

Gender Differences in Depressive Symptoms in Adolescence: Comparison of National Samples of Clinically Referred and Nonreferred Youths

Bruce E. Compas, Gerri Oppedisano,
Jennifer K. Connor, Cynthia A. Gerhardt,
Beth R. Hinden, and Thomas M. Achenbach
University of Vermont

Constance Hammen
University of California, Los Angeles

Gender differences in depressed mood, a syndrome of mixed anxiety–depression, and an analogue of major depressive disorder were compared in parents' and adolescents' reports in 2 large, demographically matched national samples of clinically referred and nonreferred adolescents. Referral status accounted for the greatest share of the variance in these problems. Gender differences were moderate in size and consistent in referred youths, with referred girls scoring higher than referred boys on all measures, whereas gender differences in nonreferred adolescents were either nonsignificant or small in magnitude. Gender differences were also larger in magnitude in adolescents' self-reports than in parents' reports. The interaction of age and gender was nonsignificant in all analyses. Implications for understanding the extent of gender differences in adolescents' depressive symptoms are highlighted.

The rates of internalizing problems, most notably symptoms of depression, are higher among adolescent girls than boys (Nolen-Hoeksema & Girgus, 1994). Adolescence is assumed to be the developmental period in which these differences emerge and intensify, creating a pattern which continues with gender differences in depressive symptoms and disorder in adulthood (Leadbeater, Blatt, & Quinlan, 1995). What is less clear, however, is the magnitude and pervasiveness of these differences during adolescence; that is, how large are the effects of gender on depressive symptoms in adolescence? Are gender differences characteristic of the general population, or are they limited to a subgroup of youths, such as those who may be referred for or receive mental health services?

The answers to these questions are meaningful for several reasons. First, it is important to document the extensiveness of gender differences in depressive problems to determine their role in overall models of adolescent development. If boys and girls in the general population differ in symptoms of depression, then this difference may represent a pervasive feature of normative adolescent development. Alternatively, if gender differences in these symptoms are limited to clinically referred youths, they may reflect processes that characterize only a subgroup of high-risk adolescents. Gender differences limited to only high-risk

groups suggest that adolescence is not intrinsically associated with such differences in depressive symptoms. Second, if gender differences are small in the general population, process-oriented research (Nolen-Hoeksema & Girgus, 1994) will need to focus on samples of high-risk or clinically referred adolescents to achieve sufficient statistical power. Third, patterns of gender differences in community versus clinical samples would suggest that prevention and treatment programs need to be tailored differently for boys and girls, depending on the nature and scope of gender differences in the general population as opposed to selected, high-risk subgroups.

Research on gender differences in psychological characteristics has highlighted the need to attend not only to the statistical significance of female–male differences but also to the size of these effects (e.g., Eagly, 1995). Most observed gender differences are small to moderate in magnitude, and are greater for characteristics that involve social interactions than for purely individual traits or qualities (Maccoby, 1990). Several studies have reported statistically significant differences between male and female adolescents in depressive symptoms, but most have not considered the magnitude of these effects. Examination of the few studies that have provided sufficient information to determine effect sizes suggests that male and female adolescents differ in symptoms of depression, as well as the prevalence of depressive disorders, but these gender effects are typically small in magnitude. For example, Hinden et al. (1997) found significant gender differences and interactions of age and gender in analyses of parents' and adolescents' reports of depressed mood and a syndrome of mixed anxiety and depression. All of these effects were very small in magnitude, however, with most accounting for less than 1% of the variance in depressive symptoms. Similarly, gender differences in studies by Lewinsohn, Hops, Roberts, Seeley, and Andrews (1993) and Petersen, Sari-giani, and Kennedy (1991) were small in magnitude, with Co-

Bruce E. Compas, Gerri Oppedisano, Jennifer K. Connor, Cynthia A. Gerhardt, and Beth R. Hinden, Department of Psychology, University of Vermont; Thomas M. Achenbach, Department of Psychiatry, University of Vermont; Constance Hammen, Department of Psychology, University of California, Los Angeles.

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Correspondence concerning this article should be addressed to Bruce E. Compas, Department of Psychology, University of Vermont, Burlington, Vermont 05405.

hen's d less than .3 in most comparisons, representing a difference of less than one third of a standard deviation.

Estimates of the prevalence and magnitude of gender differences in depressive symptoms may be influenced by several methodological factors, foremost of which are the source of information, the types of symptoms that are measured, and sample characteristics. Informant differences in reports of internalizing problems in adolescence are well documented, especially the relatively low correspondence between parents and children or adolescents in their reports of depressive symptoms (Kazdin, 1994). Because many symptoms of depression are covert, it is generally assumed that parents are less accurate informants of internalizing problems than adolescents themselves. To the extent that many symptoms of depression are not readily observed by parents, they may also be less sensitive to gender differences in these symptoms in their children. Thus, gender differences would be expected to be smaller in parents' reports than in adolescents' self-reports. However, because parents are an important source of referral for mental health services for their children, it is important to compare parents' and adolescents' reports within clinically referred and nonreferred samples.

A second methodological issue involves the types of symptoms that are measured, as gender differences may be more pronounced in some types of internalizing symptoms than others. It is difficult to draw clear conclusions from prior studies, however, as they have included measures of depressed mood (e.g., Ge et al., 1994), a syndrome of mixed anxiety and depression symptoms (e.g., Hinden et al., 1997), and mood disorders as defined by criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) (e.g., Lewinsohn et al., 1993). All of these manifestations of depressive problems are clinically meaningful (Compas, Ey, & Grant, 1993), but there may be considerable variance in the magnitude of gender differences across these different types of symptoms and disorders. For example, Silverstein, Caceres, Perdue, and Cimarolli (1995) found that female adolescents reported more symptoms of mixed anxiety and depression than did male adolescents, but no gender differences in more "pure" symptoms of depression.

Adolescents who are referred for mental health services are, not surprisingly, expected to manifest higher levels of depressive symptoms than nonreferred adolescents sampled from the community. It is less clear, however, whether gender differences in these symptoms would be expected to be more or less pronounced in referred than nonreferred youths. Gender differences could be greater in referred samples for two reasons. Referrals for mental health services could reflect gender stereotypic assumptions of parents, teachers, and other adults who are likely to initiate this process. This may include an assumption that girls are more likely than boys to manifest internalizing problems, including symptoms of depression. Gender differences may also be greater in referred samples because these youths represent an extreme subgroup of adolescents who are more vulnerable to internalizing problems, and girls may be more vulnerable than boys to such problems (Nolen-Hoeksema & Girgus, 1994). Alternatively, if parents and others assume that girls are more likely than boys to experience depressive symptoms, this could lead them to minimize gender differences among referred youths, as boys may have to exceed a much higher threshold of depressive symptoms to be referred. In light of these issues, it

is noteworthy that comparisons of the pattern and magnitude of gender differences in depressive symptoms in referred versus nonreferred samples have not been made.

The goals of the present study were to address these gaps in the literature by examining the extent and magnitude of gender differences in adolescents' self-reports and parents' reports of depressed mood, mixed symptoms of anxiety–depression, and an analogue of major depression in large, matched national samples of referred and nonreferred adolescents. It was hypothesized that gender differences would be greater among referred than nonreferred youths, and that these differences would be more pronounced among self-reports than parent reports of symptoms. It was also expected that the largest effects would be found in reports of mixed anxiety–depression symptoms than in more pure measures of depressive symptoms (Silverstein et al., 1995). Consistent with the notion that gender differences in depressive symptoms emerge during the course of adolescence, it was expected that the magnitude of these differences would increase from early to late adolescence.

Method

Participants and Procedures

Nonreferred sample. Participants for the nonreferred sample were drawn from a general population sample who participated in a national, longitudinal study of child and adolescent psychopathology (e.g., Achenbach, 1991a; McConaughy, Stanger, & Achenbach, 1992). This sample was recruited in 1986 by Temple University's Institute for Survey Research. Participants were selected to be representative of 4- to 16-year-olds with respect to ethnicity, socioeconomic status, geographic region, and area of residence (urban, rural, suburban), within the 48 contiguous states. In 1986, only parent data were collected. In 1989, and then again in 1992, participants were contacted and data were obtained from parents and with parental consent, from teachers and children who were age 11 and above.

The nonreferred sample for the present study comprised adolescents for whom parent reports and self-reports were obtained in 1989. We selected only those youths who had not been referred for mental health services or special education classes for behavioral–emotional problems during the 12-month period before data collection (see Achenbach, 1991a, 1991b). Younger children were excluded because self-report data were not available for children younger than 11 years old, and we were interested in comparing findings for similar age groups across informants. Of the 1,168 adolescents in this sample, 963 had both parent reports and self-reports, 113 had parent reports only, and 92 had self-reports only. Adolescents who provided only self-reports came from families with significantly lower socioeconomic status (SES) than those of the other participants, $F(1, 1053) = 6.01, p < .003$, but these groups did not differ on any other demographic variables. Because comparisons between the referred and nonreferred samples were the focus of this study, all parent reports, as well as all self-reports, were used in these analyses. Table 1 displays the demographic data for the nonreferred adolescents with parent reports and adolescents with self-reports separately.

Clinically referred sample. Data for clinically referred adolescents were collected from a variety of mental health services throughout the eastern, southern, and midwestern United States (Achenbach, 1991a, 1991b). Parent data were collected from 52 mental health settings, and youth self-report data were collected from 26 different settings (for details on the demographic and geographic distribution of the entire clinical sample, see Achenbach 1991a, 1991b). Because of the heterogeneity of the clinical settings in which data were obtained, standardized diagnostic data were not available on this sample. The referred and

Table 1
Demographic Characteristics of Clinically Referred and Nonreferred Samples

Demographic	CBCL		YSR	
	Nonreferred (<i>n</i> = 1,076)	Referred (<i>n</i> = 1,076)	Nonreferred (<i>n</i> = 1,055)	Referred (<i>n</i> = 1,054)
Mean SES (and <i>SD</i>)	54.6 (21.6)	50.4 (24.1)	53.8 (22.0)	52.4 (23.9)
Mean age (and <i>SD</i>)	13.8 (2.0)	13.8 (2.0)	14.0 (2.0)	14.0 (2.0)
Sex (%)				
Girls	50	50	49	49
Boys	50	50	51	51
Ethnicity (%)				
White	75	75	73	75
Black	16	11	18	17
Native American	0.1	0.3	0.1	0
Hispanic	6.2	0.3	6.3	0.4
Asian	1	0.7	1	0.6
Other	1	2	2	2

Note. CBCL = Child Behavior Checklist; YSR = Youth Self-Report; SES = socioeconomic status.

nonreferred samples for both parent report and self-report were precisely matched for gender and closely matched for age, ethnicity, and SES scored on Hollingshead's (1975) 9-point scale (Stanger, MacDonald, McConaughy, & Achenbach, in press).

There were 2,022 adolescents in the clinically referred sample, of whom 108 had both parent reports and self-reports, 968 had parent reports only, and 946 had self-reports only. Adolescents who had both parent reports and self-reports came from families with significantly higher SES than those of other participants, $F(1, 2020) = 24.08, p < .0001$; no other comparisons on demographic variables were significant. As with the nonreferred sample, all available parent reports and self-reports were used in the analyses; demographic data of the referred adolescents are displayed in Table 1. Data are included from 1,076 parents and 1,054 youths who constituted the matched referred and nonreferred samples.

Measures

Depressed mood, the Anxious/Depressed Syndrome subscale, and an analogue of major depressive disorder (MDD) were assessed for both referred and nonreferred adolescents by parent reports and youth self-reports on the Child Behavior Checklist (CBCL; Achenbach, 1991a) and Youth Self-Report (YSR; Achenbach, 1991b), respectively. The CBCL is designed to obtain parents' reports on children aged 4–18, and contains 118 items that describe specific emotional and behavioral problems and two open-ended items for reporting additional problems. The YSR is a similar checklist designed to be completed by youths between the ages of 11 and 18. Problem items on the CBCL and YSR are scored on a 3-point scale: 0 = *not true (as far as you know)*; 1 = *somewhat or sometimes true*, and 2 = *very true or often true over the previous 6 months*. The CBCL and YSR are well suited to studies of depressive symptoms during adolescence for several reasons. First, they are among the most widely used instruments for the assessment of child and adolescent psychopathology (Brown & Achenbach, 1996). Second, they allow for comparison across informants on counterpart problems and scales. Third, they can be used to compare the three conceptualizations of depression described below. Fourth, the CBCL and YSR have shown excellent reliability and validity (Achenbach 1991a, 1991b; Achenbach, Howell, McConaughy, & Stanger, 1995).

The CBCL was completed by 749 mothers and 129 fathers in the referred sample (109 were completed by other informants, including stepparents or guardians, and 88 were not identified); and by 878 mothers and 163 fathers in the nonreferred sample (34 were completed by

other informants). The CBCLs completed by mothers and fathers did not differ in the age of the child or in responses to the depressed mood item in either sample, or in scores on the Anxious/Depressed Syndrome subscale in the nonreferred sample. In both samples, mothers reported higher scores than fathers on the analogue of MDD, and mothers reported higher scores on the Anxious/Depressed Syndrome subscale in the referred sample. In each of these cases, however the magnitude of the difference between maternal and paternal reports were very small (Cohen's *d* less than .2). Therefore, mother and father reports were included together in all analyses.

Depressed mood was operationalized by a single item of "unhappy, sad, or depressed." Although a single-item indicator is not optimal, this is the only item on the CBCL or YSR that is a direct reflection of depressed mood (Compas et al., 1993). Test-retest reliability of this item over 1 week was $r(80) = .70$ for parents on the CBCL and $r(121) = .67$ for adolescents on the YSR (Achenbach, 1996). As an indication of the clinical relevance of this item, it is strongly related to referral for mental health services, as referral status accounts for more variance (approximately 20%) in this item than any other item on the CBCL or YSR (Achenbach, 1991a).

A depressive syndrome was operationalized by the Anxious/Depressed syndrome, one of eight empirically derived, cross-informant syndromes derived from the CBCL and YSR (Achenbach, 1991a, 1991b). The Anxious/Depressed Syndrome subscale includes items reflecting both depressed and anxious affect: "complains of loneliness," "cries a lot," "fears he or she might think or do something bad," "feels he or she has to be perfect," "feels or complains that no one loves him or her," "feels others are out to get him or her," "feels worthless or inferior," "nervous, highstrung, or tense," "too fearful or anxious," "feels too guilty," "self-conscious or easily embarrassed," "suspicious," "unhappy, sad, depressed," and "worrying." Derivation of this syndrome was replicated in principal-components analyses with a large sample of children and adolescents in The Netherlands (Achenbach, Conners, Quay, Verhulst, & Howell, 1989; De Groot, Koot, & Verhulst, 1994). Internal consistency for the syndrome on the YSR was $\alpha = .84$ in the nonreferred sample and .71 in the referred sample; for the CBCL, $\alpha = .82$ in the referred sample and .86 in the nonreferred sample. Test-retest reliability of the syndrome over 1 week was $r(80) = .86$ for the CBCL and $r(120) = .81$ for the YSR (Achenbach, 1996). The 14 items on the syndrome subscale are scored 0, 1, or 2, for a total possible raw score of 28. Although there is considerable controversy about the use of a mixed syndrome of anxiety and depressive symptoms, principal-components analyses have not produced independent depression and

anxiety scales. This syndrome bears the closest relationship to depression of the eight empirically derived syndromes identified by Achenbach (1991a, 1991b). This syndrome is similar to other checklist measures of depressive symptoms (e.g., the Children's Depression Inventory, CDI; Kovacs, 1980) in that the symptoms on these measures are relatively heterogeneous. For example, the CDI includes symptoms of anxiety and externalizing problems, in addition to symptoms thought to be more characteristic of depression. Eight of the 13 items constituting the Anxious/Depressed Syndrome subscale have equivalent items on the 27-item CDI.

Because diagnostic interviews were not obtained from participants, depressive disorder was operationalized by an analogue of MDD (American Psychiatric Association, 1994) that was constructed from items on the CBCL and YSR that parallel *DSM-IV* criteria (Connor et al., 1997). We drew on guidelines used by previous researchers who have constructed similar indices of depression from the CBCL (e.g., Clarke, Lewinsohn, Hops, & Seeley, 1992; Fleming, Offord, & Boyle, 1989; Nurcombe et al., 1989; Rey, 1994). Appropriate checklist items were combined to create individual variables that closely match a particular *DSM* symptom. For example, the item "sleeps more" was combined with the items "sleeps less" and "trouble sleeping" to create a single variable to reflect the *DSM* symptom, "sleep disturbance." Similarly, "overeating" and "doesn't eat well" were combined to create a single variable for eating disturbance. To ensure that only symptoms of considerable severity were included, participants were considered to have a *DSM* symptom if they received a score of 2 (*very true or often true*) on any of the checklist items constituting the particular *DSM* symptom. The number of positive symptoms was then summed to create an analogue score that could range from 0 to 8. There were eight symptoms in total reflecting (a) depressed mood, or irritable mood or stubbornness, (b) sleep disturbance, (c) eating disturbance, (d) psychomotor problems, (e) fatigue or lethargy, (f) feelings of worthlessness or guilt, (g) difficulty concentrating, and (h) suicidal ideation. Anhedonia, an important but not necessary symptom for diagnosis of MDD, is not directly assessed by the versions of the checklists we used. Although the items reflect a good match for the *DSM-IV* symptoms of MDD, the CBCL and YSR include a 6-month time frame rather than 2 weeks as specified in the *DSM-IV*. Internal consistency reliabilities for the analogue were $\alpha = .60$ for the nonreferred sample and $.68$ for the referred sample on the CBCL; $\alpha = .61$ for the nonreferred sample and $.71$ for the clinical sample on the YSR.

Evidence for the validity of this analogue comes from several sources. The percentage of adolescents in the full national sample who exceeded the criteria for depression on the analogue (1.3%) was comparable with the percentage of adolescents who met diagnostic criteria for MDD on the basis of diagnostic interviews in the Oregon community study (Lewinsohn et al., 1993). Clarke et al. (1992) reported adequate sensitivity (85%) and specificity (84%) for a similar analogue when compared with *DSM* diagnoses derived from a structured clinical interview. Scores on the MDD analogue used in the present study are associated with social or functional impairment, as children who exceed the criteria for depression are significantly lower in social competence than those who do not meet criteria (Connor et al., 1997). Continuous rather than categorical scores on this analogue were used for two reasons. First, the use of continuous scores allowed for comparable analyses as those used with the mood item and the Anxious/Depressed Syndrome subscale. Second, the number of adolescents ($n = 5$ on the CBCL and $n = 8$ on the YSR) who met criteria for a depressive disorder in the nonreferred sample was too small for analysis.

Correlational analyses were performed within informants to compare these operational definitions of depressive symptoms with one another. These analyses revealed high within-informant correlations across the three different conceptualizations of depression in the referred sample, and moderate-to-high within-informant correlations in the nonreferred sample (these correlations were the same whether the depressed mood item was included in the score for the syndrome and analogue or it was

dropped from these scores; all $ps < .0001$). For referred adolescents, the highest correlations were observed between youth self-reports of mood and anxious/depressed syndrome, $r = .70$, and similarly between parent reports of mood and anxious/depressed syndrome, $r = .67$. Self-reports of depressed mood and the MDD analogue for referred adolescents correlated, $r = .53$, whereas self-reported Anxious/Depressed Syndrome and the MDD analogue correlated, $r = .70$. Parent reports of depressed mood and the MDD analogue correlated, $r = .54$, whereas parent reports of Anxious/Depressed Syndrome and the MDD analogue correlated, $r = .61$.

A similar pattern of correlations were observed for the nonreferred children, with the highest correlations (all $ps < .0001$) between self-reports of depressed mood and Anxious/Depressed Syndrome and between parent reports of depressed mood and Anxious/Depressed Syndrome ($rs = .65$ and $.59$, respectively). Moderate but significant correlations were found between the mood and MDD analogue scores for both self-reports, $r = .35$, and parent reports, $r = .30$. Finally, self-reported anxious/depressed syndrome and the MDD analogue correlated, $r = .56$, and parent-reported syndrome and MDD analogue correlated, $r = .47$. Thus, these correlations indicate that these three measures of depressive symptoms are conceptually distinct yet moderately to strongly correlated (Compas et al., 1993).

Analyses

To test for the effects of age, gender and referral status, we performed a series of analyses of variance (ANOVAs). This involved an 8 (Age: 11 to 18 years) \times 2 (Gender) \times 2 (Referral Status) factorial design for each informant on depressed mood, anxious/depressed syndrome and MDD analogue. The sample sizes were sufficient to detect small effect sizes for all main effects with a power of at least .90. We also had power of at least .80 to detect small-to-medium effects for all two- and three-way interactions. Although the distributions of some of the scores were highly skewed in the nonreferred sample, with a sizable percentage of youths receiving scores of zero, there was still sufficient variance to detect small-to-medium effects of gender, referral status, and the interaction of gender and referral status among both referred and nonreferred youths.

Interactions are typically unreliable and difficult to detect, especially if they are limited to one group (e.g., young adolescents) in a large sample such as the one in the present study. Therefore, to provide the most sensitive test of possible interactions among age, gender, and referral status, we conducted additional analyses separately on two age cohorts that represented early-to-middle and middle-to-late adolescence (cf. Ge et al., 1994; Hinden et al., 1997). To allow for direct comparison to analyses reported by Hinden et al. (1997), the early-to-middle adolescent cohort comprised 11- to 16-year-olds, and the middle-to-late adolescent cohort comprised 14- to 18-year-olds. Although these two cohorts overlap because of the inclusion of 14- to 16-year-olds in both cohorts, this was necessary to determine whether effects were more pronounced during the transition from early to middle adolescence than during the transition from middle to late adolescence.

Effect sizes were computed for all significant effects. Cohen's d was used to reflect the difference between the means as a function of the pooled standard deviation, and Cohen's criteria were used to establish small, medium and large effects. For example, a d of .1 would indicate the means for the two groups differed by one tenth of a standard deviation, or a small effect. Omega squared was used to represent the percentage of variance accounted for by main and interaction effects. For example, an ω^2 value of .01 would indicate that the observed effect accounted for only 1% of the variance (a small effect).

Results

YSR

Depressed mood. Results of self-reported depressed mood are illustrated in Figure 1, and significance values and effect

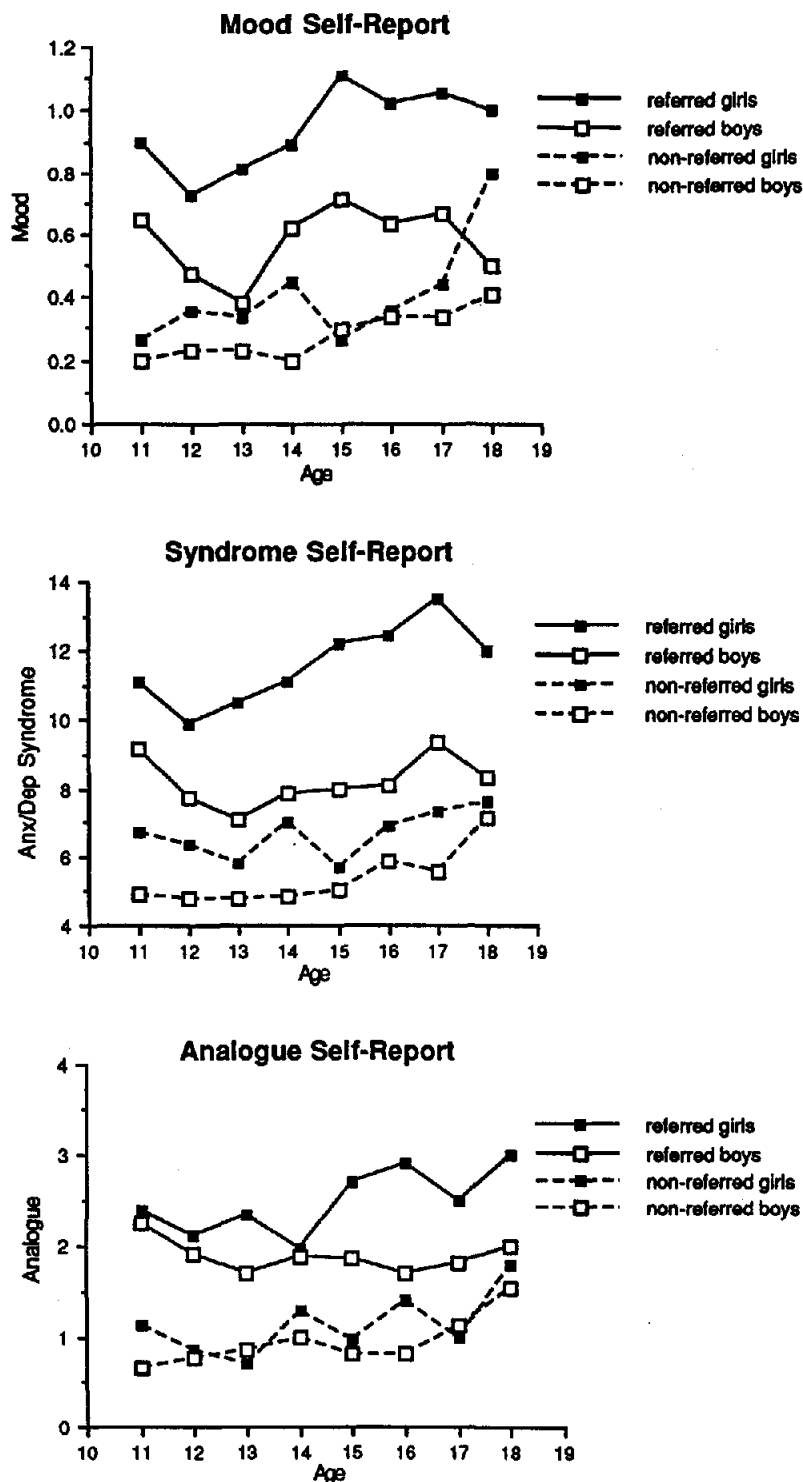


Figure 1. Adolescents' self-reports of depressed mood, Anxious/Depressed (Anx/Dep) Syndrome and analogue of major depressive disorder as a function of age, gender, and referral status.

sizes are summarized in Table 2. Analyses revealed significant main effects of referral status, $F(1, 2070) = 132.80, p < .0001$; age, $F(7, 2070) = 3.79, p < .0004$; and gender, $F(1, 2070) = 46.08, p < .0001$, indicating greater endorsement of depressed

mood by referred adolescents who were older and who were female. The Referral Status \times Age interaction was significant, $F(7, 2070) = 2.65, p < .01$, revealing a different pattern of scores by age depending on referral status. To further examine

Table 2
Analyses of Depressed Mood, Anxious/Depressed Syndrome, and Depression Analogue as a Function of Age, Gender, and Referral Status: Significant Effects and Effect Sizes

Report	Referral status	Age	Referral Status × Age	Gender	Referral Status × Gender	Age × Gender	Referral Status × Age × Gender
Parent report							
Mood	15.7*	ns	ns	0.3*	0.2*	ns	ns
Syndrome	13.4*	0.9*	ns	0.6*	0.2*	ns	ns
Analogue	13.2*	ns	ns	ns	ns	ns	ns
Youth report							
Mood	5.3*	0.8*	0.5*	1.8*	0.4*	ns	ns
Syndrome	5.3*	0.6*	ns	1.9*	0.3*	ns	ns
Analogue	5.2*	ns	ns	0.6*	0.1*	ns	ns

Note. Effect sizes represent omega squared, or the percentage of the variance accounted for.
 * $p < .05$.

the main effect of age, we conducted analyses of linear and quadratic trends on the scores for ages 11 to 18 (Howell, 1996). Separate analyses of trends for referred and nonreferred age groups revealed a significant quadratic trend, $F(1, 2070) = 5.47, p < .05$, for referred adolescents, with a peak of depressed mood between ages 15 and 17, whereas the trend for nonreferred adolescents was linear, $F(1, 2070) = 8.59, p < .05$, showing a gradual increase in endorsement of depressed mood with increasing age.

Different patterns for referred and nonreferred adolescents were also revealed by a significant Referral Status × Gender interaction, $F(1, 2070) = 10.28, p < .0001$. Simple effects revealed a significant gender effect in the expected direction for both the referred children, $F(1, 2070) = 49.90, p < .0001$, and nonreferred children, $F(1, 2070) = 6.42, p < .01$, with a stronger gender effect in the referred sample. The three-way Referral Status × Age × Gender interaction was not significant. Student–Newman–Keuls analyses (SNK; $p < .05$) revealed that all paired comparisons were significant (i.e., the four groups differed in self-reported mood scores, ranging in order from highest to lowest, of referred girls, referred boys, nonreferred girls, and then nonreferred boys).

Effect sizes (see Table 2) ranged from a medium effect for referral status, accounting for over 5% of the variance in depressed mood, to small effects for age, gender, Age × Referral Status, and Referral Status × Gender (all effects accounting for less than 2% of the variance). Gender accounted for 3.3% of the variance in the referred sample ($d = .48$), compared with only 0.8% in the nonreferred sample ($d = .19$).

Cohort analyses revealed a somewhat different pattern of effects for the 11- to 16-year-old cohort than for the 14- to 18-year-old cohort. For the younger cohort, main effects for referral status, age, and gender, as well as the interactions Referral Status × Age and Referral Status × Gender were all significant. For the older cohort, only the effects of referral status, gender, and Referral Status × Gender were significant. Thus, the analyses for the separate cohorts indicated that age effects were limited to the transition from early to middle adolescence. The Gender × Referral Status interaction, however, was significant throughout adolescence.

Anxious/Depressed Syndrome. Results of self-reports on

the Anxious/Depressed Syndrome subscale are shown in Figure 1 and summarized in Table 2. Main effects of referral status, age, and gender were significant, such that referred adolescents reported higher syndrome scores than nonreferred adolescents, $F(1, 2076) = 131.99, p < .0001$; scores increased with age, $F(7, 2076) = 3.07, p < .003$; and girls reported higher scores than boys, $F(1, 2076) = 47.99, p < .0001$. Trend analyses revealed a significant linear trend, $F(1, 2076) = 7.4, p < .05$, indicating that the syndrome scores increased for all four groups with increasing age; the quadratic trend was not significant. A significant Referral Status × Gender interaction, $F(1, 2076) = 9.49, p < .002$, revealed a pattern like that found in mood scores. Gender differences in both groups were in the expected direction (i.e., girls scored higher than boys), with a stronger effect in the referred than in the nonreferred sample, $F(1, 2076) = 50.09, p < .0001$; and $F(1, 2076) = 7.40, p < .007$, respectively. SNK analyses revealed that all paired comparisons were significant ($p < .05$); scores ranged from highest to lowest in the order of referred girls, referred boys, nonreferred girls, and nonreferred boys. Referral Status × Age, Referral Status × Age × Gender, and Age × Gender interactions were all nonsignificant.

The effect size for referral status was moderate, accounting for over 5% of the variance in Anxious/Depressed Syndrome scores, but the effects of age, gender, and the Referral Status × Gender interaction were all small, accounting for less than 2% of the variance in each case (see Table 2). Gender accounted for 3.3% of the variance in the referred sample ($d = .49$), and only 0.9% of the variance in the nonreferred sample ($d = .29$).

Cohort analyses indicated that the effects of referral status, gender, and the Referral Status × Gender interaction were significant for both the 11- to 16-year-old and 14- to 18-year-old cohorts. A main effect for age was significant only for the younger cohort.

MDD analogue. Results of the self-reports of the MDD analogue are shown in Figure 1 and Table 2. Main effects of referral status and gender revealed that referred adolescents reported significantly higher scores for the MDD analogue than nonreferred adolescents, $F(1, 2076) = 123.32, p < .0001$, and that girls reported significantly higher scores than boys, $F(1, 2076) = 10.40, p < .001$. The Referral Status × Gender interaction was significant, $F(1, 2076) = 5.11, p < .05$. The gender

effect was significant and in the expected direction for referred adolescents, $F(1, 2076) = 15.05, p < .0001$, and nonsignificant for nonreferred adolescents, $F(1, 2076) = 0.46, ns$. SNK analyses revealed that referred girls scored higher than all other groups ($p < .05$), referred boys scored higher than nonreferred girls and boys, and these latter two groups did not differ from one another. All other effects were nonsignificant.

Referral status produced a medium effect, accounting for over 5% of the variance in MDD analogue symptoms, whereas the effects of gender and the Gender \times Referral Status interaction were small, accounting for less than 1% of the variance (see Table 2). Gender accounted for 1% of the variance in the referred sample ($d = .25$), and gender was nonsignificant in the nonreferred sample.

Cohort analyses revealed that the main effects of referral status and gender were significant for both the younger and older cohorts. However, the Referral Status \times Gender interaction was significant only for the 14- to 18-year-old cohort.

Parent Reports

Depressed mood. Results of parents' reports of depressed mood for referred and nonreferred adolescents are shown in Figure 2 and summarized in Table 2. Referral status differences were significant, $F(1, 2112) = 456.84, p < .0001$, reflecting higher scores for referred adolescents. Gender differences were also significant, $F(1, 2112) = 9.67, p < .02$, with parents reporting higher rates of depressed mood for girls. A significant Gender \times Referral Status interaction, $F(1, 2112) = 8.21, p < .004$, indicated that parents of referred adolescents reported significantly higher depressed mood in girls than in boys, $F(1, 2112) = 17.83, p < .0001$, whereas parents of nonreferred adolescents reported equivalent depressed mood ratings for boys and girls, $F(1, 2112) = 0.03, ns$. SNK analyses ($p < .05$) comparing mood scores of the four groups of adolescents grouped by referral status and gender revealed three distinct groups of scores, with referred girls having the highest, referred boys having the next highest, and nonreferred girls and boys together in the lowest scored group. Age differences in parents' reports of depressed mood were not significant, nor were there significant interactions between age and gender, or among age, gender and referral status.

Effect sizes (see Table 2) for depressed mood ranged from a large effect for referral status, accounting for over 15% of the variance in depressed mood, to small effects for gender and the interaction of gender and referral status (each effect accounting for less than 1% of the variance). Gender accounted for 1% of the variance in the referred sample ($d = .22$), but gender was not significant in the nonreferred sample.

Cohort analyses indicated that the main effects of referral status and gender were significant for both the 11- to 16-year-old and the 14- to 18-year-old cohorts. The interaction of referral status and gender, however, was significant only for the younger cohort.

Anxious/Depressed Syndrome. Results of parents' reports on the Anxious/Depressed Syndrome subscale are plotted in Figure 2 and summarized in Table 2. Effects of referral status were significant, $F(1, 2118) = 378.75, p < .0001$, with higher scores for referred adolescents. There were also significant main effects of age and gender, revealing a general decline in syn-

drome scores with increasing age, $F(1, 2118) = 4.45, p < .0001$; and higher scores for girls than boys, $F(1, 2118) = 18.84, p < .0001$. Both linear and quadratic trends were significant, $F(1, 2118) = 12.4, p < .05$, and $F(1, 2118) = 21.0, p < .05$, respectively. This pattern shows a quadratic trend from ages 11 to 13, with a decrease in parents' ratings of the syndrome from ages 12 to 13, and a linear trend from 13 to 18, reflecting a gradual decline in scores with increasing age. A significant Gender \times Referral Status interaction, $F(1, 2118) = 6.27, p < .01$, indicated a main effect of gender in referred adolescents, with parents reporting significantly higher syndrome scores for girls than boys, $F(1, 2149) = 23.43, p < .0001$, and no gender effect in parents' reports of syndrome scores for nonreferred adolescents. Three distinct groups of syndrome scores emerged from SNK analyses ($p < .05$), with scores ranging from highest to lowest for referred girls, referred boys, and nonreferred girls and boys who did not differ from one another. The Age \times Gender and Age \times Gender \times Referral Status effects were not significant.

The effect size for referral status was large, accounting for over 13% of the variance in syndrome scores, but the effects of age, gender, and the Referral Status \times Gender interaction were all small, each accounting for less than 1% of the variance (see Table 2). Gender accounted for 1.4% of the variance in the referred sample ($d = .24$) and was nonsignificant in the nonreferred sample.

Cohort analyses revealed that the main effect for age and the Referral Status \times Gender interaction were significant only for the 11- to 16-year-old cohort. The main effect for referral status was the only significant effect for both the younger and older cohorts.

MDD analogue. Results of parents' reports of the MDD analogue are shown in Figure 2 and Table 2. Analysis revealed a significant effect of referral status, $F(1, 2118) = 355.18, p < .0001$, in the expected direction. However, no other effects were significant. The effect of referral status was large, accounting for over 13% of the variance in MDD analogue symptoms.

Discussion

The present findings clarify both the pervasiveness and the magnitude of gender differences in depressive symptoms in adolescence. Gender differences in depressed mood, a syndrome of mixed symptoms of anxiety and depression, and symptoms of an analogue of major depression were either nonsignificant or very small in magnitude in a nationally representative sample of nonreferred adolescents. This is consistent with the general findings of research on gender differences, in which the effects of gender on individual psychological traits in the general population are typically small to moderate in magnitude (Eagly, 1995; Maccoby, 1990). In contrast, gender differences were significant and produced moderate effects in a matched sample of youths who had been referred for mental health services. These data indicate that adolescence is not characterized by pervasive gender differences in depressive symptoms in the general population; rather, gender differences are limited to a subgroup of adolescents who have been referred for mental health services, with referred girls consistently highest in depressive symptoms.

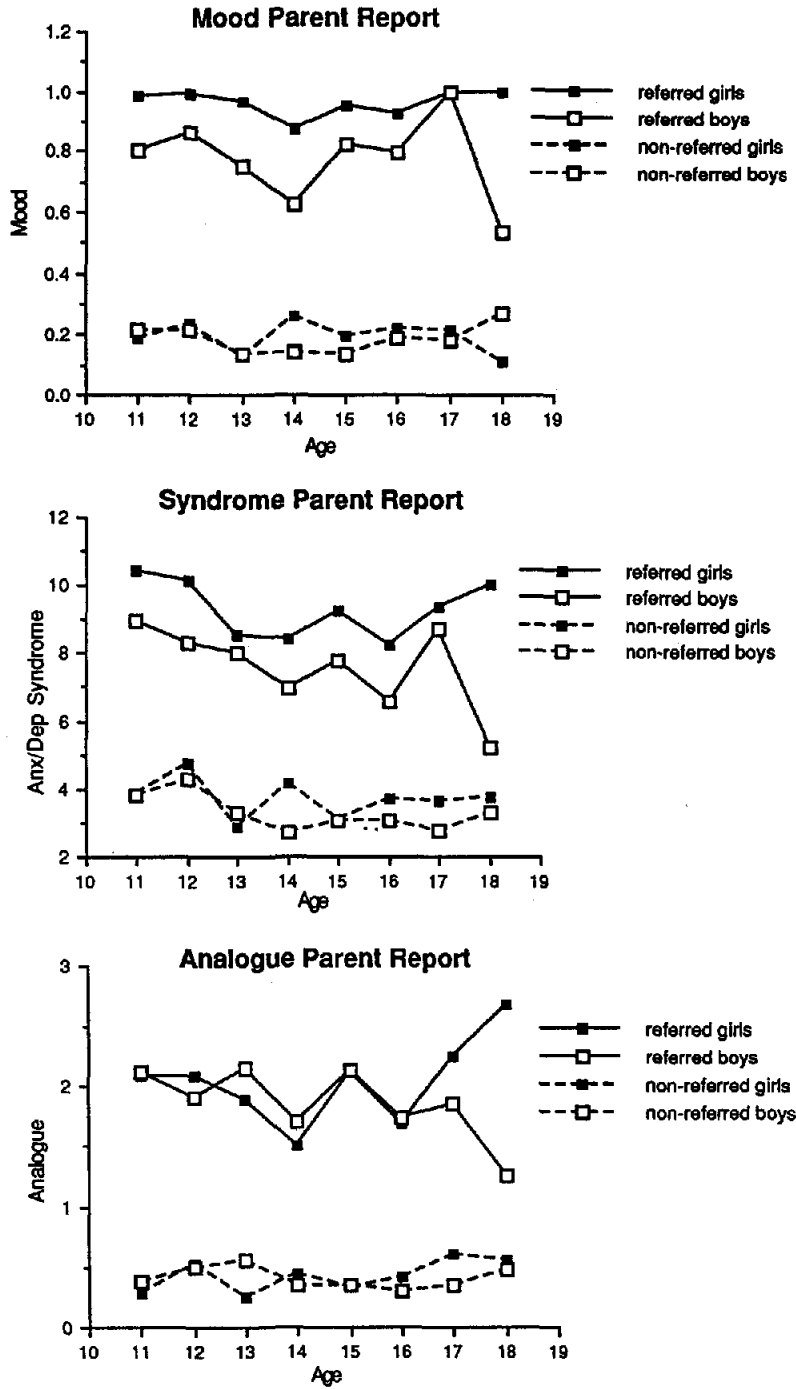


Figure 2. Parents' reports of depressed mood, Anxious/Depressed (Anx/Dep) Syndrome and analogue of major depressive disorder as a function of age, gender, and referral status.

It appears that most adolescent girls and boys do not differ substantially in the amount of sadness, unhappiness, fear, and anxiety that they experience. When the simple effects of gender were examined separately from referral status, nonreferred male and female adolescents did not differ in parents' ratings of mood, syndrome, or analogue, or in adolescents' ratings of the analogue of major depression. The only significant gender differences in nonreferred youths occurred in adolescents' self-reports of

depressed mood and the anxiety/depression syndrome. This is generally consistent with the findings reported by Silverstein et al. (1995) in a community sample of adolescents in which significant gender differences were found for self-reports of mixed symptoms of anxiety and depression but not for a more "pure" index of symptoms of major depression. This suggests that the largest gender differences occur in symptoms of affective distress (depressed and anxious mood), and smaller dif-

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ferences may exist in other symptoms of depression (e.g., sleep and appetite disruption, concentration problems).

The overall effects for referral status were large, accounting for 5% to 15% of the variance, with *ds* ranging from .7 to >1. Both boys and girls who were referred for mental health services scored higher than nonreferred youths in adolescents' self-reports and in parents' reports. In contrast with the small and typically nonsignificant gender differences in nonreferred youths, there were significant and substantial differences between clinically referred male and female adolescents—clinically referred girls were consistently higher than referred boys in all three forms of depressive symptoms. In self-reports of depressed mood and the Anxious/Depressed Syndrome, the effects for gender in the referred sample were three to four times greater than in the nonreferred sample. The referred girls constitute a particularly high-risk subgroup of adolescents who may differ from the general population in important, but as yet unidentified, ways. These findings are consistent with evidence of a greater proportion of adolescent girls than boys who meet *DSM* criteria for MDD (e.g., McGee et al., 1990), as those girls who meet diagnostic criteria may be more likely to be referred for mental health services. Alternatively, depressed adolescents are likely to be referred for mental health services and, thus, it is among referred youths that the strongest gender differences are likely to be found.

Research is needed to identify the processes that contribute to the high levels of depressive symptoms in a subgroup of adolescent girls who are eventually referred for mental health services. Studies restricted to adolescents who are not receiving mental health services or who are at low risk for depressive symptoms are unlikely to reveal the reasons for gender differences, as the gender differences in nonreferred samples are likely to be too small to detect processes that distinguish between boys and girls, even in very large samples. Community samples are likely to reflect processes that contribute to internalizing problems in both girls and boys, rather than factors that distinguish between them. For example, in a longitudinal study of a community sample from childhood to early adolescence, Nolen-Hoeksema, Girgus, and Seligman (1992) found that attributional style and stressful events predicted depressive symptoms, yet they did not find gender differences in these factors as predictors of depressive symptoms. Cognitive and interpersonal factors may contribute to gender differences in depressive symptoms, but only among a subgroup of the most distressed adolescents.

As expected, the magnitude of gender differences was somewhat larger in adolescents' self-reports of symptoms than in parents' reports. This can be interpreted as consistent with the general impression that adolescents will provide more sensitive reports of internalizing problems than will parents or other external observers (e.g., Kazdin, 1994). This may be a consequence of the relatively covert nature of most internalizing symptoms, which may not be readily observable to parents. Alternatively, rather than reflecting greater sensitivity in self-reports, these findings suggest that boys may be especially insensitive to or unwilling to report their own depressive symptoms. Parents' reports did reflect small but significant effects for gender in depressed mood and mixed anxiety/depression symptoms, and parents' reports were much more strongly associated with referral status than were adolescents' reports, with effect sizes for parent reports approximately three times as large as those for

adolescents' reports. Although parents apparently perceive fewer differences between boys and girls, they clearly play a dominant role in whether adolescents are referred for services. We, therefore, believe that it is important to consider both adolescents' and parents' reports of depressive symptoms. Moreover, because adolescents' and parents' reports show somewhat different patterns, it is important to examine them separately rather than combining the two data sources into a single index of depressive symptoms.

Surprisingly few effects were found for age in this sample, and none accounted for as much as 1% of the variance. Furthermore, the lack of interactions between age and gender indicated that the differences between boys and girls were similar throughout adolescence. These findings differ from those found in general population samples of adolescents in which the gender difference in depressive symptoms appears to emerge during early adolescence (Ge et al., 1994; Hinden et al., 1997). Samples representative of the general population include adolescents who have as well as those who have not received mental health services. For example, the Hinden et al. (1997) nationally representative sample included a small percentage of youths who had received mental health services in the past 12 months. The present findings suggest that gender differences observed in community samples may be the result of differences in a subgroup of youths referred for mental health services. Closer examination of previous studies also suggests that the interaction of age and gender may be more readily detected using longitudinal analyses of age changes than in cross-sectional analyses of age differences (Hinden et al., 1997).

The pronounced gender differences in depressive symptoms among referred adolescents suggest that greater attention needs to be paid to gender in interventions for the treatment of these problems. Previous controlled treatment trials have typically had insufficiently large samples to carefully test for gender differences in the impact of treatment or to tailor interventions to the distinctive needs and concerns of boys and girls. This should be a focus of future research efforts.

Future research can build on and address the limitations of the present study in several ways. First, the present study was limited by the use of a single-item measure of depressed mood. Future research needs to include more comprehensive measures of depressed mood. Second, the use of the Anxious/Depressed Syndrome subscale as an index of depressive symptoms warrants further attention. Specifically, the distinctiveness of the depression and anxiety symptoms within this syndrome requires closer analysis. Third, MDD was assessed by means of an analogue constructed from items on the CBCL and YSR and, as a consequence, is an imperfect representation of this disorder as defined in the *DSM-IV*. The prevalence of *DSM-IV* anxiety disorders and major depression as assessed by structured diagnostic interviews needs to be compared in community and clinically referred youths. The present data suggest that gender differences in prevalence rates may be limited to clinical samples. Fourth, the role of comorbid syndromes and disorders and their impact on gender differences in depressive symptoms needs to be considered (Compas & Hammen, 1994). Fifth, comparable data from younger samples are needed to determine whether similar patterns of gender differences are present among preadolescents. Finally, researchers now need to attend to those pro-

cesses that may account for pronounced gender differences among clinically referred adolescents.

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