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Teacher Awareness of Anxiety Symptoms in Children

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Abstract

The present study aimed to determine which anxiety symptoms in children are associated with teacher awareness and whether teacher awareness differs according to student age and gender. The Multidimensional Anxiety Scale for Children (MASC) was completed by 453 second through fifth grade students and teachers nominated the three most anxious students in their classrooms. A multivariate analysis of variance was conducted with MASC scale scores as the dependent variables. Children identified by teachers as anxious had significantly higher levels of overall anxiety, physiological anxiety, social anxiety, and separation anxiety. Overall, teacher awareness did not differ based on student age or gender.

Keywords

Children; Anxiety; Teachers; Assessment

In the assessment of psychological symptomatology in children, a multi-method, multi-informant approach is typically recommended. In addition to parent- and child-report, teacher-report may also be solicited. Such a report is beneficial as teachers have the opportunity to observe children in a variety of settings and situations that parents and clinicians do not. In fact, Stanger and Lewis [1] reported that teacher ratings of externalizing behavior problems served as the best predictor of referral for mental health services.

Although much attention has been given to teachers' awareness of *externalizing* behavior problems, research on teacher awareness of *internalizing* problems such as anxiety is very limited [2]. Unlike externalizing behavior problems, mild to moderate anxiety is unlikely to be associated with disruptive classroom behavior. As a result, some have suggested that problems with anxiety go unnoticed by teachers [2]. Sharing this opinion, Muris and Meesters [3] reported that "children's problems with anxiety in most cases remain largely hidden" in the classroom environment (p. 589). In a survey of mental health professionals, teachers' reports of internalizing symptoms were judged as only "slightly useful." [4] The study did not examine why mental health providers rated teachers as they did.

While previous research has not evaluated the validity of teacher nomination in the identification of anxious children, studies have examined inter-rater agreement among parents, teachers, and children in the domain of internalizing problems. If inter-rater agreement was consistently high (especially between child- and teacher-report), one could conclude that

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teachers are as aware of child anxiety symptoms as parents and children themselves. However, the research in this area has produced mixed findings. For each study reviewed below the inter-rater reliability coefficients are presented in parentheses. Messman and Koot [5] evaluated which items on the Teacher Report Form and Parent Report Form of the Child Behavior Checklist (CBCL) were associated with child-reported anxiety on the State Trait Anxiety Inventory for Children. Results indicated that teachers (teacher-child = 0.30) were more aware of children's internalizing problems than were parents (parent-child coefficient not reported as correlation was not significant). However, Stanger and Lewis [1] reported that concordance rates involving teacher reports of internalizing problems on the CBCL were low (teacher-mother = -0.08 and teacher-child = -0.08) compared to concordance between youth and their parents (child-mother = 0.30). Reporting still different outcomes, Kolko and Kazdin [6] found that concordance rates for internalizing problems on the CBCL were not significantly different between teacher-child (0.25) and parent-child (0.14). The inconsistent findings surrounding inter-rater agreement involving teacher-report of internalizing problems do not allow for predictions about the potential validity of teacher nomination in the same domain. Further, a close examination of the studies cited above did not reveal patterns related to measure, type of sample, or age of sample that would account for the inconsistent findings. Thus, while it is believed that teachers are not skilled at detecting anxiety in their classrooms [2,4], consistent research supporting such beliefs is lacking.

It is also not known whether teacher identification of anxiety in their students is moderated by child characteristics such as age and gender. The Achenbach et al.[7]meta-analysis reported that, in general, cross-informant agreement was higher for 6- to 11-year-olds than adolescents. Conversely, Kolko and Kazdin [6] reported that, of a range of variables, only child age accounted for differences between teachers and children in their ratings of child internalizing symptoms with younger age associated with *poorer* agreement. Epkins [8] found no effect of age, sex, socioeconomic status (SES), or race on teacher-child concordance in the domain of anxiety (age range: 8-12 years). Stanger and Lewis [1] found no effect of child sex on parent and teacher ratings; the effect of age was not evaluated. Given the few studies that have evaluated the potential impact of child age and gender on teacher awareness of internalizing symptoms and the lack of consistency among the results related to age, additional research is needed in this area. This is especially true given that age and gender differences in the presentation of anxiety have been identified in epidemiological and treatment studies.

Across these studies, one of the most common and robust findings has been that females endorse more anxiety symptoms than males [9-11]. In their longitudinal study of 1,420 children age 9 to 13, Costello et al. [12] reported that the 3-month prevalence rates for the following disorders were higher in females: generalized anxiety disorder, social phobia, panic disorder, and agoraphobia. Lewinsohn et al. [13] reported that among 1,709 adolescents, females had significantly higher anxiety symptom scores than did males. Further, they reported that this gender difference emerges at an early age: by age six, twice as many girls as boys had experienced an anxiety disorder.

In terms of age, perhaps the most commonly reported difference between children and adolescents involves the diminishing of separation anxiety symptoms with increasing age [9, 12, 14]. In some studies, this was the only age difference identified [15]. Another common finding involves the increase of social anxiety with age [9]. Crick and Ladd [16] found that fifth graders endorsed significantly greater levels of social anxiety than third graders. Costello et al. [12] reported that adolescence was marked by a rise in social phobia. The results of these studies demonstrate that anxiety symptom presentation can vary according to child gender and age.

The goals of the present study are to establish whether teachers are aware of anxiety symptoms in their students using a nomination procedure and whether nomination is moderated by child age and/or gender. To our knowledge, no studies have been published to date that examine whether specific anxiety symptoms, child age, or child gender influence teachers' recognition of anxiety symptoms in their students. Identifying symptoms and child characteristics that are associated with teacher identification is important toward the goal of recognizing which anxious children are likely to be referred for assessment and intervention and which may be overlooked. Because previous research has not been conducted using a teacher nomination process for internalizing problems, our primary hypothesis is not informed by existing studies. However, it is expected that children with symptoms of social anxiety and separation anxiety will be more likely to be nominated based on the observable, behavioral manifestations of anxiety associated with these symptoms (e.g., shyness/social withdrawal and difficulty separating from parents/frequent requests to go home, respectively).

Studies that have demonstrated differences in inter-rater reliability based on age had a wider range that included children and adolescents, [6,7] studies with a more limited age range have not found differences based on age [8]. The present study is limited to elementary school children ages 7 to 11. Therefore, while the potential effect of age will be explored, differences in teacher nomination based on age are not expected. Most inter-rater reliability studies of internalizing symptoms have not identified gender as a factor affecting teacher-child concordance [8]. Therefore, it is not expected that gender will emerge as a moderator of nomination status.

Methods

Sample and Procedure

The sample consisted of 453 students in the second through fifth grades at three elementary schools. The three schools were matched in terms of size, ethnic make up of the student body, and socioeconomic status of the student body (based on percentage of children receiving free or reduced rate lunch). After receiving approval for the study from the University Institutional Review Board (IRB), letters inviting participation and informed consent forms were sent home with all second through fifth grade children ($N = 1,036$). To increase the rate of consent form return, classrooms returning 80% of their consent forms received a pizza party, regardless of whether positive consent was given. Seventy-eight percent ($n = 809$) of consent forms were returned. Among consent forms returned, positive consent was obtained for 497 students (61%) while parental consent was declined for 312 students (39%). The participation rate of 61% is fairly standard compared to other studies requiring *active* parental consent (for a review see Esbensen [17]) but lower than studies requiring only passive parental consent [18].

The resulting sample (217 males and 236 females) consisted of those students with written parental consent who were present the day of the screening and who provided written child assent. Forty-four students with parental consent did not participate: 15 students were absent, 2 were unable to complete the measure due to developmental disabilities, and 27 students declined participation. Rates of participation across school and grades were comparable. The mean age of participants was 8.7 ($SD = 1.19$). Information on participant ethnicity was not collected, as the screening measure did not include such a question. However, data were gathered from the schools regarding student body ethnicity and SES. The percentage of ethnic minorities for the three schools ranged from 7% to 11%. The percentage of students receiving free or reduced rate lunch (measure of lower SES) ranged from 20.9% to 22.2%.

Participants completed the Multidimensional Anxiety Scale for Children (MASC), [19] a 39-item self-report questionnaire. The measure was administered in small group format by research staff at the children's schools. Items were read aloud and further explanation was

provided for items that were confusing or unclear (e.g. I get shaky or jittery). Standardized explanations were prepared in advance to insure that there was consistency across all administrations of the instrument. In addition, each teacher was provided a list of participants from his/her classroom and asked to indicate the three most anxious children in the classroom. Teacher nomination was included as an additional means of identifying potentially anxious students.

Measure

MASC items are designed to assess anxiety symptoms across four scales (item examples in parentheses): Physical Symptoms (I feel sick to my stomach, My hands feel sweaty or cold, My hands shake) Harm Avoidance (I try to do everything exactly right, I stay away from things that upset me, I keep my eyes open for danger), Social Anxiety (I worry about other people laughing at me, I'm afraid that other kids will make fun of me, I worry about what other people think of me), and Separation/Panic (I try to stay near my mom or dad, I get scared when my parents go away, I avoid going places without my family). A Total Anxiety Score is also generated. Respondents rate whether each statement is "Never true about me, Rarely true about me, Sometimes true about me, or Often true about me." The MASC has demonstrated both convergent and divergent validity [20] and has been shown to be superior to the Revised Children's Manifest Anxiety Scale in the detection of anxiety [18]. Satisfactory internal consistency values for all scales have been reported [19]. Test-retest reliability has been shown in epidemiological and clinical samples [20] and school samples [21]. Reliability coefficients for scales using the present sample are strong: Physical Symptoms 0.85, Harm Avoidance 0.70, Social Anxiety 0.83, Separation/Panic 0.72, and Total Scale 0.90.

Statistics

The main analyses examined the relations between MASC scale scores and teacher nomination, gender, and grade. A 2 (teacher nomination) $\times$ 2 (gender) $\times$ 4 (grade) MANOVA was conducted with the five MASC scale scores as the dependent variables (Physical Symptoms scale, Harm Avoidance scale, Social Anxiety scale, Separation/Panic scale, and Total Anxiety scale). Univariate analyses were conducted to test main effects and interaction that emerged as significant in the MANOVA. Pairwise comparisons were used to further examine significant main effects of grade. Bonferroni corrections were applied given the number of pairwise comparisons conducted involving grade.

Results

The means and standard deviations for the scale scores of the total sample, nominated, and non-nominated participants are presented in Table 1.

The 2 $\times$ 2 $\times$ 4 MANOVA resulted in the following main effects and interactions: nomination status (F [5, 416] = 3.22, P = 0.007), gender (F [5, 417] = 1.96, P = 0.08), and grade (F [15, 1257] = 3.56, P < 0.001), nomination by gender (F [5, 417] = 2.01, P = 0.08), and nomination by grade (F [15, 1257] = 1.81, P = 0.03). The results of the univariate analyses are presented in Table 2.

Nomination Status

Univariate analyses indicate that nominated children had higher scores than non-nominated children on the scales measuring physical symptoms, social anxiety, separation anxiety, and total anxiety. Nominated children did not differ significantly from non-nominated children on the Harm Avoidance scale.

Gender

Significant gender differences in children's report of anxious symptoms did not emerge, therefore no follow-up univariate analyses were conducted.

Grade

Pairwise comparisons between grade means for scales emerging as significant were conducted; Bonferroni corrections were applied to control for type 1 error. On the Harm Avoidance scale, second and third graders reported significantly more anxiety than fourth and fifth graders. On the Separation/Panic scale, second, third, and fourth graders reported significantly more anxiety than fifth graders. On the MASC Total scale, third graders reported significantly more anxiety than fifth graders. On all of the aforementioned scales, as grade increased, children's report of anxiety decreased.

Interactions

As expected, nominated and non-nominated groups were similar in terms of age and gender. Nominated children ranged in age from 7- to 11-years with an average age of 8.5 years. Non-nominated students ranged in age from 7- to 11-years with an average age of 8.7 years. The gender distribution across both nominated and non-nominated groups was identical (46% male, 54% female). While a nomination $\times$ grade interaction emerged as significant in the MANOVA, univariate analyses resulted in no significant interactions for the 5 MASC scales. However, by generating and plotting the average MASC t -scores for nominated and non-nominated students at each grade level, the source of the MANOVA interaction can be clarified. The average t score for nominated students in 2nd, 3rd, and 5th grade students was greater than the average t score for non-nominated students. However, among 4th grade students, the average t score for nominated students (52.8) was less than that of non-nominated students (54.3). A significant nomination by gender interaction did not emerge in the MANOVA, thus no follow-up univariate analyses were conducted.

Discussion

As a total sample, children identified by teachers as anxious had significantly higher MASC Total Anxiety scores than non-nominated students, indicating teachers were accurate in identifying children with higher overall self-reported anxiety. In terms of specific symptoms, as hypothesized, nominated students had significantly higher scores on scales measuring separation anxiety and social anxiety than non-nominated students. In addition, nominated students also had significantly higher scores on the scale measuring physical symptoms.

High scores on the Separation/Panic scale are associated with feeling scared when alone or in unfamiliar situations and preferring to stay close to family members or home. Children who score high on this scale may have school-based problems such as poor school attendance or tardiness and difficulty with separation. Such problems typically result in observable behaviors such as excessive distress (e.g., crying) when separating from parents at the start of the school day, asking the teacher if they can call home, and reporting that they miss their mother or father.

The Social Anxiety scale measures fears of being laughed at, made fun of, and embarrassed, and concerns about others' opinions (e.g. "I'm afraid other people will think I'm stupid"), as well as anxiety about performing in front of others. Children who score high on this scale may be identified as "anxious" by teachers based on withdrawal from peers, hesitancy to join in on activities, and reluctance or refusal to speak or read in front of the class.

Although not predicted, nominated children also scored higher on the scale measuring physical symptoms (i.e, somatic experiences associated with anxiety). Children scoring high on this

scale are more likely to present with somatic complaints and to request to visit the school nurse, thus making teachers aware of the physical manifestations of anxiety (e.g, upset stomach, headache). These findings are important because previously it was believed that teachers do not recognize children's anxiety symptoms due to the compliant and non-disruptive behavior of these students [2].

The one scale on which nominated and non-nominated children did not differ was on Harm Avoidance. Children scoring high on the Harm Avoidance scale are likely to strive toward perfection, to please others and follow rules, to monitor their environment for threat cues, and avoid risky situations. These characteristics are commonly seen in children with generalized anxiety disorder [22]. The findings suggest that children with anxiety related to perfectionism and pleasing others tend to be less identifiable as anxious in a classroom setting than children with separation anxiety, social anxiety, and those who have somatic complaints.

Teachers were equally likely to recognize anxiety in males and females. This finding is consistent with the literature in the domain of inter-rater agreement between teacher report and child self-report: consensus between child report and teacher report does not vary based on gender of the child [1,8].

It was not expected that teacher awareness in the present study would vary by grade based on previous studies with a similar age range [8]. This held true for students in 2nd, 3rd, and 5th grades. As expected, nominated children in these grades had higher MASC scores than non-nominated children. Among 4th grade students, the average MASC score was slightly lower for nominated students than non-nominated students. However, it should be noted that when univariate analyses were conducted, no nomination by grade interactions emerged for the individual MASC scales.

Among all participants, no significant differences emerged between male and female self-reported anxiety symptoms. These results are inconsistent with epidemiological research that has demonstrated significantly greater anxiety symptoms among females than males during childhood [12]. However, some previous studies that have suggested that significant gender differences in the domain of anxiety, especially social anxiety, emerge in adolescence rather than during the elementary school years [9].

In relation to age among all participants, as grade level increased, scores on scales measuring separation anxiety, harm avoidance, and total anxiety decreased. The finding involving separation anxiety is consistent with previous research that has reported a decrease in prevalence of separation anxiety symptoms as children increase in age [14]. The decrease in harm avoidance indicates that by the time children enter fourth and fifth grade, concerns about safety, needing to do things just right, and obeying teachers/parents are significantly less than in previous years.

It is notable that social anxiety did *not* increase significantly with increasing grade, as has been reported in previous studies [16]. However, it is notable that other than physiological symptoms, scales measuring social anxiety were the only ones that did not *decrease* significantly as children moved up in grade.

While the present study included a substantial sample size and promotes the understanding of anxiety symptoms in children in rural/suburban areas, there are limitations that should be noted. First, because the outcome measure was self-report in nature, problems inherent in child self-reporting apply to this study. Although efforts were made to insure understanding of items on the MASC, over-reporting and underreporting of symptoms could have occurred. Second, because the study required active parental consent there was a lower participation rate than would have been anticipated had passive parental consent been permitted. Research has

demonstrated that requiring active parental consent leads to an under-representation of children from ethnic minorities, single-parent homes, and with parents having less education [17]. As has been the case in other studies requiring active consent, participants in the present study were primarily Caucasian. Thus, the representativeness of the sample is in question which limits generalizability. Generalizability is also limited by the fact that the sample was not representative of urban communities. Finally, the teacher nomination method utilized could be improved in future studies. For example, having teachers nominate both anxious children and children with disruptive behavior to determine discriminant validity. In addition, rather than limiting teachers in the number of students that can be nominated have teachers rate each participant as “have no concerns about anxiety” or “have concerns about anxiety.”

Future research is needed to examine child and teacher variables that may impact teacher awareness of student anxiety. Additional research is needed to determine whether child variables such as academic performance, ethnicity, externalizing behavior problems, and symptom severity affect teacher awareness; and whether teacher variables such as teaching experience and graduate training affect awareness.

The present study provides new information about teachers’ awareness of anxiety in their students and which symptoms are most likely to be associated with teacher awareness. The findings are among the first to suggest that teachers are, in fact, aware of anxiety symptoms in their students and should be utilized in efforts to identify these children. The present study is also the first to provide more detailed information about the *types* of anxiety symptoms associated with teacher awareness. Teachers were aware of symptoms of physiological anxiety, social anxiety, separation anxiety, and high overall anxiety, regardless of child age or gender. Children less likely to be identified were those scoring high on the Harm Avoidance scale. This scale includes symptoms common to children with generalized anxiety disorder (e.g. perfectionism, concern about safety, striving to please others) [22]. Additional research is needed to corroborate whether students with generalized anxiety are “missed” by teachers.

The results of the study underscore the importance of using a multi-informant approach that includes child self-report and teacher report in the assessment of anxious children. Child-report is important as it is likely that some anxious are “missed” by teachers. In addition, teacher report is important as some children may be reluctant to endorse symptoms or may be poor reporters of their symptoms. Thus, school-based screenings of anxiety should include both teacher input and child report.

In the school setting, a teacher’s concern about potential anxiety in a student should be pursued, as the results of the present study indicate that teacher nomination is associated with child-endorsed symptoms. Likewise, when children are evaluated in community- or clinic-based settings, clinicians should consider obtaining permission to gather information from the child’s teacher. This is important toward the goal of understanding how a child’s symptoms affect him/her across settings.

Summary

While teacher awareness of externalizing behavior problems in the classroom has received much attention, studies addressing teacher awareness of anxiety have been limited to those examining inter-rater agreement. Because school-based mental health services offer tremendous opportunity for early intervention, knowledge about teachers’ ability to identify anxiety in the classroom is of great importance. The primary aim of the present study was to evaluate the degree to which teachers are aware of anxiety in their students. In addition, the study also evaluated whether teacher awareness was impacted by student age and/or gender. The Multidimensional Anxiety Scale for Children (MASC) was completed by 453 second

through fifth grade students and teachers nominated the three most anxious students in their classrooms. The results indicated that teachers were successful in their nominations as evidenced by increased self-reported anxiety among nominated students compared to non-nominated students. Specifically, children identified by teachers as anxious could be distinguished from non-nominated children based on total anxiety, physiological anxiety, social anxiety, and separation anxiety. The one domain in which nominated and non-nominated children did not differ significantly was harm avoidance. The Harm Avoidance Scale on the MASC assesses tendencies such as perfection, striving to please others, vigilance about threats to safety, and avoidance of risky situations. Many of these tendencies are conducive to appropriate behavior in the classroom and may not result in observable anxiety-related behaviors. These results indicate that teachers are most likely to identify children who are highly anxious overall, demonstrate social anxiety or separation anxiety, and/or children who present with physiological complaints. Overall, teacher awareness did not differ based on student age or gender.

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Table 1
MASC T-scores for total sample, nominated participants and non-nominated participants

Scale	Total sample		Nominated		Non-nominated	
	Mean	SD	Mean	SD	Mean	SD
Physical symptoms [*]	52.1	11.5	54.1	11.4	51.5	11.5
Harm avoidance	55.4	9.7	55.6	10.7	55.2	9.5
Social anxiety [*]	53.1	11.0	55.1	10.9	52.5	11.1
Separation/Panic ^{**}	56.2	11.1	60.1	12.1	55.2	10.8
Total ^{**}	55.2	11.1	57.9	11.4	54.5	11.0

^{*} Indicates difference between nominated and non-nominated significant at the $P < 0.05$ level;

^{**} Indicates difference significant at the $P < 0.01$ level

Table 2

Univariate analyses following MANOVA

Source	Dependent variable	MS	df	F
Nomination	Physical symptoms	595.9	1	4.58 *
	Harm avoidance	19.6	1	0.22
	Social anxiety	637.8	1	5.39 *
	Separation/Panic	1661.7	1	14.79 **
	MASC Total	1049.1	1	8.82 **
Grade	Physical symptoms	389.8	3	1.00
	Harm avoidance	2137.3	3	7.99 **
	Social anxiety	449.1	3	1.26
	Separation/Panic	2789.6	3	8.28 **
	MASC Total	1153.3	3	3.23 *
Nomination × Grade	Physical symptoms	753.6	3	1.93
	Harm avoidance	564.9	3	2.11
	Social anxiety	500.8	3	1.41
	Separation/Panic	873.1	3	2.59
	MASC Total	782.0	3	2.19

* $P < 0.05$,** $P < 0.01$