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The Influence of the Interviewer-Provided Social Support on Children's Suggestibility, Memory, and Disclosures

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As the chapters in this book reveal, a significant number of actual child abuse victims never disclose childhood abuse experiences at all, or they disclose in ways that do not lead to formal investigation. If there is an investigation, a victim's disclosure during a forensic interview must be accurate, detailed, and specific for abuse to be substantiated. Without detailed disclosures, children cannot be protected from further abuse and offenders cannot be prosecuted. It is critically important, then, for researchers to identify factors that encourage both informal disclosures prior to legal investigations as well as formal disclosures during forensic interviews. Several chapters in this book focus on well-defined cognitive-based techniques for conducting interviews (i.e., the National Institute of Child Health and Human Development [NICHD] protocol) and developmental and cognitive factors linked to disclosure during

forensic interviews (Pipe, Lamb, Orbach, Stewart, Sternberg, & Esplin, chapter 5, this volume; Hershkowitz, Orbach, Lamb, Horowitz, & Sternberg, chapter 6, this volume). But social psychological factors—that is, situational and socioemotional contextual factors—also exert an important influence on whether children disclose and on the accuracy of their eyewitness reports (Bottoms, Goodman, Schwartz-Kenney, & Thomas, 2002; Goodman & Schwartz-Kenney, 1992).

In this chapter, we focus on one social psychological factor: social support. A considerable amount of research has revealed that social support can affect a range of outcomes in both children and adults, including health, performance, and memory (e.g., Bursleson, Albrecht, Goldsmith, & Sarason, 1994; Hilmert, Kulik, & Christenfeld, 2002). In particular, and as we will discuss in detail, social support provided by an interviewer during a forensic interview can improve the quality of a child's report. Interviewer demeanor (supportive or otherwise) is more controllable than characteristics intrinsic to children such as age, cognitive abilities, and temperament. Thus, investigating the effects of social support on the accuracy of children's reports provides insight into practical interventions that can facilitate children's disclosures of abusive experiences.

Our chapter is organized as follows: First, we provide a general overview of theory regarding social support. Second, we review literature addressing the effect of social support on children's memory and suggestibility. Finally, we discuss new directions in the study of social support in forensic contexts: (a) the study of individual difference characteristics that predispose certain children to be particularly sensitive to social support manipulations, and (b) explorations of how adult observers, such as potential jurors, view socially supportive versus nonsupportive interview techniques. Throughout, we highlight findings from new studies in our own laboratories.

Before continuing, we must be clear about two important issues. Thus far, with only one exception which we describe later (Hershkowitz et al., this volume), the studies we review are so-called analogue studies, in which child participants are interviewed about nonabusive past events. Thus, it is difficult to draw definitive conclusions about the influence of support on disclosures of actual child abuse. Even so, whenever possible, we make informed inferences and pose predictions about how social support might affect the disclosure of child abuse. Second, we review no studies in which social support was provided to children contingent upon expected or desired answers. Specific and persistent reinforcement for incorrect answers (which might or might not be perceived by a child as socially supportive) is a highly leading, undesirable interview tactic that is associated with increases in young children's suggestibility (Garven, Wood, Malpass, & Shaw, 1998). A review of the consequences of highly leading techniques is beyond the scope of this paper (for discussion of that topic, see Poole & Lindsay, 2002).

SOCIAL SUPPORT AND ITS INFLUENCE ON CHILDREN'S EYEWITNESS REPORTS

Social support has been of interest to researchers across disciplines such as psychology, sociology, and communications, where it is conceptualized as a form of verbal or nonverbal interaction or communication between people that fosters a feeling of well-being in a target (Bursleson et al., 1994). Social support has been operationally defined in varied ways, such as informational support (e.g., providing advice), emotional support (e.g., providing affection and nurturance), network support (e.g., being a part of a group of emotionally and supportive friends or family members), and esteem support (e.g., the bolstering of self-esteem over time by others) (Bursleson & MacGorge, 2002; Bursleson et al., 1994; Cutrona & Russell, 1990; Hilmert et al., 2002; Tardy, 1994; Zerkowitz, 1989). Perceived social support is associated with a host of positive outcomes, including better physical and emotional health, reduced physiological reactivity, more fulfilling social relationships, and improved performance on cognitive tasks (e.g., Gerin, Milner, Chawla, & Pickering, 1995; Sarason, Sarason, & Pierce, 1990; Tardy, 1994; Uchino, Cacioppo, & Kiecolt-Glaser, 1996).

Researchers have investigated the effects of social support on children's memory and suggestibility because pretrial forensic interviews and courtrooms can be either socially supportive or intimidating places for children, depending on the demeanor and interview strategies of the adults in those venues. For example, forensic interviewers, attorneys, and judges can be warm and friendly, or they can be intimidating in their professional neutrality. Defense attorneys and others argue that children who are interviewed in a socially supportive manner may want to give answers that will please their friendly interrogator rather than answers that are accurate (e.g., Underwager & Wakefield, 1990). This intuition is occasionally bolstered by media coverage of cases involving young witnesses. For example, in a Chicago case several years ago, two very young suspects were wrongly suspected of killing a playmate. During their interviews with the child suspects, police officers used socially supportive techniques such as giving the children food and talking with them in a friendly manner. The children made statements that placed them at the crime scene and were interpreted as confessions. When the real (adult) killer was identified, public outrage focused on the policemen's child-friendly interview techniques. In fact, the first author was contacted for expert consultation by a party exploring the feasibility of a lawsuit against the city based on the argument that the socially supportive interview techniques were inappropriate. She declined, informing the caller that, as we review next, empirical evidence supports precisely the opposite conclusion.

Today, most child welfare professionals recommend child-friendly interview techniques (e.g., Wood, McClure, & Birch, 1996), reasoning that social support will be emotionally calming and thus encourage children to give

accurate reports of past events. This is consistent with current developmental theories that stress the importance of environmental support for children to perform at their maximum levels of cognitive performance (e.g., Fischer, 1980; Vygotsky, 1934/1978). Perceived social support has been found to enhance adolescents' and adults' psychological well-being and perceived ability to cope with life stress (for reviews, see Cohen & Wills, 1985; Wolchik, Sandler, & Braver, 1990), grade school students' academic performance (Rosenthal & Jacobson, 1968), and the accuracy of students' short-term recall (Kelley & Gorham, 1988). On the basis of such psychological theory and empirical evidence, psychologists interested in socially supportive interviewing techniques have hypothesized that social support would similarly benefit children in forensic interview contexts. To test this prediction, they have conducted studies of children's memory and suggestibility using a standard mock eyewitness testimony paradigm wherein children experience an event and are interviewed either immediately or after a delay with open-ended free-recall questions (noncued prompts) or detailed questions that are misleading (suggestive of incorrect answers) or specific (cued, but not suggestive or coercive). Across studies, social support has been manipulated in three distinct ways, each of which is relevant in actual forensic settings: (a) the presence of child peers during an interview (Cornah & Memon, 1996; Greenstock & Pipe, 1996; Greenstock & Pipe, 1997; Moston & Engelberg, 1992); (b) the familiar identity of an interviewer (mother as opposed to stranger, Goodman, Sharma, Thomas, & Constadine, 1995; Ricci, Beal, & Dekle, 1996); and (c) the demeanor and actions of an interviewer (supportive or nonsupportive). In this chapter, we focus exclusively on the third type of manipulation. (For a review of the other work, see Davis & Bottoms, 2002b).

In the first published study of the effects of interviewer-provided social support on children's eyewitness abilities, 3- to 4-year-olds and 5- to 7-year-olds received routine (but stressful) inoculations at a medical clinic (Goodman, Bottoms, Rudy, & Schwartz-Kenney, 1991). Children were interviewed two and/or four weeks later about their clinic visit with free recall questions, specific questions, and misleading questions. Children in the socially supportive interview condition were interviewed by a woman who acted in a supportive manner by giving the children a snack, smiling frequently, and complimenting them at specific times without regard for accuracy. The remaining children were interviewed without these snacks, smiles, or compliments, in what could be characterized as a neutral rather than intimidating manner. Based on developmental theories that stress the importance of environmental support for children to perform at their "optimal level" (e.g., Fischer, 1980), Goodman and colleagues predicted that children in the supportive interview would be most accurate overall. Results indicated that social support reduced the number of inaccuracies in children's free recall generally. Further, after a four-week (but not a two-week) delay, social support also reduced younger children's errors in response to misleading questions and to

questions that incorrectly suggested that abuse had occurred at the clinic. In fact, with socially supportive interviewing, 3- to 4-year-olds were as accurate when answering the misleading questions as were 5- to 6-year-olds. Goodman and colleagues speculated that interviewer-provided support decreased the extent to which children were intimidated, which in turn decreased their suggestibility. There was only one negative effect of social support: It increased the number of omission errors in younger children's responses to misleading questions about peripheral characteristics of the clinic setting (such as the color of the walls in the room).

Carter, Bottoms, and Levine (1996) investigated the effects of interviewer-provided social support on 5- to 7-year-olds' immediate eyewitness reports of a nonstressful interaction with an unfamiliar adult. Social support versus intimidation (rather than neutrality as in Goodman et al., 1991) was operationalized in terms of specific behaviors noted in the clinical literature to convey emotional warmth or a lack thereof (Mehrabian, 1969; Kelley & Gorham, 1988). In the supportive condition, the interviewer built rapport with the child, used a warm and friendly voice, gazed and smiled at the child often, and assumed a relaxed body position. In the nonsupportive condition, the interviewer withheld these behaviors. This manipulation, in which conditions were arguably better differentiated than those in the Goodman et al. (1991) study, produced more specific effects. That is, although support had no effect on children's responses to free recall or specific questions, children in the supportive condition were more resistant to misleading questions than were children in the nonsupportive condition. Expanding on Goodman et al.'s (1991) interpretation, Carter and colleagues theorized that interviewer-provided support increased children's resistance to misleading information by decreasing children's anxiety, lessening intimidation, and increasing feelings of empowerment.

In a study by Imhoff and Baker-Ward (1999), 3- and 4-year-olds witnessed a classroom demonstration in small groups. Two weeks later, they were individually interviewed about what happened by either a supportive or nonsupportive interviewer. Supportive interviewing had no effect on children's responses to specific or misleading questions, perhaps because Imhoff and Baker-Ward's nonsupportive interview was at most neutral and possibly even mildly supportive, albeit not to the extent as in the supportive condition. Specifically, the nonsupportive interviewers sometimes smiled at the children and complimented them on their performance.

Davis and Bottoms (2002a) examined 6- and 7-year-olds' memory for games and activities with a confederate "babysitter" (e.g., the children laid down on a giant piece of paper and had their bodies traced with a crayon). In interviews conducted immediately afterwards, interviewers were supportive or intimidating using the operationalization devised by Carter et al. (1996). Children questioned by a supportive person were significantly more resistant to misleading suggestions than children questioned by a nonsupportive person.

As in Carter et al.'s study, there were no effects on free recall, specific questions, or questions about whether abuse had occurred (on which children were already highly accurate). A unique aspect of Davis and Bottoms' research was their focus on two potential mechanisms, anxiety and perceived self-efficacy, by which social support might affect children's performance. First, the researchers tested the possibility that social support reduces children's anxiety, which in turn facilitates children's memory and resistance to false suggestions (as suggested by Carter et al., 1996, and Greenstock & Pipe, 1996, 1997). Results indicated that support was indeed associated with lower anxiety during the mock forensic interview (as measured by the State-Trait Anxiety Inventory, Spielberger, 1979), but anxiety was not in turn associated with suggestibility and thus did not mediate the effect of interviewer support on resistance to suggestion. Even so, the authors cautioned that it would be premature to rule out anxiety as a mediator under all circumstances, because their child participants were probably not terribly anxious in the first place.

Second, the researchers tested the predicted mediation of "Resistance Efficacy," defined as children's perceived self-efficacy (Bandura, 1982, 1997) for being able to resist misleading questions; that is, children's feelings of confidence about telling an adult he or she is wrong. For the older (but not younger) children in the sample, social support increased children's perceived Resistance Efficacy, which in turn increased their resistance to misleading questions. Therefore, one mechanism by which social support decreases older children's compliance in response to misleading interview questions is by increasing children's Resistance Efficacy.

With colleagues Kari Nysse-Carris, Tamara Haegerich, and Andrew Conway, Davis and Bottoms have now performed an additional study concerned with the effects of social support on children's memory and suggestibility, reinterviewing the children who participated in the Davis and Bottoms (2002a) study one year later. Specifically, the researchers tested whether the positive effects of supportive interviewing would be obtained even if the interview occurred long after the original event, as happens when children's disclosures are delayed (e.g., Bottoms, Rudnicki, & Epstein, chapter 10, this volume; Goodman-Brown, Edelstein, Goodman, Jones, & Gordon, 2003; Hanson, Resnick, Saunders, Kilpatrick, & Best, 1999; Lyon, chapter 3, this volume; Lyon, 2002; Pipe et al., this volume). As in the original study, the new interviewer behaved either supportively or nonsupportively. Children recalled a great deal of accurate information after even one year. Compared to children in the nonsupportive condition, children questioned by the supportive interviewer freely recalled significantly more correct and less incorrect information, and made significantly fewer commission errors in response to both misleading and specific questions. Thus, social support had positive effects even after one year, when children's memory for the original event was less strong.

Other than the study just described, only Goodman et al. (1991) found effects of social support on the amount of information retrieved using free recall

questions, and theirs was the only other study that included a significant delay between the event and the interview. In fact, the effects of support in Goodman et al.'s study were strongest at the longest delay (four weeks). Studies using no delay have shown no effects of support on recall (Carter et al., 1996; Davis & Bottoms, 2002a), perhaps because of a ceiling effect; that is, memory for the event was already so strong that support could not improve it further. Also, with the exception of Imhoff and Baker-Ward (1999), who operationalized supportive and nonsupportive interviewing in a mildly differentiated manner, all other researchers have found that suggestibility is reduced when children are questioned by a supportive rather than a nonsupportive interviewer.

Together these findings illustrate that social support has two-pronged effect. First, it decreases children's suggestibility or social compliance, which is not wholly dependent on memory (as illustrated by similar effects on misleading, suggestive questions in studies with or without interview delay). That is, although it is easier to mislead people about events for which memory is weak (Loftus, 1979), compliance can occur regardless of the underlying memory strength. Compliance is the social psychological process of agreeing with another's request or directive due to a desire to comply with perceived social pressure (Aronson, 1999). In the present case, the request is implicit in the interviewer's misleading question: to agree publicly with the suggested inaccurate information regardless of one's actual memory for the event. The compliance-reducing aspect of social support is the aspect that is likely to be mediated by psychological constructs such as perceived Resistance Efficacy.

Second, in some studies social support enhanced children's memory performance, as illustrated by effects on free recall performance and on responses to specific questions in studies that included a delay. When memory is weak, support might increase accuracy by helping children calmly focus on their memories for past events and in turn recall more information. Thus, we theorize that the memory-enhancing effects of social support are likely to be mediated by psychological constructs such as anxiety reduction or attentional focus, although this has yet to be tested in a study involving delay.

A final, recent study conducted by Hershkowitz et al. (chapter 6, this volume) represents the most ecologically valid test thus far of effects of socially supportive interviewing. They examined the interviews of 100 actual suspected child abuse victims in Israel. The interviews studied were chosen to create a set of cases wherein half of the interviews resulted in disclosures of abuse and half resulted in no disclosure. Cases were otherwise matched with respect to factors such as child age and gender, perpetrator identity, abuse type, etc. In all cases, there was considerable corroborative evidence of abuse. Children ranged in age from 4 to 14 years and were interviewed by official investigators trained in the NICHD interview protocol, which recommends socially supportive interviewing. Hershkowitz and colleagues found that interviewers displayed more socially supportive behaviors and fewer negative behaviors toward children during the interviews that resulted in disclosure than in

interviews that resulted in nondisclosure. When interviewers acted in non-supportive ways, children were less responsive and offered more denials. Moreover, the interviewers' non-supportive behaviors began even during the rapport-building stage of interviews, before substantive questioning. Of course, the real world nature of this study is both its triumph and downfall: It is impossible to disentangle the direction of causality in these effects. We do not know whether the children's resistance provoked the interviewers' unsupportive behaviors, or whether the interviewers' non-supportive techniques fostered children's resistance and nondisclosure (consistent with research showing that adults get defensive when interaction partners are perceived to be cool and detached, Civickly, Pace, & Krause, 1977). It is likely that the interviews being studied involved a complex and dynamic interaction process, wherein interviewers and children reacted to and reflected each other's demeanor and actions (Gilstrap, 2004).

In summary, in five of the six studies reviewed, interviewer-provided social support had a positive effect on children's reports of past events by increasing resistance to misleading suggestions and by facilitating free recall after a delay. Furthermore, and of importance, none of the studies revealed adverse effects of supportive interviewing on memory or suggestibility, with a single exception: Support led to increases in the number of omission errors in response to questions about peripheral details in the Goodman et al. (1991) study, a finding that has not been replicated. Hershkowitz and colleagues' (chapter 6, this volume) findings suggest that disclosures of actual child abuse may also be facilitated by supportive rather than unsupportive interview techniques, with little risk of increased false disclosures. Overall, we believe that the available evidence illustrates that socially supportive interviewing is unlikely to have adverse effects on children's performance, and therefore, the evidence supports the recommendation made by many (e.g., Bottoms & Davis, 2002b; Sorenson, Bottoms, & Perona, 1997; Wood et al., 1996) that forensic interviewers should behave in a socially supportive rather than an intimidating manner during forensic interviews.

INDIVIDUAL DIFFERENCES IN RESPONSIVENESS TO SOCIAL SUPPORT

Although we can confidently conclude that, in general, social support has positive effects (and few if any adverse effects), numerous important questions remain concerning the precise conditions under which social support improves the accuracy of children's reports. One such question concerns individual differences in children's performance, which have been the focus of a growing number of child eyewitness studies (e.g., Eisen, Goodman, Davis, & Qin, 1999; Merrit, Ornstein, & Spicker, 1994; Quas, Bauer, & Boyce, 2004). As Bottoms and Davis (2002a, 2002b) have suggested, individual differences probably moderate the effects of social support on memory and suggestibility.

Psychologists who have studied social support in other domains (e.g., adult relationships) find that correlations between outcomes such as physical health and *perceived* (felt) social support are stronger than those with *actual* (directly observable) social support (Bersheid & Reis, 1998). This suggests that there may be dispositional sensitivities to social support. For example, people who are dysphoric and have negative expectations do not recognize supportive behaviors in relationships as well as people who are more positively oriented (Lahey & Cassidy, 1990).

Researchers are just beginning to address this interesting issue in child witness research. As we review next, individual child characteristics that appear to moderate the effects of interviewer-provided social support include preexisting social support reserves, attachment style, working memory ability, and physiological reactivity. A host of other temperament and personality factors might also be involved.

Social Support Reserves. Carter et al. (1996) theorized that social support reserves (i.e., the amount of social support generally existing in a child's life) would moderate the effects of interviewer-provided support. Specifically, children having less contact with supportive friends and family members would feel less empowered generally, and in turn would be more sensitive to social support and perhaps benefit more from interviewer-provided social support than children who enjoy more preexisting social support from other people. Davis and Bottoms (2002a) tested this prediction by measuring children's support reserves with the parent form of the Zelkowitz (1989) Social Support Inventory, on which mothers reported interactions between their children and family members and friends. Results provided some, but not pervasive, support for the hypotheses: Children low in support reserves made more commission errors to specific questions when they had a non-supportive interviewer, as compared to a supportive interviewer, whereas children who were already high in support reserves were unaffected by interviewer support. Surprisingly, there were no effects on responses to misleading questions, however. The authors called for research using a more sensitive measure of support reserves, arguing that parents might not be able to (or want to) accurately represent their children's feelings of support from others.

Attachment Style. Child witness researchers have also become interested in the relation between testimonial accuracy and individual differences in the quality of children's emotional attachment to significant others (Goodman, Quas, Batterman-Faunce, Riddlesberger, & Kuhn, 1997; see also Alexander, Quas, & Goodman, 2002). Attachment quality (or style) might be related to children's reactions to a non-supportive interviewer, and in turn their resistance to misleading questions asked by such an individual. Specifically, the emotional quality of a forensic interview (supportive or non-supportive) may make attachment issues salient. Insecurely attached children, who are

generally more apprehensive and less trusting of others during social interactions (Bowlby, 1973), could be more sensitive to interviewer supportiveness than securely attached children, who are generally at ease during social interactions. Also, compared to securely attached children, insecurely attached children might experience more distress during confusing, potentially stressful interactions with unfamiliar adults (e.g., Alexander et al., 2002). To the extent that a nonsupportive, emotionally unavailable interviewer is distressing to children, insecurely attached children might react especially negatively and have the most difficulty contradicting interviewers and resisting false suggestions.

In the same experiment described above with 6- and 7-year-olds (Davis & Bottoms, 2002a) but in analyses not yet published, Davis, Bottoms, Guererro, Shreder, and Krebel (1998) tested these interesting possibilities. Because there is often a correspondence between parental and child attachment style (Bartholomew, 1990; Shaver & Hazan, 1993), parental attachment style was used as a proxy for children's attachment. Using Bartholomew and Horowitz's (1991) measure of adult attachment, parents classified themselves as either secure, anxious-ambivalent, avoidant, or dismissing-avoidant in their romantic relationships. We collapsed anxious-ambivalents, avoidants, and dismissing-avoidants into one "insecure" category, consistent with prior research (e.g., Bradshaw, Goldsmith, & Campos, 1987). As expected, attachment and support condition interacted to affect children's rate of commission errors to misleading questions. Children whose parents classified themselves as insecurely attached made significantly more errors in the nonsupportive than the supportive condition, but secure children were unaffected by the support manipulation. These preliminary results are consistent with the possibility that insecurely attached children are more vulnerable to suggestion than secure children during nonsupportive forensic interviews, and that socially supportive interviewing may buffer against problems associated with insecure attachment. Replication is, of course, needed, especially with research that explores relations among children's own attachment, interviewer behaviors, and children's memory and suggestibility, including the specific mechanisms by which attachment style affects children's responses during forensic interviews.

Working Memory. Davis and Bottoms, along with colleagues Conway, Nysse-Carris, and Haegerich, also examined working memory as another potentially important moderator of social support. Historically, psychologists have thought of working memory only from a capacity standpoint, but more recent theorists (e.g., Conway & Engle, 1996) conceptualize working memory as a mixture of storage (i.e., capacity) and control processes. Working memory is thought to be a dynamic system used to operate on information that is currently the focus of attention. Control processes (or executive functions) determine what information gets into working memory. Individuals with high working memory capacity are thought to have more efficient control processes,

leaving more resources available for storage. They are good at controlling, regulating, and actively maintaining task-relevant information, even in the face of distracters. Individuals with low working memory capacity have less efficient control processes, which reduces their ability to actively maintain task-relevant information and ignore distracting and irrelevant information, which, in turn, allows extraneous information to enter working memory (Conway & Engle, 1996).

We predicted that, compared to children with higher working memory capacity, children with lower working memory capacity would have difficulty ignoring misleading information provided by an interviewer and focusing on the central content of questions, thus becoming more suggestible. We expected that children with higher working memory capacity would be better able to focus and concentrate on the central content of questions and to respond more accurately. We tested these predictions in the one-year follow-up to the Davis and Bottoms (2002a) study described earlier. Specifically, after the mock forensic interview, we measured children's working memory ability (high or low) using a counting span task (Case, Kurland, & Goldberg, 1982) that was computer administered and modified to include distracters. Overall, compared to children with high working memory capacity, children with low working memory were more suggestible to misleading questions. However, when correlations between working memory and suggestibility were computed separately for children in the supportive and nonsupportive interview conditions, an interesting picture emerged: For children in the nonsupportive condition, working memory capacity was significantly (and relatively strongly, $r_s > -.40$) negatively correlated with commission errors in response to misleading and specific questions, indicating that those children low in working memory capacity made more errors. In the supportive condition, however, there was no significant relation between working memory capacity and interview performance.

These data suggest not only that our theories about the relation between suggestibility and working memory were correct but also that socially supportive interviewing moderates the otherwise negative effects of a preexisting cognitive individual difference. When interviewed in a supportive manner, children with low working memory capacity performed as well as those with high working memory capacity. But when interviewed in an intimidating manner, children with low working memory capacity were disadvantaged. Children with low working memory needed the support of a friendly, encouraging interviewer more. This is particularly interesting because some cognitive theorists view working memory capacity as a stable characteristic that may be affected by task factors but not by social factors, which presumably do not change the demands of the task itself.

Physiological Reactivity. Physiological reactivity has also been studied as a potentially important individual-difference characteristic with implications

for the relations between social support and memory and suggestibility. Physiological reactivity refers to children's tendency to experience heightened (versus moderate or brief) physiological responses when faced with situations that are stressful and challenging. Physiological reactivity is believed to be a relatively stable characteristic in children. It has been measured using a variety of indices reflecting sympathetic, parasympathetic, and hypothalamic pituitary adrenal axis activation. Traditionally, reactivity has been viewed as a risk factor for a variety of physical, emotional, and cognitive problems in childhood (e.g., Johnston-Brooks, Lewis, Evans, & Whalen, 1998). Findings from empirical studies, however, have not yielded consistent results: Heightened reactivity is associated with increased risk in some studies, is unrelated to risk in others, and is associated with reduced risk in still others (Boyce, Chesney, Alkon, Tschann, Adams, Chesterman, et al., 1995; Fabes, Eisenberg, & Eisenbud, 1997; Gunnar, Tout, de Haan, Pierce, & Stansbury, 1997).

To explain these variable results, some researchers have reconceptualized physiological reactivity not as a risk factor but instead as a form of biological sensitivity to social context (e.g., Boyce & Ellis, 2005). When the context is stressful or challenging, physiologically reactive individuals need to devote attention and resources to self-regulation at the expense of attending to potentially important environmental information. However, when the context is socially warm, nurturing, and supportive, reactive individuals' increased sensitivity should enable them to benefit fully from the positive context. Findings from several naturalistic studies of physiological reactivity in childhood support this conceptualization, at least when social context is examined broadly in terms of life stressors. For instance, consistent with traditional views of reactivity, high heart rate reactivity was associated with frequent respiratory problems in 3- to 6-year-olds but only when parents also reported high levels of family conflict. When parents reported low levels of family conflict, highly reactive children actually had low levels of respiratory problems. The frequency of illnesses among nonreactive children was unrelated to parent-reported conflict (Boyce et al., 1995).

Consistent with the conceptualization of reactivity as a form of sensitivity to social context, Quas and colleagues (2004a) predicted a link between physiological reactivity and sensitivity to socially supportive interviewing. We were specifically interested in whether high- versus low-stress social contexts differentially affected reactive and nonreactive children's memories for novel, challenging experiences. We hypothesized that, in the high stress environment of a nonsupportive interview, physiologically reactive children would have limited ability to attend to environmental information (i.e., the questions being asked), which would then lead to poorer memory performance relative to (a) nonreactive children in the high stress environment (nonsupportive interview) and (b) reactive children in the high support environment (supportive interview). Furthermore, because nonreactive children are less sensitive to

changes in their social environment, we predicted that the social support manipulation would not affect the nonreactive children's performance as much as it would affect the reactive children's performance.

We tested these predictions on 4- to 6-year-olds who first came to our laboratory and completed a series of mildly challenging laboratory tasks during which their physiological arousal (i.e., autonomic reactions) was continuously monitored. Physiological reactivity scores were calculated based on children's level of autonomic arousal during the tasks relative to their arousal while listening to neutral stories. After a two-week delay, children were interviewed about what happened during the previous session with free-recall and direct (including both misleading and specific) questions. Interviewers behaved in either a highly supportive or nonsupportive manner using the manipulation procedures employed by Davis and Bottoms (2002a). Findings confirmed expectations: Physiologically reactive children questioned in a supportive manner provided more correct responses to the direct questions than did reactive children questioned by a nonsupportive interviewer. Among nonreactive children, however, social support was generally unrelated to performance. We thus found, for the first time, that characteristics of children indeed moderated the effects of socially supportive interviewing techniques on children's memory.

Quas and Lench (in press) have now extended these initial findings in a second investigation that tested children's memory for fear-eliciting emotional information. During a visit to a research laboratory, 5- and 6-year-olds completed a range of challenging laboratory tasks, one of which involved watching a brief videoclip that elicited mild fear responses. After a week's delay, children returned for an interview about the video. Interviewers behaved in either a socially supportive or nonsupportive manner, again using the manipulation employed by Davis and Bottoms (2002a). Children's physiological arousal was monitored while children watched the initial video and while they were interviewed. Differences scores were computed by subtracting children's baseline heart rate (obtained while children were engaged in relatively neutral, non-challenging activities) from their heart rate during the video and during the memory interview.

Analyses revealed that the relation between children's physiological arousal and their memory performance varied depending on whether arousal at encoding versus retrieval was considered, the latter of which further interacted with interviewer demeanor. First, greater heart rate while watching the fear video was associated with later enhanced memory. Second, consistent with former findings, when arousal at retrieval was considered, the supportive interviewer benefited children who were especially aroused at the time of the interview. More specifically, children who were highly aroused during the interview (i.e., large interview-baseline difference scores) and who were questioned by a nonsupportive interviewer evinced poorer memory for the fear video than did children who were not aroused, regardless of interviewer

support, and children who were aroused and questioned by a supportive interviewer. The highly aroused children questioned in a nonsupportive manner may have been unable to attend to the interviewer and retrieve negative, fear-related information while concurrently try to regulate their arousal, an interpretation consistent with limited resource models of cognition (e.g., Case, 1991) and with former studies, including the work described above on working memory and other research on physiological arousal, attention, and memory in children (e.g., Bugental, Blue, Fleck, Rodriguez, & Cortex, 1992; Quas et al., 2004).

Together, these studies demonstrate the complex array of factors that might be important when evaluating not only the effects of social support on memory but also when attempting to identify which children may be particularly vulnerable to adverse effects of a nonsupportive interviewer or, conversely, which children are most in need of highly supportive interviewers.

Other Potentially Important Individual Difference Factors. We know of no other tests of individual differences in sensitivity to interviewer-provided social support, but there are theoretical reasons to predict that a number of other individual-difference characteristics would be fruitful for study. For example, dispositional shyness, which is believed to reflect high physiological reactivity, might be a marker of sensitivity to social support. In addition, Davis and Bottoms (2002b) reasoned that children who are low in self-esteem may doubt their abilities more than children who are high in self-esteem (Harter & Pike, 1984) and thus could be more sensitive to interviewer-provided social support. Social support might help such children to relax and answer questions to their maximum capability, when they might otherwise be intimidated and withdrawn. This is a particularly interesting potential mediator because low self-esteem is associated with childhood abuse (Kaufman & Cicchetti, 1989), and thus might characterize many of the children actually questioned in forensic settings. There could also be cultural differences that predispose some children to recognize and/or benefit more from social support than other children. For example, there is some evidence that American parents use more supportive communication styles with their children than do Chinese parents (Miller, Wiley, & Fung, 1997). This might have implications for sensitivity to varying interviewer communication styles.

Also, some researchers speculate that there exists a trait-like "suggestibility" characteristic in children (and adults); that is, a relatively stable tendency to acquiesce to an interviewer's suggestions or pressure (e.g., Gudjonsson, 1984; Scullin & Ceci, 2001). The manifestation of such a trait might be affected by interviewer support. When children are not comfortable contradicting an interviewer's suggestions (i.e., when an interviewer behaves in a nonsupportive manner), they might be consistent in their acquiescence regardless of the strength of their actual memory. However, when children feel at ease with an interviewer (i.e., when the interviewer is supportive), they

might be more comfortable answering questions, saying "I don't know" when they truly do not know an answer, and contradicting false statements and suppositions. This might result in less stability in children's errors when questioned about different events. Evidence from one of our labs is consistent with such a possibility. In a study of children's memory and suggestibility about two separate events, children's errors in response to specific questions about the two events were significantly positively correlated when the interviewer behaved nonsupportively. The correlation was nonsignificant, however, when the interviewer behaved supportively, such that the number of errors made about each event was unrelated (Quas, Wallin, Papini, Lench, & Scullin, 2005). Thus, interviewer support appeared to moderate the manifestation of trait suggestibility within children.

Summary

The studies we have reviewed represent a small portion of a broader line of research investigating individual differences that predict children's memory and suggestibility (e.g., Goodman et al., 1997). What is uniquely important about these studies is that they extend this broader range of research by focusing on interactions between individual and social-contextual characteristics. The results offer a more complicated, but also more accurate, depiction of the mechanisms underlying children's memory and reporting capabilities and the processes by which some children might be more as opposed to less accurate in forensic interview situations. More research is needed, especially on children's willingness to disclose personal, potentially traumatic information such as abuse. None of the studies of individual differences in sensitivity to support have been conducted with suspected abuse victims, but this could be accomplished by, for example, adding individual difference measures to studies like that conducted by Hershkovitz and her colleagues (chapter 6, this volume).

This individual-difference research is of obvious theoretical value but also of practical significance. The results highlight the fact that the effects of social support on performance are not consistent across children. Instead, certain characteristics, such as low working memory or a propensity to exhibit exaggerated physiological reactions to stress, predispose some children to be particularly sensitive to manipulations of social support in interview contexts. It would be useful for interviewers to be aware of individual children's propensities and needs when conducting forensic interviews with alleged victims. Although it is unlikely that some individual differences (physiological reactivity) could be assessed in legal contexts to identify those children who would most benefit from socially supportive interviewing, it might be possible to assess other individual differences (e.g., support reserves or shyness). In any case, because research indicates that socially supportive interviewing carries no apparent risks, it should be used with all children, ensuring that the most needy can reap its benefits. Perhaps in the future, as individual difference assessment

becomes more feasible, special techniques could be developed for the children most likely to perform poorly in interviews.

ADULTS' PERCEPTIONS OF SOCIALLY SUPPORTIVE INTERVIEWS

Finally, a second new line of research in this area focuses on how manipulations of interviewer support affect adults' perceptions of children's credibility. This is of great practical concern in a forensic context. If a child makes a disclosure of abuse, adults must deem that disclosure to be credible before any action will be taken to remove a child from harm or bring a perpetrator to justice. Specifically, legal and/or social service professionals will evaluate the credibility of a child's report and decide whether to pursue an investigation. If the case comes to trial, attorneys, judges, and jurors will also make judgments about the child's credibility. Adults have considerable difficulty discerning the actual accuracy of children's testimony (Goodman, Bottoms, Herscovici, & Shaver, 1989; Leippe, Manion, & Romanczyk, 1992), and as a result, decisions about children's credibility can be influenced by people's pre-existing beliefs and biases (Bottoms, 1993), perhaps including beliefs about the effects of interview techniques on children's accuracy. Little is known about adults' perceptions of children's testimony derived from socially supportive as opposed to nonsupportive interviews. Adults might be skeptical of supportive interviewing, viewing such techniques as coercive: "If you are nice to children, they will just say whatever they think you want to hear." Adults might sympathize with and believe children who are interviewed in an unsupportive manner. Or, adults might intuit the integrity of supportive techniques and favor reports resulting from such interviews.

Bottoms, Rudnicki, and Nysse-Carris (2004) have recently completed a study of this in the laboratory. A large, ethnically diverse group of college-aged men and women viewed videotapes of 7- to 8-year-old boys' and girls' answers to questions that were asked during the mock forensic interviews in the previously discussed one-year follow-up study to the Davis and Bottoms (2002a) study. Half of the adults watched the interview of 1 of 10 children who had been interviewed in a socially-supportive manner; the other half watched the interview of 1 of 10 children who had been interviewed in a socially-unsupportive manner. In other words, the adults each watched and rated one child, and approximately a dozen adults watched each of the 20 children. (This methodology reduces the influence of idiosyncratic differences among particular children.) Interview style had no impact on adults' ability to discern children's actual accuracy or inaccuracy. In fact, adults rated children interviewed in a nonsupportive manner as accurate more often than children interviewed in a supportive manner, even though children were actually more accurate in the supportive than the nonsupportive condition. Analyses of judgment bias indicated that adults who viewed nonsupportive interviews were more biased

to believe children than adults who watched supportive interviews. Finally, the adults rated the children interviewed in a nonsupportive manner to be more credible and less nervous generally than children who had been interviewed in a supportive manner.

Thus, although socially supportive interviewing has positive effects on the actual accuracy of children's reports, this research reveals that socially supportive interviewing techniques have the potential to disadvantage child witnesses in terms of their perceived credibility. Replication is clearly needed, but this study provides an important first step toward understanding the effects that interview style can have on the perceptions that adults form when evaluating children's testimony. If the finding holds, it will indicate the need for educating judges, attorneys, jurors, and others who are in positions to evaluate child witnesses about the influences of social psychological factors on the accuracy of children's reports, as well as the biases that they themselves might bring to the task of evaluating children's credibility.

CONCLUSIONS

Several global conclusions are warranted based on our review of research on socially supportive interviewing techniques. First, a socially supportive interviewer can enhance children's eyewitness reports by reducing their suggestibility (compliance) and by aiding memory recall after a delay. Second, even when no benefits of social support emerge, support does not adversely affect children's performance. Thus, concerns about negative consequences of highly supportive interviewers simply are not warranted. Third, when questioned by an unsupportive interviewer, certain children might be particularly vulnerable to negative performance, especially those who are low in social support reserves, insecurely attached, low in working memory capacity, and high in physiological reactivity to stress and challenge. Further research is likely to reveal other dispositional characteristics that moderate the effects of supportive interviewing. Fourth, despite the actual advantages of supportive interviewing, supportive interviews might increase adults' skepticism of the children's reports, leading to the unintended consequence of reduced credibility. This indicates a need for educating adults in the legal system about the research we have reviewed in this chapter.

Although many of the studies we reviewed did not include suspected abuse victims as participants, we believe that similar findings would have been obtained if actual victims had been studied. That is, based on the consistent finding that children's accuracy is either enhanced or unaffected by highly supportive interviewers, we believe that supportive interviewers would probably elicit more true disclosures but not more false disclosures. Tentative evidence supporting our belief comes from Lyon and colleagues' studies of the effects of truth-induction techniques on maltreated children's disclosures of transgressions. One truth-induction technique involves supportively reassur-

ing children that it is "OK to disclose" the transgression. In some research, the alleged transgression is explicitly mentioned during the reassurances (e.g., "It is OK if you played with the toy house") (Lyon & Dorado, 2004), whereas in other research the transgression is not explicitly mentioned (Lyon, Malloy, Talwar, & Quas, 2004). Further, and of particular note, although the target event was a mock transgression (i.e., the children either played or did not play with a forbidden toy), the participants were children removed from home because of substantiated maltreatment. Thus, the studies' findings are particularly relevant to the actual populations who are likely to be interviewed about suspected abuse. Supportive reassurances often increased children's true disclosures of the transgression when they actually played with the toy. However, reassurance sometimes had negative effects on children who had not transgressed, particularly when the reassurance specifically mentioned the transgression or was coupled with suggestive questions. Despite Lyon and colleagues' studies not being direct tests of the effects of social support per se on disclosures, insofar as reassuring children during forensic interviews fosters feelings of interpersonal warmth and reduces children's distress, findings suggest that such support, so long as it is general, can facilitate maltreated children's disclosures, a pattern also supported by Hershkowitz and colleagues' results concerning children's actual abuse disclosures (chapter 6, this volume).

Forensic interviewers and other legal and social service professionals who come into contact with child victim/witnesses need to be aware of empirical research so that they use the best possible interview techniques and, in turn, obtain the best possible information from children. This will help accomplish the complementary goals of forensic investigation: protecting children who are in abusive situations from further harm, prosecuting actual offenders, and guarding against false accusations of abuse against innocent persons (Perona, Bottoms, & Sorenson, 2006). Social scientists have a duty to make their results accessible to legal and child protection professionals for such purposes (Reppucci, 1985). We hope this chapter is a step toward fulfilling that duty and also a useful resource for scientists wishing to conduct further research in this important area.

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