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ABSTRACT

Although the majority of researchers are probably in agreement regarding the existence of childhood depression, there is less than consensus regarding its structure. In this study age-related differences in child and adolescent self-reports of depression were assessed using two different analytic strategies. Subjects were children (N=515) and adolescents (N=768) who were seeking or receiving services at in- and out-patient mental health facilities. Children's and adolescents' self-reports of depression were compared to determine if the levels of individual symptoms and associated features varied as a function of age. Second, the impact of age on the relations between symptoms was examined, testing for developmental differences in factor patterns of self-reported depression. The results of the study suggest a number of important parallels between childhood and adolescent depression. The adolescents and children differed significantly on only 3 of 26 of the Children's Depression Inventory items, with the children scoring higher on a somatic and an externalizing item, and the adolescents scoring higher on a relatively abstract item pertaining to worrying. In sum, whereas child versus adolescent differences in associated features were notable, other differences were less than striking, suggesting that self-expression of depressive symptomatology may be less marked than might be expected. (ABL)

Developmental Differences in the Self-reports of Depressive Symptoms: Clinic-referred Children versus Adolescents

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BACKGROUND

Although the majority of researchers are probably in agreement regarding the existence of childhood depression, there is less than consensus regarding its structure. While some investigators have taken the position that depression is essentially isomorphic in children and adults, others hold more of a developmental perspective.

One aspect of depression that has been hypothesized to vary with age are its "associated features". DSM-III-R (American Psychiatric Association, 1987), for instance, has proposed that depression in children may co-occur with somatic complaints, whereas depression in adolescents may be accompanied by "negativistic or frankly antisocial behavior". Empirical support for these hypotheses has been somewhat mixed (cf., Ryan, Puig-Antich, Ambrosini, Rabinovich, Robinson, Nelson, Iyengar, & Twomey, 1987; Weiss and Weisz, 1988; Garber, 1984), however.

In the present study, we tested for age-related differences in child and adolescent self-reports of depression using two different analytic strategies. We first compared children's and adolescents' self-reports of depression to determine if the levels of individual symptoms and associated features varied as a function of age. Second, we assessed the impact of age on the relations between symptoms, testing for developmental differences in factor patterns of self-reported depression.

METHOD

Measures

All children answered the Children's Depression Inventory (CDI; Kovacs, 1980). For a subsample of the subjects (156 of the children; 144 of the adolescents), parent-report Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) scores were available.

Subjects

A total of 515 children (ages 8-12) and 768 adolescents (ages 13-16) seeking or receiving services at 19 different in- and out-patient mental health facilities in the states of Alabama, Louisiana, North Carolina, South Carolina, Ohio, and Virginia served as subjects in this study.

RESULTS

Item-level results

Three items showed significant (with Bonferroni adjusted alpha=.0019) age-group differences. Adolescents scored higher on item 11 ("Things bother me all the time"; 0.60 vs. 0.44; point-biserial r=.10). Children scored higher on item 19 ("I worry about aches & pains all the time"; 0.68 vs. 0.47; r=-.14), and item 27 ("I get into fights all the time"; 0.49 vs. 0.28; r=-.18).

Factor Analysis

To assess age-related differences in symptom patterns, two factor analyses were performed, one on the child data, one on the adolescent data. The "parallel analysis technique" (Humphreys & Ilgen, 1969; Gorsuch, 1983) was used to determine the appropriate number of factors, subject to the requirement that there be no trivial factors (i.e., factors without at least two unique loadings above 0.30; Gorsuch, 1983). This resulted in five factors for both the adolescents and children. An oblique Promax rotation (Mulaik, 1972) using a Varimax target was selected for both the child and adolescent data (see Table 1 & 2).

Adolescent Factors:

I. Negative affectivity (sad, upset), with somatic concerns. The first adolescent factor appeared to reflect affective problems, such as feeling upset, sad, and lonely, loadings on items such as "I feel like crying every day", and "I am sad all the time". A second cluster of items appeared to involve somatic complaints, with loadings on items such as "I worry about aches and pains all the time" and "Most days I do not feel like eating".

II. Negative self-image. Factor II appeared to involve negative perceptions of the self, with loadings on items reflecting a belief that one is a "bad" person (e.g., "All bad things are my fault"; "I am bad all the time"), and on an item reflecting general negative feelings towards oneself ("I hate myself").

III. Anhedonic, socially isolated. Factor III apparently involved feelings of social isolation ("I do not want to be with people at all"; "I do not have any friends"), as well as anhedonia ("Nothing is fun at all"; "I never have fun at school").

IV. Externalizing problems. Factor IV appeared to reflect a perception that one is noncompliant ("I never do what I am told"), aggressive ("I get into fights all the time") and oppositional ("I am bad all the time").

V. School problems. This factor appears to reflect perceptions that one is having problems at school, loading on the three school-related CDI items (e.g., "I have to push myself to do my schoolwork").

Child Factors:

I. Negative affectivity (sad lonely), with somatic concerns. The first child factor, like the first adolescent factor, appeared to be comprised of a cluster of items involving negative affectivity (e.g., feelings of sadness and loneliness), and a cluster of items involving somatic concerns. The first child factor, however, differed from its adolescent counterpart in that the negative affectivity appeared to more involved with loneliness and less involved with feeling upset.

II. Externalizing problems, and negative self-image. The second factor for the children appeared to involve two clusters of items. The first cluster involves oppositional, aggressive behavior (e.g., "I never

do what I am told"; "I get into fights all the time"). The second cluster appears to involve a negative self-image, focusing particularly on feelings of guilt or self-blame (e.g., "All bad things are my fault").

III. School problems. This factor appeared to reflect perceptions that one is having problems at school, loading on the three school-related CDI items (e.g., "I have to push myself to do my schoolwork").

IV. Unloved. This factor apparently involved feelings that one is unloved by others ("Nobody really loves me") as well as by oneself ("I hate myself").

V. Negative affectivity (upset). Like the first child factor, this factor appeared to involve affective problems, in this instance, feeling upset. The two largest loadings for this factor were on "I feel like crying every day" and "Things bother me all the time". The third largest loading was on sleep problems, which suggests that sleep difficulties may be related to feeling upset.

Comparison of Child and Adolescent Data

Inter-group factor correlations. To compare the child and adolescent factors, correlations were computed between the first-order factors for the two groups (Gorsuch, 1983). These correlations, reported in Table 3, represent the degree of similarity between factors, across groups: the higher the correlation between an adolescent and child factor, the more similar the two factors.

Relation between somatic complaints, externalizing behavior, and depression

To assess the relation between CDI depression, and somatic and externalizing behavior, we correlated the CBCL Externalizing and Somatic Complaints scales with the CDI. We did this both with the derived CDI factor scores as well as with total CDI.

CBCL somatic complaints. For the adolescents, CBCL somatic complaints correlated significantly with factor I ("Affective problems, with somatic concerns"; r=.40), factor III ("Anhedonic, socially-isolated"; r=.39), and total score (r=.41; see Table 4). For the children, CBCL somatic complaints correlated significantly with factor II ("Externalizing problems and self-blame"; r=.25) and with total score (r=.25). The difference between the adolescent and child correlations for CBCL Somatic Complaints and total CDI was significant (z=2.89, p<.004).

CBCL externalizing behavior. As shown in Table 4, the CBCL externalizing behavior scale was correlated with adolescent factors IV ("Externalizing problems"; r=.34) and V ("School problems"; r=.31), as well as with total score (r=.30). For the children, CBCL Externalizing behavior scale was correlated with factor II ("Externalizing problems and negative self-image"; r=.33) and with total score (r=.25). The difference between the adolescent and child correlations for CBCL Externalizing scale and total CDI was not significant (z=.46, p>.50).

DISCUSSION

The results of this study suggest that there are a number of important parallels between childhood and adolescent depression. The adolescents and children differed significantly on only 3 of 26 CDI items, with the children scoring higher on a somatic and an externalizing item, and the adolescents scoring higher on a relatively abstract item pertaining to worrying.

Further, both groups produced five-factor solutions with several of factors quite similar. There were, however, some important differences between the children and adolescents. The child factor pattern appeared somewhat less coherent, the meaning of the factors somewhat less clear-cut. Further, the externalizing and the somatic factors were somewhat more distinct in the adolescents, which suggests that in the older group, these factors may be developing into separate disorders, correlated with depression. Both of these findings suggest that the patterning of depressive symptoms is somewhat less distinct or articulated in children.

The age groups also differed in the extent to which CDI depression and parental reports of CBCL symptoms were related. It may be that depression in children results in fewer outward signs, or influences overt behavior less; or it may perhaps be that parents are in general less aware of younger children.

In sum, whereas child versus adolescent differences in associated features were notable, other differences were less than striking. It is important, however, to remember that these results are based on self-reports, with their inherent potential for rater bias. Nonetheless, our findings do suggest that developmental differences in the self-expression of depressive symptomatology may be less marked than one might expect.

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Table 1

Factor pattern matrix, for first- and second-order factors

	Adolescent							Children						
Factor:	I:1	I:2	I:3	I:4	I:5	$\hat{h}^2$	II:1	I:1	I:2	I.3	I:4	I:5	$\hat{h}^2$	II:1
CDI item														
1. I am sad all the time.	0.520	0.282	0.111	-0.097	-0.095	0.57	0.616	0.522	0.008	-0.149	0.056	0.280	0.44	0.370
2. Nothing will ever work out for me.	0.153	0.319	0.171	-0.023	0.094	0.32	0.488	0.062	0.024	0.189	0.297	0.074	0.24	0.419
3. I do everything wrong.	0.000	0.315	0.343	0.143	-0.048	0.36	0.482	0.220	0.396	-0.063	0.094	0.026	0.31	0.414
4. Nothing is fun at all.	0.106	0.009	0.482	0.075	-0.001	0.33	0.440	0.284	-0.078	0.120	0.152	-0.010	0.15	0.261
5. I am bad all the time.	-0.075	0.357	-0.071	0.414	0.077	0.34	0.268	-0.031	0.462	-0.005	0.193	0.071	0.36	0.469
6. I am sure terrible things will happen to me.	0.326	0.181	0.032	0.155	0.012	0.28	0.442	0.286	0.221	-0.020	0.009	0.028	0.18	0.288
7. I hate myself.	0.101	0.474	0.149	-0.005	0.029	0.40	0.521	-0.032	0.026	-0.013	0.803	0.010	0.65	0.634
8. All bad things are my fault.	-0.010	0.605	-0.201	0.253	0.029	0.41	0.343	-0.200	0.454	0.154	0.170	0.169	0.45	0.502
10. I feel like crying everyday.	0.718	0.098	-0.128	-0.142	-0.055	0.50	0.478	0.165	0.049	0.020	-0.069	0.666	0.52	0.424
11. Things bother me all the time.	0.663	0.058	0.015	0.187	-0.081	0.54	0.577	0.095	0.014	0.128	0.091	0.500	0.41	0.463

Table 1 (continued)

25. Nobody really loves me.	0.167	0.283	0.204	-0.143	0.047	0.29	0.450	0.088	0.109	0.020	0.525	-0.091	0.36	0.487
26. I never do what I am told.	0.035	-0.007	0.031	**0.545**	0.036	0.32	0.187	0.195	**0.545**	0.111	-0.040	-0.084	0.42	0.422
27. I get into fights all the time.	0.010	-0.014	**0.310**	**0.463**	-0.006	0.36	0.321	0.285	**0.447**	0.008	0.021	-0.148	0.34	0.362
Variance explained, ignoring other factors	4.40	3.86	3.53	1.50	1.78		1.752	2.97	3.33	2.52	3.51	2.42		1.821
Variance explained, eliminating other factors:	1.33	1.00	0.87	0.90	0.70		1.752	1.36	0.96	0.92	0.81	0.85		1.821

Note: I:1 = first-order factor #1; II:1 = second order factor #1, etc. First order loadings > 0.30 are underlined and highlighted. $\bar{h}^2$ = communality estimates, based on first-order factor analysis.

Table 2

Inter-factor correlations

	Adolescents					Children				
Factor:	1	2	3	4	5	1	2	3	4	5
1	1.000	0.554	0.550	0.118	0.215	1.000	0.348	0.193	0.357	0.286
2	0.554	1.000	0.442	0.208	0.272	0.348	1.000	0.385	0.489	0.301
3	0.550	0.442	1.000	0.169	0.310	0.193	0.385	1.000	0.418	0.236
4	0.118	0.208	0.169	1.000	0.228	0.357	0.489	0.418	1.000	0.454
5	0.215	0.272	0.310	0.228	1.000	0.286	0.301	0.236	0.454	1.000

Table 3

Correlations between CDI, and CBCL Externalizing and Somatic Complaints scales, by age group

	Child Factors					
						Total
CBCL	I	II	III	IV	V	CDI
Somatic	0.157	0.248*	0.221	0.188	0.118	0.248*
Externalizing	0.211	0.333*	0.140	0.131	0.084	0.248*
Internalizing	0.162	0.204	0.190	0.109	0.047	0.207

	Adolescent Factors					
						Total
	I	II	III	IV	V	CDI
Somatic	0.403*	0.227	0.391*	0.230	0.242	0.409*
Externalizing	0.155	0.218	0.231	0.342*	0.313*	0.298*
Internalizing	0.281*	0.192	0.340*	0.228	0.266*	0.345*

* $p<0.003$ (minimum considered significant, based on Bonferroni correction).

Table 4

Correlations between adolescent and child factors

		Adolescent Factors				
		I	II	III	IV	V
Child Factors	I	<u>0.78</u>	0.55	<u>0.84</u>	0 37	0.32
	II	0.44	0.74	0.48	<u>0.80</u>	0.50
	III	0.37	0.56	0.48	0.44	<u>0.92</u>
	IV	0.63	<u>0.85</u>	0.66	0.34	0.49
	V	<u>0.87</u>	0.71	0.43	0.13	0.27

Note: $\underline{r} > 0.75$ are underlined and highlighted.