The Significance of Self-Reported Anxious Symptoms in First Grade Children: Prediction to Anxious Symptoms and Adaptive Functioning in Fifth Grade

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Abstract—In an earlier study of an epidemiologically defined sample of first grade children, primarily between the ages of 5 and 6, self-reported anxious symptoms proved relatively stable and were significantly related to adaptive functioning. In the present study we follow that cohort of first graders longitudinally and assess the prognostic value of self-reports of anxious symptoms in first grade with respect to anxious symptoms and adaptive functioning in the late elementary school years or at about age 10. First grade anxious symptoms were found to have significant prognostic value in terms of levels of anxious symptoms and adaptive functioning in fifth grade.

Keywords: Anxious symptoms, school-age children, longitudinal

Abbreviations: CAT: California Achievement Test; R-CMAS: Revised Children’s Manifest Anxiety Scale; TOCA-R: Teacher Observation of Classroom Adaptation—Revised

Introduction

Benjamin, Costello and Warren (1990) note the limited epidemiological study of anxiety as a symptom, syndrome or disorder in children and suggest one reason for this may be the belief that childhood anxiety symptoms are transient and innocuous (see Lapouse & Monk, 1959). The lack of epidemiological study is particularly true for young children. Only a handful of studies of anxious symptoms...
and disorders in community samples have included children younger than eight and even fewer included children less than seven. Moreover, in only two of these studies was the study population truly epidemiologically defined and not a sample of convenience (Bird et al., 1988; Fleming, Offord & Boyle, 1989). Furthermore, child self-reports of anxiety were not the basis for selection into the sample in either study. Rather, parent reports were the gateway to child interviews and while highly specific, parent reports tend to fall short in terms of sensitivity (Angold, 1988).

Epidemiological studies are important because they avoid the selection biases associated with the use of clinic samples and other samples of convenience (Berkson, 1946). Thus, generalizations to known populations can be drawn and incidence and prevalence rates can be validly inferred (Kellam, 1990). Without epidemiological studies of anxiety in young children, it is difficult to make informed decisions about the allocation of the limited treatment and preventive intervention services available (Kellam, 1990; National Institute of Mental Health, 1991). Thus, the mental health service needs of young children who experience anxious symptoms may go unmet.

This report represents an extension of an earlier investigation of the significance of self-reports of anxious symptoms in an epidemiologically defined sample of first grade children primarily between the ages of 5 and 6 (Ialongo, Edelsohn, Werthamer-Larsson, Crockett & Kellam, in press). These children are currently being followed longitudinally through elementary school and into middle school as part of a larger study of the effectiveness of two classroom-based preventive interventions aimed at improving early reading achievement and reducing aggressive behavior (Kellam et al., 1991). In the earlier report (Ialongo et al., in press), using one of Quay’s (1986) criteria for judging the validity of a putative psychiatric syndrome, and Beardslee, Klerman, Keller, Lavori and Podorefsky’s (1985) criteria for determining “caseness”, we found considerable evidence of significance of first grader’s self-reports of anxious symptoms. First graders’ self-reports of anxious symptoms proved relatively stable over an interval of 4 months, particularly for boys. We also found a significant relationship between anxious symptoms and adaptive functioning. Finally, we obtained a crude estimate of the prevalence of severe anxiety in the population of first graders studied of approximately 2.5%. This estimate was based on the administration of the Revised-Children’s Manifest Anxiety Scale (Reynolds & Richmond, 1985) and the use of the clinical cutoffs reported by Reynolds and Richmond (1985), which are based on normative data from community and outpatient clinic populations.

Ialongo et al. (in press) were not able to assess the extent to which anxious symptoms early in the elementary school years predict anxious symptoms and adaptive functioning in the middle to late elementary school years. To our knowledge there have been no epidemiological studies that have addressed the outcome of early childhood anxious symptoms and disorders. However, it does seem reasonable to assume that such symptoms may have long-term detrimental effects on social and cognitive development. For example, the concentration problems that often characterize anxiety disorders and syndromes may disrupt the mastering of new, or complex, academic problems. Normal interactions with peers may be precluded...
as a result of the social withdrawal often seen in anxious children. Given their potential impact on cognitive and social development and the risk for later symptoms and disorder, we examine in the present study the prognostic value of first graders reports of anxious symptoms with respect to later episodes of anxious symptoms and adaptive functioning in the late elementary school years.

We also examined the impact of children's adaptation to developmentally relevant tasks on their psychological well-being, as measured by the number of anxious symptoms reported. Among the developmental challenges the school-aged child must face, according to Kellam (1990), are academic achievement, social participation with teachers and classmates, acceptance of authority, and sustained attention and concentration in the classroom. In essence we sought to examine a major tenet of the developmental epidemiological framework described by Kellam (1990), wherein psychological well being is seen as both a consequence of, as well as an antecedent to, adaptation to developmental tasks. Kellam (1990) posits that failure to adapt to social and cognitive developmental demands and the resulting negative feedback from natural raters (e.g. teachers, peers, or parents) within their respective social fields (teachers in the classroom, peers in the peer group and classroom, and parents, siblings and other relatives in the family) may prove stressful for the child and result in decrements in psychological well-being, primarily reflected in depressive and anxious symptoms.

A final issue addressed in this paper is the extent to which the prognostic value of anxious symptoms vary by gender. Gender differences have been found in a number of studies of internalizing symptoms in young children. For example, in their longitudinal study of the relationship between social adaptation and psychological well-being in children and adolescents, Kellam, Brown, Rubin and Ensminger (1983) found considerable evidence of gender differences. There was a stronger link between social adaptation and later psychological well-being for girls than boys.

Method

Subjects

Participants were 684 first grade children from 19 public elementary schools in the eastern catchment area of the city of Baltimore, Maryland. The schools were selected from five sociodemographically distinct areas in eastern Baltimore. The children were originally recruited for participation in two school-based, preventive intervention trials targeting early learning and aggression. Given our primary interest in this paper is describing the natural or untreated course of anxious symptoms in school-aged children, only the 684 control subjects are included in the analyses described below. The exclusive use of the control subjects allows us to generalize our results to similarly defined, untreated community populations. Special education and gifted classrooms were excluded from the pool of potential classrooms because the preventive interventions targeted regular or mainstream classrooms. Children had been randomly assigned to classrooms prior to assignment of classrooms to intervention conditions. Schools were randomly assigned to either an intervention or control condition within a geographic area.

The five geographic areas in which the participating schools are located were defined by census tract data and vital statistics from the Baltimore City Planning Office. These areas vary by ethnicity, type of housing, family structure, income, unemployment, violent crime, suicide and school drop out rates. With regard to the gender, ethnicity, and age of the subject population, 49.1% were male,
65.6% were African-American, 31.6% were white, 0.3% Asian, 1.0% Native American, 0.3% Hispanic, and for 1.2% of the children, ethnicity was either missing or refused. At first grade, the average age of the children was 6.6 years (SD = 0.48). Of the 684 children available for participation in the Fall of first grade, written parental consent was obtained for 570 children, or 83.3% of the population. Thirty-four or 5.0% of the children's parents or guardians refused to allow their children to participate, whereas 17 gave verbal consent. Eight children had transferred out of the participating schools prior to consent being requested, whereas 55 parents or guardians failed to respond to the consent request.

Assessment design and measures

Child assessments were carried out in the late Fall of first grade and Spring of fifth grade. The Fall of first grade assessments were carried out before the interventions began. The data gathered in these assessments included children's self-reports of anxious symptoms, standardized achievement scores, and teacher ratings of children's concentration problems, social participation and aggressive behavior. With the exception of the standardized achievement scores, the assessment data were generally collected from teachers and children within the same 2.5 hour period.

Revised Children's Manifest Anxiety Scale (R-CMAS, Reynolds & Richmond, 1978; 1985): The R-CMAS is a 37-item, self-report instrument designed to assess the level and nature of anxiety in children and adolescents from 6 to 19 years old. The child responds to each statement by marking a “Yes” or “No” answer. A response of “Yes” indicates that the item is descriptive of the child’s feelings or actions, whereas a response of “No” indicates that the item is generally not descriptive. The “Yes” responses are counted to determine a Total Anxiety score. There is a nine item “Lie” subscale. However, these items are not included in deriving the Total Anxiety score. A considerable amount of psychometric work has been done with this instrument in both nonreferred and clinical samples of children aged 8 and older. The R-CMAS has demonstrated good internal consistency and there is evidence supporting construct validity (Paget & Reynolds, 1984; Reynolds, 1983; 1985).

The R-CMAS was administered in a small group format by a two person administration team. While one member of the team read aloud the instructions and R-CMAS items to the children, the second member of the team circulated around the group trouble-shooting any problems the children were having with the interview. To further facilitate the administration of the interview, the format for children to record their answers on the R-CMAS was slightly modified. Simple symbols, that is, pictures of common shapes (circle and square) and objects (e.g. ball, apple, etc.), were used to indicate answer choices and to show the place of each item on the answer sheet. More specifically, to help them find the correct place on the answer sheet to indicate their answer, the children were asked to put their finger on the picture of the object corresponding to the appropriate item on the answer sheet. Then children were asked to indicate “Yes” or “No” by placing an “X” over the circle or square next to their finger, respectively. For example, for the first item children were asked to place their finger on the “ball” on their answer sheet. The item was then read aloud twice by the interviewer to the child. The child was then asked to indicate whether their answer was “Yes” or “No”. If their answer was “Yes”, they were instructed to draw an “X” in the circle. If it was “No”, they were instructed to draw an “X” in the square. Previous administration procedures have relied on either the child reading the items and circling “yes” or “no” in response to a particular item, or having an examiner read the items while the child follows along and circles his/her choices. No other changes were made in the administration format or the content of the R-CMAS.

Teacher Observation of Classroom Adaptation—Revised (TOCA-R; Werthamer-Larsson, Kellam, & Wheeler, 1991). The TOCA-R is a structured interview with the teacher, administered by a trained assessor who follows a script precisely and responds in a standardized way to issues the teacher initiates. The interviewer records the teacher’s ratings of individual children as the interview proceeds. Teachers respond to 36-items pertaining to the child’s adaptation over the last 3 weeks to classroom task demands. Adaptation is rated by teachers on a six-point scale and covers three factor analytically derived scales: concentration problems, authority-acceptance/aggression, and shy behavior/social participation. The scores used in the analyses described below were computed in an identical manner for each of the three scales, by summing the items making up the factor. Werthamer-Larsson et al. (1991) report test-retest correlations over a 4-month interval with different interviewers of .60 or higher for each of these scales and coefficient alphas of .96, .92 and .85, respectively. Scores on the
Anxious Symptoms

concentration problems scale correlated .44 with overall performance on the California Achievement Test and a correlation of .67 was found between ratings on the authority-acceptance/aggression scale and peer nominations of aggression. In addition, the shy behavior/social participation scale correlated moderately with peer nominations of likeability \((r = -.34)\). Finally, the scales and alphas obtained in Werthamer-Larsson \textit{et al.} (1991) were replicated in the population studied here.

\textit{The California Achievement Test} (CAT; Forms E & F, Wardrop, 1989) The CAT represents one of the most frequently used standardized achievement batteries (Wardrop, 1989). Subtests in the CAT-E and F cover both verbal (reading, spelling, and language) and quantitative topics (computation, concepts, and applications). The CAT was standardized on a national representative sample of 300,000 children. Internal consistency coefficients for virtually all of the subscales exceed .90. Alternate form reliability coefficients are generally in the .80 range. Wardrop (1989) and Rogers (1985) both conclude the CAT represents one of the best standardized achievement batteries available. The CAT was administered as part of the Baltimore City Public School system’s routine testing and evaluation program. Achievement scores were obtained via magnetic file transfer from the school system, with both error and reliability checks.

\textit{Missing data}

Six-hundred and eighty-four control children were available for assessment in the Fall of first grade and self-reports of anxiety were obtained from 570 (83.33\%) of these children. Of the 114 children from whom we failed to obtain self-reports of anxiety, there were 34 cases where parents refused to allow their child to participate, 57 cases where parents failed to respond to the consent request in time for their child to be assessed, and 23 cases where the child was absent from school or otherwise unavailable during the scheduled assessment dates. There were no differences between these 114 children and the 570 children with anxiety data in terms of gender, age, or geographic area.

In the Spring of fifth grade, we were able to locate 542 (79.2\%) of the 684 children available in the Fall of first grade and obtained self-reports of anxious symptoms from 356 of these children or 52.2\% of the original denominator of 684 children and 59.2\% of the children we obtained an anxiety score from in the Fall of first grade. There were no differences between the 28 children we were unable to locate and the 542 children we did locate in terms of gender, age, geographic area and Fall anxiety scores. Of the 186 children from whom we failed to obtain self-reports of anxiety, there were 31 cases in which parents refused to allow their child to participate and 31 where the parents failed to respond to the consent request in time for their child to be assessed. The remainder was made up of cases in which the child was absent from school or otherwise unavailable during the scheduled assessment dates. We constrained those boys and girls with anxiety scores at both Fall of first grade and Spring of fifth grade with those with missing data at either point in time. We found no differences in terms of CAT Math and Reading achievement scores and teacher ratings of concentration problems and shy and aggressive behavior. Consequently, the children who remained in the sample were similar to those who left in terms of initial characteristics.

\textit{Analytic plan}

Logistic regression analysis (SPSS, 1990) was used to examine (1) the contribution of first grade anxious symptoms to adaptive functioning at fifth grade, (2) the contribution of first grade adaptive functioning to fifth grade anxious symptoms, and (3) the relationship between first and fifth grade anxious symptoms. Owing to the high correlation between CAT Reading and Math achievement scores \((R = .72)\), we created a composite achievement variable by converting the Math and Reading achievement total scores into \(Z\) scores and then taking their mean. This achievement variable along with the three additional indices of adaptive functioning—teacher rated concentration problems and shy and aggressive behavior—and the anxiety scores were converted to dichotomous variables based on a tertile split. The upper third or 66.6 percentile was used as the cutpoint for the total score for anxious symptoms and teacher-rated concentration problems and shy and aggressive behavior. The lower third or 33.3 percentile was used as the cutpoint for the achievement construct. The decision to use logistic regression analyses and to dichotomize the variables of interest was based on
a number of reasons. First, the distributions of the variables were highly skewed. Indeed, most children reported few or no symptoms and were rated by their teachers as exhibiting few or no problems with concentration or shy or aggressive behavior. In addition, there was severe heteroscedasticity in terms of their joint distributions. Statistical techniques that are based on the assumption of multivariate normality are inappropriate with radically nonnormal data such as these. The second reason for our decision to dichotomize the variables of interest was based on our interest in examining the impact of a level of anxious symptoms that is likely to require treatment. Third, the normal or average range for most of the indices of adaptive functioning is very wide. Our interest in this paper is understanding the degree to which anxiety heightens the risk for poor achievement and serious problems with attention/concentration, social participation and aggression in the classroom.

Results

Prognostic value of first graders’ self-reports of anxious symptoms: prediction to later levels of adaptive functioning

Separate logistic regression analyses were performed for each of the indices of adaptive functioning at fifth grade, controlling for concurrent self-reports of anxious symptoms, first grade adaptive functioning, gender and geographic area. Predictors were stepped into the regression model hierarchically. At the first step of each of the logistic regression analyses, we regressed the current measure of adaptive functioning in a particular domain on its counterpart in first grade. Also entered on this first step were current self-reports of anxious symptoms, gender and geographic area. On the second step, we entered the first grade measure of anxious symptoms, followed by the gender by anxiety interaction on the third step. First grade anxious symptoms significantly predicted fifth grade achievement [odds ratio = 10.30, 95% C.I. 6.04–14.56, \( p = .0037 \)]. Children in the top third of anxious symptoms in the Fall of first grade were about 10 times more likely to be in the bottom third of achievement in the Spring of fifth grade. Thus, first grade anxious symptoms proved to have significant prognostic value with respect to adaptive functioning in the form of school achievement 4.5 years later. However, no direct relationship was found between first grade anxious symptoms and teacher ratings of concentration problems or shy or aggressive behavior in fifth grade. There were some differences between those children with complete data versus those with missing data in terms of baseline characteristics. Children with missing data had significantly lower CAT Math scores \([t(512) = -2.00, p = .046, M = 302.6, SD = 54.71 \text{ vs } M = 313.3, SD = 63.97]\) and significantly higher teacher concentration \([t(547) = -2.43, p = .015, M = 2.8, SD = 1.21 \text{ vs } M = 3.1, SD = 1.41]\) and aggression problems \([t(547) = -2.12, p = .035, M = 1.8, SD = 0.88 \text{ vs } M = 1.92, SD = 1.01]\).

Prognostic value of first graders’ self-reported anxious symptoms: prediction to later anxious symptoms

Logistic regression analysis was performed to identify the extent to which children in the top third of anxious symptoms in the Fall of first grade were more likely than other children to be in the top third of anxious symptoms in the Spring of fifth grade. At the first step in this analysis, fifth grade anxiety was regressed on geographic area and children’s achievement scores and teacher ratings of
concentration problems, aggressive and shy behavior/social participation at first and fifth grade. This was done to control for the contribution of geographic area and early and later social adaptation to fifth grade symptoms. At the second and final step, we entered first grade anxiety, gender and the gender by first grade anxiety interaction. First grade anxiety was found to significantly predict—albeit modestly—fifth grade anxious symptoms [odds ratio = 1.91, 95% C.I. 1.07–2.38, \( p = .0278 \)]. That is, children in the highest tertile of anxiety in first grade were nearly twice as likely as other children to be in the top tertile of anxiety in the Spring of fifth grade. For this analysis, there were differences between those children with complete data versus those with missing data in terms of some baseline characteristics. Children with missing data had significantly lower CAT Reading scores \( t(536) = -2.20, p = .028, M = 259.7, SD = 31.20 \) vs \( M = 253.31, SD = 36.07 \) and significantly higher teacher concentration problems \( t(591) = -2.78, p = .006, M = 2.81, SD = 1.21 \) vs \( M = 3.1, SD = 1.40 \).

**Prognostic value of adaptive functioning: prediction to later levels of anxious symptoms**

We were also interested in understanding the prognostic value of early adaptive functioning with respect to later anxious symptoms. In a single logistic regression analysis, fifth grade self-reported anxiety was regressed on each of the indices of first grade adaptive functioning in a hierarchical fashion, controlling for first grade anxious symptoms and fifth grade adaptive functioning, gender and geographic area. More specifically, at the first step of this analysis, we regressed fifth grade anxious symptoms on first grade self-reports of anxious symptoms, gender and geographic area. At the second step, we entered each of the fifth grade indices of adaptive functioning, followed by first grade indices of adaptive functioning and the interaction between these first grade measures of adaptive functioning and gender on the third step. None of the early indices of adaptive functioning were found to contribute significantly to fifth grade anxiety. However, we did find evidence that fifth grade adaptive functioning, in terms of academic functioning, was related to fifth grade anxious symptoms. More specifically, we found a gender by academic achievement interaction. Consequently, we performed separate logistic regressions for boys and girls. For girls, but not for boys, fifth grade achievement significantly predicted fifth grade anxiety. Girls in the bottom third of achievement in fifth grade were 2.66 times (95% C.I. = 1.20–5.92, \( p = .0163 \)) more likely to be in the top third of anxiety at fifth grade.

**Discussion**

The primary purpose of the present study was to extend the results of Ialongo *et al.* (in press) in examining the prognostic value of early anxious symptoms with respect to later levels of anxious symptoms and adaptive functioning. Logistic regression analyses revealed a significant relationship between first and fifth grade anxiety. Children in the top third of anxious symptoms in the Fall of first grade were nearly twice as likely to be in the top third of anxious symptoms in fifth grade. Thus, first grade anxious symptoms appear to have at least modest prognostic value with respect to predicting later levels of anxious symptoms.
For both boys and girls, early anxious symptoms also contributed significantly and strongly to adaptive functioning in fifth grade in terms of standardized achievement scores. As noted earlier, one possible explanation for the relationship between anxious symptoms and adaptive functioning is that the concentration problems that often characterize anxiety disorders and syndromes may serve to disrupt, the mastering of new, or complex, academic problems. Moreover, anxious children may seek to avoid engaging in new and challenging academic tasks as a result of fear of failure. Consequently, the anxious child may fall behind their peers academically and lack the prerequisite skills to negotiate future cognitive tasks. These, in turn, place the anxious child at increased risk for further academic difficulties and concomitant decreases in self-esteem and self-efficacy—all of which heighten the risk of subsequent anxious symptoms and possibly disorders.

Although a strong relationship was found between anxious symptoms in first grade and academic achievement in fifth grade, we did not find a similar relationship between first grade anxiety and teacher-rated concentration problems or shy or aggressive behavior. However, it is important to point out that the relationships between early anxious symptoms and fifth grade concentration problems and shy behavior were significant until we controlled for fifth grade anxious symptoms. The explanation for this is that first and fifth grade anxiety symptoms were correlated and what variance each shared with fifth grade concentration problems and shy behavior was largely common variance. In essence, we are suggesting the link between early symptoms and later adaptive functioning runs through fifth grade symptoms. Thus, early anxious symptoms do not contribute directly to later concentration problems and shy behavior, but do contribute to fifth grade anxiety, which, in turn, contributes to fifth grade concentration problems and shy behavior.

The failure to find a unique contribution of early anxious symptoms to fifth grade concentration problems or shy and aggressive behavior may also be a function of how these constructs were assessed. Coie, Dodge and Kupersmidt (1990) argue that peers may be in a better position than teachers to report on shy behavior and aggression. In addition, the teacher ratings we obtained were for a fairly short period of time—the last 3 weeks. The standardized achievement testing, on the other hand, is perhaps the most direct test of what a child has learned over his/her entire school career. Moreover, it not subject to the biases inherent in global ratings or the limitations on the teacher’s ability to consistently observe or recall the child’s performance over an extended period of time (Schachar, Sandberg & Rutter, 1986). Nonetheless, our findings are consistent with Kovacs and Goldston’s (1991) summary of the literature on the impact of depressive illness on cognitive and social development in children. They concluded that most reliable evidence of impact was in the area of later academic and cognitive functioning, with only limited evidence of long-term effects on social or social development.

We were also interested in understanding the contribution of early adaptive functioning to later anxious symptoms. Logistic regression analyses failed to reveal a direct link between early adaptive functioning and later anxiety. However, we did find, at least for girls, evidence of a significant relationship between concurrent
levels of academic achievement and self-reports of anxious symptoms in fifth grade. It should be noted here that, as was the case with the relationship between early symptoms and later adaptive functioning, the relationship for girls between early academic achievement and later anxious symptoms was significant until we controlled for current fifth grade academic achievement. Once again the simple explanation for this is that later achievement was highly correlated with early achievement and thus what variance each shared with fifth grade anxious symptoms was largely common variance. In essence, the link between early academic achievement and later psychological well-being runs through later academic achievement. This is consistent with the findings of Kellam et al.’s (1983) study of an urban population of largely poor, African-American children followed prospectively from first grade into adolescence. The gender difference in the relationship between adaptive functioning and psychological well-being is also consistent with Kellam et al. (1983).

One possible explanation for the gender difference is that girls may more readily accept the feedback given to them from their parents, teachers, and peers about their performance within various social fields (Roberts, 1991). Moreover, in terms of their personality development, girls tend to pass through the period of social conformity and into self-awareness somewhat earlier than boys (Cohn, 1991).

Overall, then, our findings do provide support for Kellam’s (1990) developmental framework, wherein psychological well being is seen as both an antecedent and consequence of adaptation to developmental tasks across relevant social fields and over transition points in the life course. However, as we discuss below, the present study does not represent a strong test of Kellam’s framework because we used relatively crude, screening measures of anxious symptoms and adaptive functioning. To summarize, then, first graders’ reports of anxious symptoms appear to have prognostic value with respect to both later anxious symptoms and adaptive functioning. Yet, it is important to note that although the children lost to follow-up in Spring of fifth grade differed only modestly from those who remained in terms of baseline characteristics, they did perform more poorly in terms of academic achievement. Given the relationship found between anxious symptoms and later achievement, this leads us to suspect that our results may underestimate the prognostic value of early anxious symptoms. Moreover, the fact that the measure of anxious symptoms employed was a first stage or screening measure also leads us to believe the degree of prognostic value found probably represents the lower bound of the true relationship between anxious symptoms and adaptive functioning.

A comprehensive psychiatric assessment would have allowed not only a more accurate assessment of caseness, but of prevalence and stability as well. A highly trained clinician, well versed in interviewing young children, may have been able to elicit more accurate reports of child symptoms through careful probing of child responses and explanations of the symptoms. The obstacles to mounting such assessments on a large scale, however, are formidable, particularly in terms of cost. The present study was undertaken in an effort to establish whether the costs of such an effort would be justified. Based on our results, we believe it would.

An additional limitation of the present study is the fact that although the sample was epidemiologically defined, which is a clear strength, our results are only generalizable to similarly defined populations—in this case, African-,
and second and third generation Greek– and Italian–American children living in urban environments, varying on the sociodemographic dimensions described. Further studies will be needed to ascertain whether these findings hold for other populations of children in different community contexts. A final limitation of the study is that other symptoms (e.g. depression) may have contributed to lower academic functioning in fifth grade.

In conclusion, these data suggest that a reliable and valid assessment of anxiety in children as young as five or six is quite possible. We were able to collect reliable and meaningful data on anxious symptoms with a rather crude screening measure administered on a group basis. Moreover, the data presented here dispute the notion that anxious symptoms in young children are merely transient developmental phenomena. The clear and enduring relationship between anxious symptoms as early as first grade and later adaptive functioning suggest that such symptoms may warrant mental health services directed at their treatment and prevention. Given that poor academic achievement may be a consequence and possibly an antecedent of anxiety in children, attention to academic performance should be a part of any treatment or preventive intervention plan. With respect to preventive intervention programs aimed at reducing academic failure, these data suggest that such programs should be designed to deal with the impact of anxious symptoms on children’s academic performance. At a minimum, concurrent anxious symptoms should be assessed to understand their potential moderating effects on outcomes. Ultimately, such interventions may need to specifically target anxious symptoms as part of any effort to enhance early cognitive and social development. Finally, as suggested above, more comprehensive and precise evaluations of the significance of anxious symptoms and disorders in young children are needed, given the limited empirical study of the issues addressed in this study.

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References


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