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Anxious Solitude/Withdrawal and Anxiety Disorders: Conceptualization, Co-occurrence, and Peer Processes Leading Toward and Away from Disorder in Childhood

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Abstract

This chapter contains (1) an analysis of commonalities and differences in anxious solitude and social anxiety disorder, and a review of empirical investigations examining (2) correspondence among childhood anxious solitude and anxiety and mood diagnoses and (3) the relation between peer difficulties and temporal stability of anxious solitude and depressive symptoms. Findings support a diathesis-stress model in which anxious solitude forecasts symptoms of psychopathology primarily in the context of interpersonal stress. Additionally, evidence for individual and environmental factors which moderate risk for peer difficulties among anxious solitary children is reviewed. Implications for intervention are discussed.

Whereas the preceding chapters examine the relation between the temperamental construct of behavioral inhibition (BI) and social anxiety disorder (SAD) in childhood, this chapter examines relations between the affective-behavioral profile of anxious solitude/withdrawal and SAD, as well as additional anxiety and mood disorders. This focus on connections between anxious solitude/withdrawal and SAD is important because, consistent with the principle of *equifinality* (see Chapter 1), it is likely that there are multiple pathways to SAD. If BI is used as the exclusive means of identifying children as at risk for SAD, then other pathways to this disorder will remain unknown. This is not to say that BI and anxious solitude/withdrawal constitute mutually exclusive pathways to SAD; indeed, BI is considered to be a risk factor for anxious solitude/withdrawal (Calkins & Fox, 2002). However, anxious solitude/withdrawal should be considered a risk factor for SAD in its own right, because some children display this profile in middle childhood without having demonstrated BI in early childhood (Asendorpf, 1990b).

Multiple sources of evidence suggest that BI contributes to the etiology of SAD in only a portion of cases. First, evidence from multiple longitudinal investigations of BI indicate that approximately half of individuals with lifetime diagnoses of SAD in middle childhood and adolescence (*Age* = 6–15 years) did not display BI in early childhood (Biederman et al., 1990, 1993, 2001; Hirshfeld-Becker et al., 2007; McDermott et al., 2009; Schwartz, Snidman, & Kagan, 1999). Although rates of SAD are approximately double in BI versus non-BI children, non-BI children make up a larger proportion of the population. Thus, although a lower percentage of non-BI than BI children demonstrate SAD, in extant research about equal numbers of non-BI and BI children receive SAD diagnoses. However, the majority of this literature stems from studies in which children of parents with

psychopathology were overselected, so rates may differ in the general population. Second, as noted in Chapters 2 and 4, heritability for SAD is estimated at 30 to 50% (Kendler, Karkowski, & Prescott, 1999; Kendler, Neale, Kessler, Heath, & Eaves, 1992), indicating that environmental factors are also vital to understanding the etiology of SAD. Insofar as BI is assumed to contribute to genetically influenced routes to SAD (see Chapter 2), this suggests that environmental factors contribute approximately half or more of the variance in SAD. (However, it should also be noted that early environmental factors may also contribute to BI itself. One hint supporting this possibility is that only a portion of children who demonstrate BI also exhibit the expected physiological profile. For instance, of those children who initially demonstrated BI at 9 months, approximately half changed to non-BI at 2–4 years, and this group, compared to a continuously inhibited group, demonstrated both less electroencephalogram (EEG) asymmetry at 9 months and more experience with nonparental care (Fox, Henderson, Rubin, Calkins, & Schmidt, 2001). Finally, because recent epidemiological data indicate that onset of SAD frequently occurs during childhood (for a review see Rapee, Schniering, & Hudson, 2009), it is important to understand environmental contributions to SAD throughout childhood. These environmental factors are likely to exacerbate social anxiety in children with preexisting anxious tendencies. They may also trigger new social anxiety in children without preexisting tendencies, although research is needed into this possibility. Importantly, preexisting anxious tendencies are likely to be multifaceted in nature (BI, insecure attachment, goodness-of-fit between temperament and parenting, parental overcontrol, parental modeling of anxiety, etc.) and include early environmental factors (e.g., parenting factors, see Chapter 6).

Conceptual Relations Between Anxious Solitude and Social Anxiety Disorder

Anxious solitude/withdrawal was introduced in Chapter 1 as an affective–behavioral profile in which children engage in elevated rates of solitary behavior among familiar peers due to social anxiety. Specifically, *anxious solitude* is defined by elevated rates of solitary onlooking behavior (watching peers' play without joining), shyness, social hesitancy, and verbal inhibition when children are among familiar peers (Coplan, Rubin, Fox, Calkins, & Stewart, 1994; Gazelle & Ladd, 2003). These behaviors and interaction patterns are correlated with other manifestations of anxiety in young children (automanipulatives such as thumb sucking, lip biting, and hair pulling), suggesting that they are indicative of social anxiety (Coplan et al., 1994), the core state conceptualized as motivating anxious solitude/withdrawal. Anxious solitary children are conceptualized as wanting to interact with their peers (having normative levels of social approach motivation), but being blocked by worry that they will perform poorly and/or be poorly received by peers (having heightened social avoidance motivation spurred by social evaluative concerns; Asendorpf, 1990a). Anxious solitude/withdrawal is typically identified by either peer nominations from classmates (e.g., Gazelle, 2008) or behavioral observations of free play (Rubin, 2001) among familiar peers at school, with teacher or childcare provider ratings being the next-best option (Spangler & Gazelle, 2009). Anxious solitude/withdrawal can be identified as early as 2 years of age (e.g., Gazelle & Spangler, 2007), but peer nominations are typically not used for this purpose until 8 years of age.

Diagnosis of *SAD* in childhood, as defined in previous chapters, requires that (a) when in a social situation, the child is either afraid or worries that she or he will do something embarrassing or that others will think is stupid or will laugh at; (b) at least one specific social situation is either avoided or endured with distress; and (c) that this problem interferes with the child's life (e.g., friendships, activities at school or home, keeps child from doing things she or he wants to do) at least some of the time (American Psychiatric Association, 2000; Silverman & Albano, 1996). Diagnostic criteria also specify that the child must be anxious about interactions with other children, not just adults. The core state is conceptualized as marked and persistent fear of social situations. Diagnoses are typically made via clinical interview of the child (if the child is at least 8 years old) and his or her parents. Diagnoses of *SAD* can be made as early as 2 years of age based on parental-report on the Preschool Age Psychiatric Assessment (Egger & Angold, 2004; Egger, Ascher, & Angold, 1999).

Although anxious solitude and *SAD* share the core emotional state of social anxiety and are both identifiable by age 2, additional similarities and differences between the two constructs are relatively nuanced. The construct of anxious solitude/withdrawal emphasizes behavior. Both of the preferred methods of identifying anxious solitary/withdrawn children—peer nominations and behavioral observation—require that a child demonstrate observable manifestations of social anxiety in their behavior (e.g., onlooking solitary behavior, verbal inhibition, hesitancy, etc.). The hypothetical child who feels anxious with familiar peers but does not manifest behavioral signs would not qualify as anxious solitary/withdrawn. Notably, self-reports of anxious solitude/withdrawal are rarely used for purposes of identification in the developmental literature, in part because although self-reports of anxious solitude/withdrawal are significantly related to information from other informants, the strength of this association is modest (Spangler & Gazelle, 2009). In contrast, clinical diagnoses of *SAD* rely, in part, on subjective distress as reported by the child and/or their parent. Therefore, although anxious solitude/withdrawal and *SAD* converge in identifying children who experience social anxiety among peers, each construct is defined in ways that privilege certain aspects of the phenomenology of social anxiety (i.e., behavior versus subjective distress). In a similar vein, different informants are likely to yield the best information about different aspects of the phenomenology of social anxiety—peers and research observers have direct access to children's interaction with their familiar classmates, whereas only the child themselves can directly assess subjective distress (but parents may serve as confidants). Thus, differences in emphasis on particular aspects of the phenomenology of social anxiety are often confounded by reliance on different informants (but for a multitrait, multimethod analysis of anxious solitude see Spangler & Gazelle, 2009).

Despite these differences in emphasis, there are nonetheless commonalities in the assessment of both constructs. For instance, behaviors characteristic of anxious solitude/withdrawal (e.g., solitary onlooking behavior) could be captured in the "avoidance of social situations" or "interference" criteria used in clinical diagnosis. Because children are often not at liberty to avoid social situations connected with schooling altogether, such behavior can be seen as avoidance demonstrated within the confines of an inescapable social situation. However, it is also possible that some anxious solitary/withdrawn children

demonstrate the behaviors that qualify them for this developmental classification without meeting the interference criteria necessary for clinical diagnosis (Gazelle, Workman, & Allan, in press). In particular, anxious solitary/withdrawn children differ in the degree of impairment they experience with peer relations, with some children experiencing chronic peer mistreatment whereas others do not experience mistreatment and enjoy normative levels of friendship and peer acceptance (Gazelle, 2008; Gazelle & Ladd, 2003).

Empirical Evidence of Elevated Social Anxiety Disorder Among Anxious Solitary Children

Until recently, rates of SAD among anxious solitude/withdrawal children were unknown. Because anxious solitude/withdrawal and SAD share the core emotional state of social fear or anxiety, many researchers have assumed that anxious solitary/withdrawn children ought to be at risk for SAD (e.g., Rubin & Burgess, 2001). However, it is only recently that anxious solitude/withdrawal and SAD have been assessed within a single study (Gazelle et al., in press) because the appropriate methodologies are typically used by researchers from separate research traditions.

In a recent investigation (Gazelle et al., in press), 30% of anxious solitude/withdrawal versus 12.5% of comparison children received SAD diagnoses (a significant difference; anxious solitude/withdrawal was assessed via peer behavioral nominations in the fall of fourth grade) based on parental reports on the Anxiety Disorder Interview Schedule (Silverman & Albano, 1996) during the following spring and summer. These children also demonstrated elevation in other anxiety disorders (15.0% vs. 3.6% specific phobia—a significant effect; 15% vs. 5.4% generalized anxiety disorder, 5.0% vs. 0.0% posttraumatic stress disorder—both trends) and anxiety-related disorders (5.0% vs. 0.0% selective mutism, a significant effect). Interestingly, these SAD rates are comparable to those found in studies of BI versus non-BI children (Biederman et al., 1993; Hirshfeld-Becker et al., 2007). This is particularly striking because participants in Gazelle et al. (in press) were drawn from a community sample of children attending public school, whereas the majority of child participants recruited into the cited BI studies were children of parents with panic and depressive disorders. Factors that may have contributed to concordance among anxious solitude/withdrawal and SAD in Gazelle et al. (in press) relative to the BI studies include conducting assessments of behavioral development and psychopathology closer in time and conducting developmental assessments with somewhat older children. Nonetheless, this study suggests that a substantial minority of children who demonstrate anxious social behavior at school experience clinically significant levels of social anxiety. Because approximately 12% of children from community samples are typically identified as anxious solitary/withdrawn at any given assessment point, and 30% of these children can be assumed to experience SAD according to this investigation, approximately 3.6% ($12\% \times 30\%$) of children from community samples would be estimated to have SAD (note, however, that some comparison children also received SAD diagnoses). This is a rough estimate, as this study was not designed to yield accurate population estimates. Nonetheless, it is within the estimates from epidemiological studies of the prevalence of SAD in childhood (ranging from 1.5 to 5%, see also Chapters 2 and 4, Costello & Angold, 1995; Rapee et al., 2009; Shaffer, Fisher, Dulcan,

& Davies, 1996). Most important, evidence for elevated SAD among children with anxious solitude/withdrawal suggests that assessment of anxious solitude/withdrawal would be useful both in targeting children with socially anxious tendencies for preventative intervention prior to the onset of clinically significant disorder, as well as a means of identifying children from screening samples as in need of further assessment for the presence of current clinically significant disorder and early intervention.

Results of Gazelle et al. (in press) also indicate that children who demonstrated any history of anxious solitude/withdrawal during four assessment points in third and fourth grade not only evidenced elevated SAD, but also elevated major depression (10.0% vs. 0.0%, a significant effect) and dysthymia (5.0% vs. 0.0%, a marginally significant effect). This is consistent with evidence from other childhood samples indicating that anxiety typically precedes the onset of depression (Cole, Peeke, Martin, Truglio, & Seroczynski, 1998). This suggests that targeting anxious solitary/withdrawn children for early intervention could potentially prevent not only SAD, but also depressive disorders. It is not only important to prevent these disorders in their own right, but also to prevent the developmental and psychiatric consequences of such disorders. For instance, once a child experiences an episode of major depression, they are at increased risk for future episodes, and anxiety and mood disorders are known to interfere with normative social and emotional development (Rudolph, Flynn, & Abaied, 2008). Below, evidence is reviewed in support of a conceptual model of the relation between anxiety and depression and the role that peer relations processes may play in triggering depression among anxious youth.

Peer Relations and the Diathesis-Stress Model of Psychopathology in Anxious Solitary Children

Now that an empirical linkage between child anxious solitude/withdrawal and SAD has been established, investigators from both subdisciplines should be better able to benefit from research available in both developmental and clinical research traditions. Developmental research offers detailed information about anxious solitary/withdrawn children's peer relations and the influence of peer relations on trajectories of anxiety and other symptoms of psychopathology over the course of middle childhood and early adolescence.

I have proposed a diathesis-stress model in which peer relations difficulties reinforce social anxiety and trigger symptoms of depression among anxious solitary children (Gazelle & Ladd, 2003; Gazelle & Rudolph, 2004). According to this model, anxious solitary/withdrawn children feel socially helpless. That is, they worry that negative social events such as having no one to play with at recess will occur, and they doubt their ability to cope effectively with such events. These worries or social evaluative concerns will not necessarily support the persistence of anxious solitude/withdrawal or trigger depressive symptoms over time. However, if an anxious solitary/withdrawn child experiences peer relations difficulties, particularly peer exclusion, this interpersonal stress is hypothesized to confirm and reinforce initial social concerns and trigger the transformation of the initial helpless orientation into a hopeless orientation characteristic of depression (Abramson, Alloy, & Metalsky, 1988; Alloy, Hartlage, & Abramson, 1988; Alloy, Kelly, Mineka, & Clements, 1990). Specifically,

an anxious solitary/withdrawn child who is frequently excluded may not just worry that he or she may have negative social interactions with peers, but come to feel certain that he or she will have negative peer interactions and continue to feel unable to change this situation. In support of this model, anxious solitary/withdrawn children who encounter peer exclusion in the early years of elementary school subsequently demonstrate more stable elevation in anxious solitude/withdrawal over the course of middle childhood according to peer reports (Gazelle & Ladd, 2003), and heightened depressive symptoms in both middle childhood and early adolescence according to both self- and teacher-reports (Gazelle & Ladd, 2003; Gazelle & Rudolph, 2004).

The nature of peer relationships and peer interaction for socially anxious children in these developmental periods has received little attention in the clinical literature, yet peer relations appear to influence continuity and discontinuity in social anxiety. Developmental evidence suggests that peer relations can alter, for better or worse, the anxiety and depressive symptom trajectories of anxious children over the course of multiple years. Children who succeed in developing and maintaining normative peer relationships despite anxious tendencies appear to demonstrate healthy psychological adjustment, whereas anxious solitary/withdrawn children who encounter persistent peer relations problems appear to demonstrate increasing or more stable social anxiety and depressive symptoms (Gazelle & Ladd, 2003; Gazelle & Rudolph, 2004). Although there had been a long-standing debate in the peer relations literature about whether such peer effects truly indicate a unique influence on children's adjustment, or simply reflect children's preexisting vulnerabilities, recent analysis supports the first possibility—that peer relations make unique contributions to children's adjustment trajectories over time (Ladd, 2006). Therefore, comprehensive models of social anxiety in childhood must include peer adversity. Although all forms of peer adversity (e.g., peer exclusion and victimization) are detrimental to children in general, and anxious solitude/withdrawal children in particular, peer exclusion (being passively ignored by peers or actively refused participation in peer activities) is an especially salient form of peer adversity for anxious solitary/withdrawn children. Research indicates a stronger relation between anxious solitude/withdrawal and exclusion than rejection (peer dislike) (Gazelle & Ladd, 2003). This is probably because peers exclude children who are vulnerable (e.g., unlikely to defend themselves) beyond the extent to which they might dislike a child (Gazelle, 2008). Similarly, naturalistic observation of anxious solitary/withdrawn children has revealed that they encounter peer exclusion (especially passive ignoring) more frequently than peer victimization (Druhen & Gazelle, 2009, April). This may occur because it is simply very easy for peers to ignore a child who infrequently approaches and maintains a distance from them. Despite the passive nature of being ignored by one's peers, this social phenomenon appears to impact children's psychosocial adjustment in important ways. This is perhaps because the message conveyed by exclusion is clear: "No one wants to play with me."

Given the impact of peer relations on anxious children's adjustment, it is critical to understand why some anxious children encounter persistent problems with peer adversity, whereas others do not. Recent research has uncovered multilevel factors that moderate anxious solitary/withdrawn children's risk for peer adversity.

In regard to individual factors, social behaviors that children display in addition to anxious solitude/withdrawal moderate their risk for peer adversity (Gazelle, 2008). In comparison to other anxious solitary/withdrawn children, anxious solitary/withdrawn children who display attention-seeking behavior are more excluded by peers, and aggressive anxious solitary/withdrawn children are more victimized by peers. However, it is not the case that these other social behaviors are solely responsible for peer mistreatment because when anxious solitary/withdrawn versus nonanxious solitary/withdrawn children display the same behavior (e.g., attention seeking, aggression), children who display the combination of anxious solitude/withdrawal and aversive behavior encounter more peer adversity. Thus, it seems the combination of behavioral vulnerability (anxious solitude/withdrawal) and aversive behavior (attention seeking, aggression) is most likely to be met with peer adversity. This may be due to the “perfect storm” of peer dislike and being viewed by peers as unlikely to defend oneself (or to have friends who might defend oneself). This work has also indicated that anxious solitary/withdrawn children who display highly agreeable characteristics enjoy normative peer relations and participation in friendships. Peers also perceived these children to be highly intelligent. These individual characteristics were strongly associated with concurrent peer relations, and developmental analysis would also suggest that they may have roots in early experience. For instance, in another investigation, children identified as anxious solitary/withdrawn at 2 to 4½ years who encountered high versus low maternal sensitivity, subsequently were more responsive social partners during observed interaction with a friend at 4½ years, and less likely to be rejected by peers in first grade (Gazelle & Spangler, 2007). Thus, it would seem that young children with anxious tendencies can nonetheless learn social responsivity through synchronous interactions with their mother, which later translates into healthy peer relationships.

Child sex has also been found to moderate anxious solitary children’s risk for peer adversity, but the nature of this moderation differs by developmental period and outcome of interest. In early middle childhood, anxious solitary boys have been found to be more excluded than their female counterparts (Gazelle & Ladd, 2003). However, in early adolescence, no sex difference in exclusion among anxious solitary youth emerged, and anxious solitary girls versus boys demonstrate earlier elevation in depressive symptoms in response to peer exclusion (Gazelle & Rudolph, 2004).

In addition to the influence of early maternal sensitivity, it also appears that broader contextual factors can moderate anxious solitude/withdrawn children’s risk for peer adversity. For instance, children identified as anxious solitary/withdrawn by childcare providers at 2 to 4½ years of age were significantly more likely to encounter peer rejection in first grade if the concurrent classroom climate was observed to be low in emotional support (Gazelle, 2006). Examination of the nonfamilial proximal environment on the social and emotional adjustment of anxious solitary/withdrawn children is rare and constitutes an area ripe for further investigation. Perhaps the most important implication of this research is that interventions for anxious solitary/withdrawn children should not only be aimed at the level of the individual child, but also endeavor to assess and modify the child’s environment as well.

Implications for Intervention

By linking the literatures on childhood SAD and anxious solitude/withdrawal, present findings provide a view of the social behavior and peer relations of children with SAD at school. An important implication that can be drawn from this literature is that because some children with SAD may have entrenched negative reputations among their peers that are resistant to change, it is insufficient to expect a child to overcome their social anxiety without actually directly addressing the child's peer environment (not just how the child thinks about the environment or what interpersonal skills the child brings into the environment). Consequently, it would be recommended that clinicians consider not only treating the individual child, but also assessing their peer context and making attempts to modify this context if it is found to be aversive.

Assessments of peer context may either be conducted by using peer behavior nominations such as those employed in many of the studies reviewed above, observing the child's peer interactions at school (particularly at recess or lunchtime when children's interactions are not structured by the teacher), or at least asking the child's teacher for their assessment of the child's peer relations (teachers typically have more opportunity to observe this than do parents). Clinicians should be especially attentive to the degree that a child is excluded or victimized by his or her peers, as these experiences are known to contribute to symptoms of psychopathology (Gazelle & Ladd, 2003; Gazelle & Rudolph, 2004).

In regard to modifying an adverse peer context, several approaches are possible. First, the clinician could time individual intervention so that it capitalizes on annual school break and the reshuffling of children upon entry to the next grade. This naturalistic reorganization of children's social structure may provide an increased opportunity for a fresh start despite some familiarity among classmates. Another potentially complimentary strategy is to work with classroom teachers to create a classroom climate that promotes social inclusion. A thoughtful case study of this sort of classroom-level intervention in kindergarten is available in the book, *You Can't Say You Can't Play* (Paley, 1992), although empirical work is needed to evaluate such programs. Such a universal intervention ought not only benefit an anxious child with peer difficulties in particular, but also benefit all children in the class. Finally, is important to assess the degree to which a child's peer relations may have changed during and following such intervention efforts by conducting follow-up assessments. Overall, a developmental science framework in which childhood social anxiety is conceptualized as the product of dynamic interaction among multilevel factors within the child and in their interpersonal environment implies that intervention should also be directed at multiple levels within the child and their interpersonal environment.

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References

- Abramson LY, Alloy LB, & Metalsky GI (1988). The cognitive diathesis-stress theories of depression: Toward an adequate evaluation of the theories' validities In Alloy LB (Ed.), *Cognitive processes in depression* (pp. 3–30). New York: Guilford Press.
- Alloy LB, Hartlage S, & Abramson LY (1988). Testing the cognitive diathesis-stress theories of depression: Issues of research design, conceptualization, and assessment In Alloy LB (Ed.), *Cognitive processes in depression* (pp. 31–73). New York: Guilford Press.
- Alloy LB, Kelly KA, Mineka S, & Clements CM (1990). Comorbidity of anxiety and depressive disorders: A helplessness-hopelessness perspective In Maser JD & Cloninger CR (Eds.), *Comorbidity of mood and anxiety disorders* (pp. 499–543). Washington, DC: American Psychiatric Press.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: American Psychiatric Association Inc.
- Asendorpf JB (1990a). Beyond social withdrawal: Shyness, unsociability, and peer avoidance. *Human Development*, 33, 250–259.
- Asendorpf JB (1990b). Development of inhibition during childhood: Evidence for situational specificity and a two-factor model. *Developmental Psychology*, 26, 721–730.
- Biederman J, Hirshfeld-Becker DR, Rosenbaum JF, Herot C, Friedman D, Snidman N, et al. (2001). Further evidence of association between behavioral inhibition and social anxiety in children. *American Journal of Psychiatry*, 158, 1673–1679. [PubMed: 11579001]
- Biederman J, Rosenbaum JF, Bolduc-Murphy EA, Faraone SV, Chaloff J, Hirshfeld-Becker DR, et al. (1993). A three-year follow-up of children with and without behavioral inhibition. *Journal of the American Academy of Child & Adolescent Psychiatry*, 32, 814–821. [PubMed: 8340303]
- Biederman J, Rosenbaum JF, Hirshfeld DR, Faraone SV, Bolduc EA, Gersten M, et al. (1990). Psychiatric correlates of behavioral inhibition in young children of parents with and without psychiatric disorders. *Archives of General Psychiatry*, 47, 21–26. [PubMed: 2294852]
- Calkins SD, & Fox NA (2002). Self-regulatory processes in early personality development: A multilevel approach to the study of childhood social withdrawal and aggression. *Development & Psychopathology*, 14, 477–498. [PubMed: 12349870]
- Cole DA, Peeke LG, Martin JM, Truglio R, & Seroczynski AD (1998). A longitudinal look at the relation between depression and anxiety in children and adolescents. *Journal of Consulting & Clinical Psychology*, 66, 451–460. [PubMed: 9642883]
- Coplan RJ, Rubin KH, Fox NA, Calkins SD, & Stewart SL (1994). Being alone, playing alone, and acting alone: Distinguishing among reticence and passive and active solitude in young children. *Child Development*, 65, 129–137. [PubMed: 8131643]
- Costello EJ, & Angold A (1995). *Epidemiology* In March JS (Ed.), *Anxiety disorders in children and adolescents* (pp. 109–124). New York: Guilford Press.
- Druhen M, & Gazelle H (2009, 4). Anxious solitary children at recess: Naturalistic observation of sequential peer acceptance and exclusion processes Paper presented at the Biennial meeting of the Society for Research in Child Development, Denver, CO.
- Egger HL, & Angold A (2004). The Preschool Age Psychiatric Assessment (PAPA): A Structured parent interview for diagnosing psychiatric disorders in preschool children In DelCarmen-Wiggins R & Carter A (Eds.), *Handbook of infant, toddler, and preschool mental health assessment* (pp. 223–243). New York: Oxford University Press.
- Egger HL, Ascher BH, & Angold A (1999). The Preschool Age Psychiatric Assessment: Version 1.1. Unpublished manuscript, Duke University Medical Center, Department of Psychiatry and Behavioral Sciences, Center for Developmental Epidemiology, Durham, NC.
- Fox NA, Henderson HA, Rubin KH, Calkins SD, & Schmidt LA (2001). Continuity and discontinuity of behavioral inhibition and exuberance: Psychophysiological and behavioral influences across the first four years of life. *Child Development*, 72, 1–21. [PubMed: 11280472]
- Gazelle H (2006). Class climate moderates peer relations and emotional adjustment in children with an early history of anxious solitude: A child x environment model. *Developmental Psychology*, 42, 1179–1192. [PubMed: 17087551]

- Gazelle H (2008). Behavioral profiles of anxious solitary children and heterogeneity in peer relations. *Developmental Psychology*, 44, 1604–1624. [PubMed: 18999325]
- Gazelle H, & Ladd GW (2003). Anxious solitude and peer exclusion: A diathesis-stress model of internalizing trajectories in childhood. *Child Development*, 74, 257–278. [PubMed: 12625449]
- Gazelle H, & Rudolph KD (2004). Moving toward and away from the world: Social approach and avoidance trajectories in anxious solitary youth. *Child Development*, 75, 829–849. [PubMed: 15144489]
- Gazelle H, & Spangler T (2007). Early childhood anxious solitude and subsequent peer relationships: Maternal and cognitive moderators. *Journal of Applied Developmental Psychology*, 28, 515–535. [PubMed: 18496601]
- Gazelle H, Workman JO, & Allan W (2010). Anxious solitude and clinical disorder in middle childhood: Bridging developmental and clinical approaches to childhood social anxiety. *Journal of Abnormal Child Psychology*, 38, 1–17. [PubMed: 19707867]
- Hirshfeld-Becker DR, Biederman J, Henin A, Faraone SV, Davis S, Harrington K, et al. (2007). Behavioral inhibition in preschool children at risk is a specific predictor of middle childhood social anxiety: A five-year follow-up. *Journal of Developmental & Behavioral Pediatrics*, 28, 225–233. [PubMed: 17565290]
- Kendler KS, Karkowski LM, & Prescott CA (1999). Fears and phobias: Reliability and heritability. *Psychological Medicine*, 29, 539–553. [PubMed: 10405076]
- Kendler KS, Neale MC, Kessler RC, Heath AC, & Eaves L (1992). The genetic epidemiology of phobias in women: The interrelationship of agoraphobia, social phobia, situational phobia, and simple phobia. *Archives of General Psychiatry*, 49, 273–281. [PubMed: 1558461]
- Ladd GW (2006). Peer rejection, aggressive or withdrawn behavior, and psychological adjustment from ages 5 to 12: An examination of four predictive models. *Child Development*, 77, 822–846. [PubMed: 16942492]
- McDermott JM, Perez-Edgar K, Henderson HA, Chronis-Tuscano A, Pine DS, & Fox NA (2009). A history of childhood behavioral inhibition and enhanced response monitoring in adolescence are linked to clinical anxiety. *Biological Psychiatry*, 65, 445–448. [PubMed: 19108817]
- Paley VG (1992). *You can't say you can't play*. Cambridge, MA: Harvard University Press.
- Rapee RM, Schniering CA, & Hudson JL (2009). Anxiety disorders during childhood and adolescence: Origins and treatment. *Annual Review of Clinical Psychology*, 5, 335–365.
- Rubin KH (2001). The Play Observation Scale (POS). Unpublished manuscript, University of Maryland, College Park, MD.
- Rubin KH, & Burgess KB (2001). Social withdrawal and anxiety In Vasey MW & Dadds MR (Eds.), *The developmental psychopathology of anxiety* (pp. 407–434). New York/Oxford: Oxford University Press.
- Rudolph KD, Flynn M, & Abaied JL (2008). A developmental perspective on interpersonal theories of youth depression In Abela JRZ & Hankin BL (Eds.), *Handbook of depression in children and adolescents* (pp. 79–102). New York: Guilford Press.
- Schwartz CE, Snidman N, & Kagan J (1999). Adolescent social anxiety as an outcome of inhibited temperament in childhood. *Journal of the American Academy of Child & Adolescent Psychiatry*, 38, 1008–1015. [PubMed: 10434493]
- Shaffer D, Fisher P, Dulcan MK, & Davies M (1996). The NIMH Diagnostic Interview Schedule for Children Version 2.3 (DISC-2.3): Description, acceptability, prevalence rates, and performance in the MECA study. *Journal of the American Academy of Child & Adolescent Psychiatry*, 35, 865–877. [PubMed: 8768346]
- Silverman WK, & Albano AM (1996). *Anxiety Disorders Interview Schedule for DSM-IV: Child Version [Clinician Manual]*. San Antonio, Texas: The Psychological Corporation.
- Spangler T, & Gazelle H (2009). Anxious solitude, unsociability, and peer exclusion in middle childhood: A multitrait-multimethod matrix. *Social Development*, 18, 833–856. [PubMed: 31105389]