authors and

year only: Ahern, 2018; Cederborg, 2000; Dion, 2008; Gagnon, 2017; Gudjonsson, 2010;

Hershkowitz, 2002, 2002, 2012; Hutcheson, 1995; Lamb, 1996, 2000, 2003, 2007, 2009;

Leander, 2009, 2010; Orbach, 2000; Sternberg, 1996), with a combined total of 1664

participants. We reran the overall effect size calculation for this subsample and found a medium

effect size, 0.63 ($z = 4.65$, $k = 20$, $p < .001$, 95% CI 0.36, 0.89, see Table 2 for model

information). We also reran the moderator analysis with protocol type and mean age as

predictors, but did not find any significant differences according to either protocol type or mean

age, ps = .987 and .697 respectively.

Publication Bias

Funnel plots of the effect sizes of each meta-analysis (rapport practices and question

type) were consulted to explore whether any publication bias seemed present (see Supplemental

Figures 2 and 3 respectively). Publication bias is the phenomenon of significant results having a

higher likelihood of being published, and thus more locatable and likely to be included in meta-

analyses (Viechtbaur & Cheung, 2010). Asymmetry in the funnel plot can indicate a possibility

of publication bias. Based on a visual inspection of the funnel plot of rapport practices effect

sizes, there did not seem to be a publication bias toward significant or non-significant results.

Further, Egger's test indicated that no statistically significant publication bias was present, $p =$

.306. Visual inspection of the funnel plot of question type on disclosure suggests that a slight

publication bias toward publishing results with larger effect sizes may have existed, but Egger's

test indicated that no publication bias was present in the question type results, $p = .090$.

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Discussion

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Rapport practices and question type emerged as prevalent practices in this review, and we

found that rapport practices had a medium effect on children's disclosures while open-ended

questions had a medium overall effect on children's descriptions of sensitive events.

Rapport Practices

It is encouraging that rapport practices did have a significant overall effect on children's disclosures because this suggests that rapport is an effective part of the interviewing process that can significantly impact not only how children feel (Roberts, Lamb, & Sternberg, 2004), but also the information that they disclose. In fact, previous studies have found that children who do not disclose in a forensic interview are more reluctant early in the interview (Hershkowitz, Orbach, Lamb, Sternberg, & Horowitz, 2006) and tend to have more disengaged non-verbal behavior (Katz & Hershkowitz, 2012). However, it is possible that rapport techniques may increase engagement with the interviewer and the tendency to disclose information. At the same time, the fact that existing rapport practices had a large range of effect sizes (ranging from a small effect to a large effect), suggests that there is room for improvement in the current practices. For example, perhaps there may need to be an additional element to rapport-building, beyond a standard list of rapport-building questions, that establishes a baseline level of warmth and trust through speech and body language communication, for rapport practices to have a larger effect.

Further, although we did not find significant differences in effect size according to the mean age of children in each study, it is also possible that the types of rapport-building activities that are more effective may vary according to children's developmental stage. For example, younger children may especially benefit from a shortened rapport-building period early in the interview to preserve their cognitive resources (though both younger and older children may benefit; e.g., Teoh & Lamb, 2010), while older children may especially benefit from enhanced support from the interviewer (e.g., Hershkowitz, 2009).

The interviewing protocol reported by the studies significantly predicted the effect size of rapport practices, with studies that used a non-specified protocol (typically developed or adapted for the particular study) reporting higher effect sizes than those using the NICHD protocol or

close variant. The studies that used a non-specified protocol may have had higher effect sizes

because they may have developed specific rapport techniques to be tested in their interviews

beyond a standard rapport-building set of questions. Indeed, recent efforts to enhance the impact

of rapport-building support this possibility. Ahern and colleagues (2014) provided NICHD

protocol training that emphasized rapport and found that when support was given in response to

child reluctance, there was greater cooperation from the child interviewees. It may also be the

case that several of the studies that used the NICHD protocol tested samples of particularly

reluctant children who were hesitant in providing information about alleged maltreatment, which

may explain the smaller effect size in such studies. Finally, many of the studies included in the

meta-analysis that used the NICHD protocol or close variant did not used the revised NICHD

protocol, which has undergone substantial revisions to effectively enhance rapport between the

interview and child and support for the child throughout the interview (Blasbalg, Hershkowitz,

Lamb, Karni-Visel, & Ahern, 2019; Hershkowitz et al., 2014; Hershkowitz & Lamb, 2020).

Question Type

The findings of this meta-analysis also indicate that open-ended questions were

moderately effective in eliciting detailed descriptions of sensitive events in mainly field studies

(3 experimental samples, 21 field samples). These findings build on previous research that has

established a strong positive result for asking open-ended questions as they may facilitate

children's detailed responses while avoiding any suggestiveness from the researcher

(Hershkowitz, Orbach, Lamb, Sternberg, & Horowitz, 2002; Lamb et al., 2009). However, this

meta-analysis also includes several studies that found an effect in the opposite direction (e.g.,

Hutcheson, Baxter, Telfer, & Warden, 1995; Leander, 2010), which also aligns with some

research that suggests that open-ended questions may not always facilitate disclosures because they can leave room for evasive responses (e.g., Lindholm et al., 2015).

Overall, these results suggest that question type has an effect on children's descriptions of sensitive events, but given the range of effect sizes and, at times, even directionality, the type of question is likely only one of several factors that influence children's decisions to disclose or conceal information. For example, several studies have included a comparison of children's disclosures in response to open-ended and closed-ended questions before and after changing interview protocols, and in several cases, the direction of effect size reverses, with a strong effect in the opposite direction (e.g., Hershkowitz, Orbach, Lamb, Sternberg, & Horowitz, 2001; Hershkowitz et al., 2002; Lamb et al., 2009; Orbach et al., 2000). However, in spite of this, the type of protocol used did not explain any significant differences in effect sizes. This suggests that there may be additional factors at play in determining whether open-ended or closed-ended questions have a greater effect on helping to foster children's descriptions of sensitive events.

One possibility is that the training and use of a new protocol may encourage interviewers to focus more intently on their interviewing practice, and this may affect additional factors, such as their non-verbal behavior, timing, and use of follow-up probes, beyond the questioning procedure outlined in the protocol. Perhaps more effective rapport enhances the impact of open-ended questioning, while less effective rapport leads to more child reluctance and more interviewer closed-ended questioning (Hershkowitz et al., 2006). Even though we did not find that the mean age of children was a significant moderator of the relation between question type and disclosures, it is also possible that the differential effects of open-ended questions may be explained by children's age and development, when a more precise breakdown of the effect of question type by age is available. For example, older children may provide more informative

responses to an open-ended question than younger children (Aldridge & Wood, 1998; Hershkowitz et al., 2012; Horowitz, 2009), who may require more probing, which could inadvertently lead to closed-ended probing questions.

Implications and Directions for Future Research

There is great value in the systematic replication of studies testing child forensic interviewing approaches, to both confirm results and to address any contrasting findings, especially given the far-reaching implications of how such findings are applied. There are several practical implications that arise from our review and meta-analysis. First, across studies that focused on rapport and providing interviewer support, we found a consistent positive moderate effect, and this finding suggests that rapport practices and supportive practices during the interview are a beneficial component of the interviewing process when speaking with children about sensitive information. Further, no negative effects on children's disclosures were found, as such, integrating rapport and support into the interview setting with children is clearly an important direction for child forensic interviewing practices. Interviewing protocol was a significant moderator, which highlights the possibility of enhanced effectiveness through improved protocol development (as seen in current developments, e.g., Hershkowitz & Lamb, 2020).

We also found that rapport and support were only loosely defined and differentiated in terms of their constituent behaviors and comments (although there were no significant differences in effect sizes across rapport and support practices), which means that it is difficult to narrow in on what precisely is needed for effective rapport. A key direction for future research is to determine what specific components of rapport and support are beneficial, so that these practices can be incorporated into and perhaps enhanced in interview settings.

A second implication relates to the finding that open-ended questions had a consistent moderate effect on children's descriptions of sensitive events, above closed-ended questions. This provides aggregate empirical support and a specific effect size that can be anticipated when using open-ended questions and invitations with children as an effective approach for generating substantive information about their experiences. It is also helpful in the design of future studies and when making overarching policy and practice decisions that need to take into account the overall body of knowledge (including differing directionality of findings). At the same time, future research should explore whether open-ended questions need to be tweaked with specific victim populations, for example, those who seem defensive or reluctant during the interview.

There are several limitations to be considered in the overall interpretation of the results. For one, this review focused on disclosures of sensitive information, given the overall objective of the review as well as the nature of the studies included for review. However, within children's disclosures there is a two-fold possibility of bias: first, that children's disclosures were not entirely accurate, which could not be determined by the studies, and second, that there may have been instances in which children truly did not have sensitive information to disclose. Given the emphasis on facilitating disclosures (i.e., helping children to overcome reluctance to talk about sensitive information), we took study results at face value, though there is the inherent possibility that not all disclosures were true. Further, some authors of studies included in our review and meta-analysis did not reference a specific interviewing protocol within the study methodology (some referenced that it followed a model of a specific protocol, for example, being based on the NICHD, but was not *the* NICHD), which may artificially appear to restrict the scope of protocols used by studies in this review and meta-analysis. However, at the same time, given that many best-practice child interviewing protocols follow a similar structuring and include similar

components, and the fact that specific practices were reviewed, rather than protocols, suggests

that the main essence of differing interviewing protocols was captured in the analyses. Studies

that assess the differences in efficacy of interviewing practices according to protocol is also an

area for continued research and study (e.g., Benia et al., 2015). We also chose not to include

unpublished studies given that no peer-review process had been undergone to vouch for a

baseline quality control in the method and presentation of results, and secondly to not introduce

bias from author non-responses (i.e., authors not responding to contact).

Conclusions

The current meta-analytic study focused on the impact of rapport-building and question

type to determine whether these existing interviewing practices are effective for fostering

children's eyewitness disclosures of sensitive information. Overall, results indicate that rapport

practices had a significant effect on children's disclosures of sensitive information and that the

interviewing protocol used may moderate the effect size of these findings. Question type also

had a significant effect on children's descriptions of sensitive events, but no significant

moderators emerged to explain differences in effect sizes across studies. Practically, these

findings provide evidence-based support for rapport and open-ended questioning practices as

effective interviewing practices for facilitating disclosures and descriptions of sensitive events.

At the same time, these findings highlight the need for further research on existing interviewing

practices that encourage children's honest and forthcoming disclosures in forensic settings.

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