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Social problem solving in early childhood: Developmental change and the influence of shyness

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ABSTRACT

The purpose of this study was to examine developmental change and the influence of shyness on social problem-solving (SPS). At 24, 36, and 48 months, children (N = 570) were observed while interacting with an unfamiliar peer during an SPS task and at 24 months, maternal report of shyness was collected. Results showed that across the full sample, children displayed low but stable levels of withdrawn SPS and increasing levels of SPS competence over development. In addition, results showed multiple trajectories of withdrawn and competent SPS. Shyness was associated with high-increasing and high-decreasing withdrawn SPS trajectories compared with the low-increasing withdrawn SPS trajectory. Shyness was also associated with the low-increasing compared with the high-increasing SPS competence trajectory. Findings demonstrate the development of SPS competence over early childhood, and the influence of early shyness on this developmental course, with some shy children showing improvement in SPS skills and others continuing to show SPS difficulties over time.

Social problem-solving (SPS) skills are important for children's everyday social functioning, as well as their academic achievement in school (Dubow & Tisak, 1989; Dubow, Tisak, Causey, Hryshko, & Reid, 1991; Walker & Henderson, 2012). There are, however, a wide range of individual differences in the ways children approach socially challenging situations. These individual differences in SPS skills may be attributed in part to a child's shyness. Shyness refers to wariness and anxiety in response to novel social situations (Coplan & Armer, 2007). Shy children approach socially challenging situations more passively than their peers and experience less success in attaining their social goals during elementary school (Stewart & Rubin, 1995). Furthermore, shy children are at risk for social and emotional adjustment problems including poor peer relationships, depression, and anxiety (Chronis-Tuscano et al., 2009; Hirshfeld et al., 1992; Rubin, Stewart, & Coplan, 1995). Given that individual differences in shyness are evident in early childhood and that poor social interactions may lead to a number of poor outcomes including a cycle of peer rejection, reinforcement of poor social skills, and/or fewer opportunities to learn the scripts that guide social play, research on the origins of difficulties in peer interactions at young ages may significantly add to our understanding of these predictive links. The current study extends previous research with older children by examining developmental changes in SPS abilities and the influence of shyness on individual differences in patterns of change in SPS abilities between 24 and 48 months of age. Findings of the current study increase our understanding of the development of SPS behaviors and affect across early childhood, identify temperamental origins of peer difficulty, and may help inform intervention efforts aimed at improving shy children's SPS abilities.

In the current study, we focused specifically on the influence of shyness, a form of social withdrawal (Rubin & Asendorpf, 1993; Rubin, Coplan, & Bowker, 2009) that is moderately stable over the toddler and preschool years (Lemery, Goldsmith, Klinnert, & Mrazek, 1999). Social withdrawal is defined as behavioral solitude that originates from factors internal to a child such as strong physiological reactions to novelty (i.e., shyness) and social disinterest, as opposed to solitude that results from being actively rejected by one's peers (Rubin et al., 2009). Shy children appear motivated to interact with others, however, the fear and distress associated with novelty leads to avoidance of the social situation (Crozier, 2000), making peer interaction during problem situations particularly difficult. In addition, maternal reports of shyness are relatively stable across development, especially between 24 and 48 months (Lemery et al., 1999). This stability is also evidenced by the fact that children rarely change from one extreme of observed social withdrawal versus sociability to the other (Fox, Henderson, Rubin, Calkins, & Schmidt, 2001; Pfeifer, Goldsmith, Davidson, & Rickman, 2002), and when assessed in toddlerhood, they are likely to respond similarly within a few years of assessment and even into adulthood (Caspi & Silva, 1995; Caspi et al., 2003; Rothbart, Ahadi, & Evans, 2000). Therefore, it is important to identify the associations between shyness and social difficulties early on.

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Developmental change in SPS

The development of competent SPS skills is important for children's everyday social functioning and may influence the quality of their social experiences. SPS skills likely develop from various within-child characteristics (e.g., temperamental reactivity) and environmental factors (e.g., socialization with parents and peers; see Rubin & Rose-Krasnor, 1992 for review). In a cross-sectional study, Rubin and Krasnor (1983) found that both preschoolers and kindergarteners were more likely to suggest using prosocial strategies than aggressive strategies as a means of resolving hypothetical social problems. Another cross-sectional study using a hypothetical-reflective measure of SPS found that children in first and second grade suggest fewer aggressive and more cooperative strategies compared with preschool age children (McGillicuddy-DeLisi, 1980). Taken together, these studies suggest that children may use competent SPS strategies as early as preschool and that the frequency of these strategies increase while the frequency of poor SPS behaviors decrease over early elementary school. While these studies examined age-related differences in SPS, longitudinal studies are needed to track individual differences in developmental trajectories of SPS behaviors and affect and predictors of these individual differences. In one longitudinal study of SPS abilities from preschool to first grade, Youngstrom et al. (2000) found that, on average, children reported fewer forceful and more prosocial solutions to hypothetical problems from preschool to first grade. Interestingly, they also found little to no stability of SPS from preschool to first grade, which was attributed to rapid gains in SPS abilities that allowed children who reported relatively poorer SPS skills in preschool to report similar SPS to their peers by first grade.

Based on findings showing that children report using more prosocial competent strategies with age, we hypothesized that children would display more competent SPS (i.e., verbal strategies, success, positive affect, prosocial initiations) and less withdrawn SPS (i.e., passive strategies, time unengaged, and neutral affect) over time.

Individual differences in SPS

Crick and Dodge (1994) developed an information-processing model that describes the steps involved in SPS. Effective problem solving, according to their model, involves noticing and interpreting social cues, formulating social goals, generating possible strategies to solve the problem, evaluating the possible effectiveness of the strategy, and enacting a response. Emotion, in addition to cognition, influences social information processing at all steps of the model (Lemerise & Arsenio, 2000), emphasizing the importance of incorporating measures of affect into SPS coding. For shy children, the experience of uncertainty in unfamiliar or challenging social situations may lead to distress, which results in emotional flooding (Ekman, 1984; Thompson & Calkins, 1996), or hypervigilance, which may result in blunted affect. Both distress and hypervigilance may interfere with shy children's ability to enact socially competent responses during challenging situations with peers (Fox, Henderson, Marshall, Nichols, & Ghera, 2005). Indeed, withdrawn children are able to generate competent social goals comparable with comparison children, however, they report that they would be less likely to use assertive strategies and more likely to use avoidant strategies compared with comparison and aggressive children (Wichmann, Coplan, & Daniels, 2004). Thus, it is important to observe children's SPS during actual social situations with peers.

Shy children, specifically, react to challenging social situations with sadness, fear, and lessened positive affect (Derryberry & Rothbart, 1997; Eisenberg, Fabes, Guthrie, & Reiser, 2002; Eisenberg, Shepard, Fabes, Murphy, & Guthrie, 1998; Rothbart & Bates, 2006), possibly disrupting the enactment of competent SPS behaviors. A recent study found that during a structured task requiring friendly competition and negotiation between target children and their friends, socially withdrawn, anxious 10- to 12-year-old children displayed relatively more neutral affect in comparison with control children (Schneider, 2009). The expression of neutral affect in withdrawn children reflects a somber expression, which may lead to increased hypervigilance and limit others' desire to interact with them. That is, anxious expressions may serve both functional and social purposes, where functionally they may lead to increased scanning and processing of the environment to identify ambiguous threat, while socially these expressions may convey messages about an individual's affective state to social partners (Perkins, Inchley-Mort, Pickering, Corr, & Burgess, 2012). In contrast, uninhibited or highly sociable children approach unfamiliar people or objects with minimal avoidance and with positive affect (Kagan, Snidman, & Arcus, 1998; Rimm-Kaufman et al., 2002), which may facilitate the translation of strategy ideas into actions during SPS and function to initiate and maintain social interactions with peers. Thus, while positive affect may facilitate social interaction and competent problem solving, neutral and negative affect may limit these social skills.

Because behavior and emotion may both influence the course and outcomes of peer social interactions, it was important to examine the combination of both SPS behavior and affect. Thus, in the current study, we included both SPS behaviors and displayed affect during the SPS task in composites and expected neutral or negative affect to be associated with withdrawn behaviors (i.e., time unengaged and passive SPS) while positive affect would be associated with competent SPS behaviors (i.e., verbal SPS, prosocial interactions, success). In addition, we expected these composites of behavior and affect to be associated with early reports of shyness. Socially withdrawn children display more passive SPS during elementary school (Rubin, Daniels-Beirness, & Bream, 1984; Stewart & Rubin, 1995). Therefore, whereas some children with poor SPS may report similar SPS compared to their peers by first grade (Youngstrom et al., 2000), shy children may not follow the same developmental trajectory. Since shyness and social withdrawal are associated with avoidant SPS at later ages, we hypothesized that shyness would be associated with more withdrawn SPS over time. Furthermore, previous findings suggested growth in SPS competence across all children. Therefore, we hypothesized that shyness would be associated with increased SPS competence over time, such that children rated higher in shyness would show a typical increase over development. However, we expected that the trajectory associated with shyness would remain lower in SPS relative to the other trajectory at all ages.

The current study

In summary, the first goal of the current study was to examine patterns of developmental change in behavior and affect during SPS (i.e., withdrawn SPS and SPS competence). The second goal was to examine whether there was significant variability in these patterns of change and to examine the role of early shyness in predicting these patterns of change. Overall, given normative increases in language, social cognition, and self-regulation, we hypothesized that, on average, children would develop better SPS skills over the period of study (i.e., less SPS withdrawal and more SPS competence), however, superimposed on these developmental changes, we hypothesized that shyness would be associated with individual differences in SPS trajectories over time (i.e., greater withdrawn SPS and less SPS competence).

The current study extended previous research in two ways. First, this study is a downward extension of Stewart and Rubin (1995) as it is of interest to understand the origins of peer difficulty at the earliest age possible to intervene or prevent later poor peer interactions. Specifically, we extended previous findings by prospectively following the same sample of children from 24 to 48 months, younger ages than have previously been examined. Second, the current study employed direct observations to assess children's SPS behavior