Prevalence and Risk Factors for Depression in Children: an Outpatient Pediatric Sample

UMAPORN TRANGKASOMBAT, M.D.*,
DUSIT LIKANAPICHITKUL, M.D.**

Abstract

The purpose of this research was to study the prevalence, type, and psychosocial stressors associated with depression. The subjects were 81 children who came to the outpatient pediatric clinic, Chulalongkorn Hospital. There were 39 boys and 42 girls with the age range of 9.3 - 15.3 years. The results of the study were as follows. The prevalence of depression was 34.6 per cent. Types of depression were depressive symptoms only, 7.4 per cent; adjustment disorder with depressed mood, 17.3 per cent; dysthymia, 6.2 per cent; and major depression, 3.7 per cent. Females had more severe symptoms than males. Of the depressed group, 60.7 per cent had previous suicidal behavior compared with 20.6 per cent in the non-depessed group ($p<0.001$). The rates of all psychosocial stressors were higher in the depressed group. Those with statistical significance were parental psychiatric illness, unstable living condition and history of abuse. Depressed children also experienced twice the number of psychosocial stressors compared with the non-depressed group ($p<0.01$). This study shows that depression is prevalent in children with physical illnesses. It is imperative that physicians be aware of this problem especially in children who have many psychosocial stressors.

Childhood depression has received increased attention over the last decade. In the past, many psychoanalytic schools believed that children could not have a true depressive illness because their internalized superego, which is essential to depressive illness, was absent or deficient[1]. However, it is now accepted that childhood depression exists and the diagnosis can be made by using adult's criteria with slight modification reflecting developmental levels[2].

A considerable body of evidence now shows that depressive symptoms are very common in referred populations with a variety of psychiatric, medical and educational problems[3]. In the United States the prevalence of depression in children varied from 1 per cent to 50 per cent depending on the method of assessment and the population studied[4]. Boonyaprakob found depression in 10.2 per cent of child psychiatric population[5]. A study by Limsuwan found, through retrospective chart

* Department of Psychiatry, Faculty of Medicine, Chulalongkorn University, Bangkok 10330,
** Yuwaprasart Hospital, Department of Mental Health, Ministry of Public Health, Nonthaburi 11000, Thailand.

review, depressive symptoms in 27 per cent of children who came to the psychiatric clinic[6].

There have been advances in the field of pediatric psychopharmacology especially in the treatment of depression during the past 15 years. Despite this, depression in children remains substantially unrecognised and untreated[7]. This probably stems from a variety of factors. Youth is supposedly a carefree period, so its discomforts are often dismissed as fleeting. Distinguishing transient sadness; unhappiness or grief from a depressive disorder is not always easy especially in young children. Sornmanee and Kubhitaksa found depressive features in only 14.6 per cent of children referred to mental hospitals. They suggested that the clinical features of depression in children were not as easily recognized as in adults and that childhood depression could be manifested in aggressiveness, hostility and delinquent behavior which led to misdiagnosis and inadquate treatment[8]. Another major problem in the diagnosis of depression is the differentiation of depression as a symptom (an occasional and short-lived dysphoric mood of no clinical significance) from depression as a syndrome (a pervasive and severe feeling of dysphoria pathognomonic of frank psychiatric disorder).

Research on depression in Thai children is scarce and mostly done by chart review of psychiatric samples. The pitfall of the retrospective chart review is that data are not systematically collected and important information may be missing. Studies done on psychiatric sample may be difficult to interpret since depression may coexist with many psychiatric disorders. Such disorders also have symptoms and signs that resemble depression and to distinguish them from depression is sometimes difficult. This study was therefore undertaken in an outpatient pediatric population, a group which is considered to be "nondisturbed". The purpose of the study was 1). to determine the existence of depression in a nonpsychiatric sample, and given its existence, to determine prevalence rates and identify subtypes; and 2). to identify psychosocial stressors associated with depression in children.

MATERIAL AND METHOD

This study is a part of the Depression Project of the Department of Psychiatry, Chulalongkorn University. The population sampled in this study were children who came to the outpatient pediatric clinic. The inclusion criteria were age 10-15 years, and the ability to give information regarding him or herself. Children who were in acute distress (such as having high fever, were hyperventilating or in severe pain) and children not accompanied by caretakers who could provide information about the children and their families, were excluded from the study. All children entered the study with caretakers' consent.

The child and the caretaker were interviewed before they were seen by the pediatrician. A research assistant or the second author did a 1/2 - 1 hour interview with the caretaker by using a semi-structured interview form which elicited information about reasons for seeking pediatric help for the child, past history of psychiatric, medical or developmental problems, family and peer relationships, the presence or absence in the past or present of specific somatic, academic, and behavioral problems, the psychosocial history of the family, and the current stressors in the child's immediate environment. Questions were also focused on other risk factors for emotional illness in children. In the meantime the child was given the Children's Depression Inventory (CDI), Thai version, to be completed by him or herself without any help from the caretaker. The CDI is a 27-item, self-report, symptom-oriented scale that was designed by Kovacs for use in school aged children and adolescents[9]. It's readability is at the first-grade level. It quantifies an array of depressive symptoms including disturbed mood, hedonic capacity, vegetative functions, self-evaluation, and interpersonal behaviors. Response on the CDI items are made on a 3-point scale, ranging from 0, indicating that a symptom was present "rarely or none of the time", to 2 indicating that a symptom was present "most or all of the time". Thus, the total score can range from 0 to 54. The respondent was instructed to select the one sentence for each item that best described him or her for the past 2 weeks. The statistical study of the CDI, Thai version, was done in Thai children. It was found to have good reliability and discriminant validity. The score of 15 was a cut off point for significant depression[10].

After the child completed the CDI, the first author interviewed the child and the caretaker together and separately. Psychiatric evaluation was performed with the focus on the depressive symtomatology. The outpatient record of the child was

reviewed when possible. At the end of the evaluation the subjects were classified, according to the diagnostic criteria of the American Psychiatric Association (DSM III-R)[2], into 2 groups; the nondepressed group in which no depressive symptoms could be found and the depressed group in which depressive symptoms or depressive disorders were diagnosed. The CDI scores and psychosocial variables of both groups were compared, using Chi-square, *t*-test and Fisher's Exact Test as appropriate.

RESULTS

Characteristics of the sample (Table 1)

There were 81 subjects (39 boys, 42 girls). The ages ranged from 9.3 to 15.3 (mean = 12.6, SD = 1.5 years). Most subjects came from small families with 2-3 children and the average family income was over 5,000 baht per month.

Reasons for pediatric visits (Table 2)

Most subjects came to the outpatient clinic for acute problems. The most common was upper respiratory tract infection. Some children came for periodic check-up for chronic medical problems such as hemoglobinopathies, hemophilia and congenital heart diseases.

Table 1. Characteristics of the sample. (N=81)

	N	%
age (mean ± SD) = 12.6 ± 1.5 years		
educational level of fathers:		
no education	1	1.2
Prathom 1-7 (Primary education)	38	46.9
Matayom 1-6 (Secondary education)	19	23.5
College	11	13.6
Bachelor's degree or higher	5	6.2
no information	7	8.6
average family income per month (baht)*		
0-2,000	3	3.6
2,000-5,000	19	23.2
5,000-10,000	27	32.9
above 10,000	23	29.3
no information	9	11.0
number of children in family		
1	11	13.4
2-3	53	65.9
≥ 4	17	20.7

* Baht 25.- in approx. US$ 1.-

Table 2. Chief complaints.

	N	%
URI	20	25.6
abdominal pain	11	13.4
skin problems	8	9.8
blood disease	8	9.8
post-operative follow-up	8	9.8
palpitation/chest pain	4	4.9
headache	4	4.9
neck mass	3	3.7
seizure	2	2.4
arthralgia	2	2.4
vaccination	2	2.4
epistaxis	1	1.2
heart disease	1	1.2
fainting	1	1.2
hepatitis	1	1.2
others	5	6.1

Table 3. Psychiatric diagnoses. (N=81)

	N	%	M:F ratio
nondepressed	53	65.4	1:1
depressive symptoms only	6	7.4	5:1
adjustment disorder	14	17.3	1:2.5
dysthymia	5	6.2	1:1.5
major depression	3	3.7	1:2

Psychiatric diagnoses (Table 3)

On psychiatric evaluation 53 subjects (65.4%) were classified as non-depressed, that is, they did not display any symptoms or signs of depression. Twenty-eight subjects (34.6%) manifested a wide range of depressive symptoms. By DSM III-R criteria they were classified as follows:

1). Depressive symptoms only. This included 6 subjects whose interview indicated the presence of some symptoms requisite for depression but with insufficient duration. The symptoms did not result in dysfunction and treatment was not required.

2). Adjustment disorder with depressed mood. This category consisted of 14 children who, following psychosocial stressors, developed depressive symptoms which interfered with their daily function. The 2 most frequent stressors that precipitated depression in these children were physical illnesses and family problems especially parental discord. (Table 4)

Table 4. Precipitants or stressors in 14 children with adjustment disorder*

	N	%
physical illness	7	33.3
family problems	6	28.6
death of family member	3	14.3
learning problem	3	14.3
separation from family	2	9.5

* Problems total more than 14 because some children had more than one stressor.

3). Dysthymia. Five subjects received this diagnosis. The depressive symptoms and dysfunction went on for more than 1 year. Some children reported having been "sad since I was young" or "miserable as far as I can remember".

4). Major depression. Three subjects received this diagnosis. The depressive symptoms especially dysphoria, anhedonia and psychomotor retardation were severe and marked impairment was easily noticed during psychiatric interview. Two girls had "double depression", the condition which the major depressive episode superimposed on prexisting dysthymia.

In each diagnostic category, females outnumbered males with the exception of the first category in which males outnumbered females at the ratio of 5:1.

Comparison between depressed and nondepressed groups (Table 5)

Age and sex The mean age of the depressed group was slightly lower and the number of female subjects was slightly higher than in the other group. However, the difference was not statistically significant.

CDI scores The results of the CDI which measured the severity of depressive feelings were compared. The CDI scores in the depressed group is significantly higher than in the nondepressed group ($p<10^{-6}$).

Suicidal behavior Seventeen subjects (60.7%) in the depressed group reported or displayed previous suicidal behavior. Only 11 children (20.6%) in the nondepressed group reported such behavior. The difference was statistically significant ($p<0.001$) with the odds ratio of 5.9 and 95 per cent confidence interval between 1.93-18.5, which means that suicidal behavior was 6 times more frequent in depressed children compared with the nondepressed. The suicidal behavior in the depressed children ranged from ideation (14 cases) to threat (1 case) and attempt (2 cases). In the nondepressed it was limited to suicidal ideation only.

Psychosocial stressors

Psychosocial stressors in nondepressed and depressed subjects were compared (Table 6). The rate of children who experienced a particular type

Table 5. Age, sex, CDI scores and suicidal behavior in depressed and non-depresed groups.

	depressed (N=28)	non-depressed (N=53)	P
age : mean ± SD (years)	12.3 ± 1.6	12.8 ± 1.5	NS
sex male	12	27	NS
female	16	26	
CDI scores : range	8-34	0-20	
mean	19.0	8.8	<10-6
suicidal behavior *	17	11	<.001
number of psychosocial stressors	4.8	2.4	<.01

* odds ratio = 5.9, 95% confidence interval = 1.93-18.5

Table 6. Psychosocial stressors.

	depressed		non-depressed	
	N	%	N	%
psychiatric illness in family*	17	60.7	13	24.5
economic problem	17	60.7	19	35.9
parental fights	14	50.0	14	26.4
suicidal behavior in family	13	46.4	21	39.6
separation/divorce	11	39.3	9	17.0
physical illness in family	11	39.3	15	28.3
crowded living situation	10	35.7	9	17.0
unstable living condition**	9	32.1	4	7.6
chronic/severe physical illness in child	9	32.1	11	20.8
separation from family	5	17.9	4	7.6
parental death	5	17.9	3	5.7
parent's unemployment	5	17.9	7	13.2
history of abuse***	4	14.3	0	0
death of family member in past year	4	14.3	2	3.8

* $p<0.01$, odds ratio = 4.76, 95% confidence interval = 1.60-14.43
** $p<0.01$, odds ratio = 5.80, 95% confidence interval = 1.39-25.90
*** $p=0.01$, odds ratio undefined

of psychosocial stressors was higher in the depressed group than in the nondepressed. Factors found to be statistically significant were parental psychiatric illness, unstable living conditions and history of abuse. Compared with nondepressed group, depressed children experienced more psychosocial stressors. The average number of psychosocial stressors experienced by nondepressed and depressed children was 2.4 and 4.8 respectively ($p<0.01$).

DISCUSSION

This is the first systematic study of depression in Thai children. It provides information on the prevalence of depression in a pediatric sample of children between the ages of 10 and 15, with the reported prevalence of 3.7 per cent for major depression, 6.2 per cent for dysthymia and 17.3 per cent for adjustment disorder with depressed mood. This reported prevalence is comparable to that found in Kashani et al's study, documenting prevalences of 4.7 per cent and 3.3 per cent for major depression and dysthymia, respectively, among a community sample of 14-16 year-olds[11].

Depression exists as a spectrum, ranging from the mildest form to full blown syndromal depression[4]. The current study shows that it is possible to differentiate various types of depression by using systematized interview focusing on the child and his context.

In this study children who had few depressive symptoms with no clinical impairment were found in 7.4 per cent. Anderson et al found in their study of preadolescent children from the general population that 6.44 per cent of children reported mood disturbance of 2 weeks or more but not with sufficient severity[12].

It is interesting to note that for various types of depression females outnumbered males. However, in the group with depressive symptoms only, males exceeded females at the ratio of 5:1. The cluster of males at the mild end of the depressive spectrum is in agreement with many previous studies which found that, compared with males, females have a tendency to develop severe depression[13,14].

Double depression exists in children. In Kashani et al's study all children with major depression had coexisting dysthymia[11]. In this study dysthymia coexisted in 2 of 3 subjects who met the criteria for major depression. Both of them were female. The mother of one girl suffered from episodes of major depression with psychotic features. The other girl had severe and longstanding stressors. She had chronic somatic complaints and had made 2 previous suicidal attempts. Her mother also suf-

fered from dysthymia and had had multiple suicidal attempts in the past. Depression in this age group is associated with physical symptoms such as poor sleep, poor appetite and pain[15]. Physicians may find it difficult to distinguish depression from medical conditions. However, careful psychiatric examination focusing on mood disturbances, cognitive and social function of the child usually leads to correct diagnosis.

Children can develop depression as a reaction to physical illness. In this study many children received the diagnosis of adjustment disorder with depressed mood. The physical illnesses which precipitated the depressive episodes were either chronic or debilitating in nature. Uncertain diagnosis after a long period of extensive investigation can also contribute to these depressive episodes.

Stressful life events have a definite impact on the child. A study by Kashani et al in preschool children found greater prevalence of depressive symptoms in children who had a higher number of stressful life events[16]. Lower socioeconomic status was found to be associated with higher depressive symptom scores[17]. In this study all types of psychosocial stressors were found in higher percentage in the depressed group. Significant risk factors were parental psychiatric illness, unstable living conditions and history of abuse. Depressed children in this study experienced twice the number of psychosocial stressors than the nondepressed. Stressful life events such as concurrent maternal psychopathology and poor physical health increase the risk of anxiety disorder in children with depression[8]. Many children in this study exhibited symptoms of anxiety such as palpitations, shortness of breath etc.

Depression is one of a few psychiatric disorders that are associated with high morbidity and mortality. In this study it was found that depression was associated with 6 times more frequent suicidal behavior compared with the non-depressed group. Recovery was found to be most favorable for adjustment disorder (90% remission rate during 9 months) and least so for dysthymia (89% remission rate during 6 years)[19]. Early age at onset predicts a more protracted illness. A study by Kovacs et al found that dysthymia and major depression signaled a high risk of recurrent depressive illness. Children who recovered from the first episode of major depression would develop the second episode within 2 years[20].

The importance of recognizing depression in the pediatric population can not be overemphasized since delayed treatment can be disasterous. However, failure to recognise depression is common in this population. In this study none of the depressed children were referred to psychiatrists despite many visits to the outpatient clinic. Untreated depression results in functional impairment in many areas of the child's life such as academic failure and interpersonal relationships. Depressive disorder is one of the most important risk factors for suicidal behavior in children. It is imperative that pediatricians recognise depression in children and give appropriate intervention to prevent any serious consequences.

SUMMARY

A descriptive study of depression in an outpatient pediatric population revealed the prevalence of 3.7 per cent for major depression, 6.2 per cent for dysthymia, 17.3 per cent for adjustment disorder with depressed mood and 7.4 per cent for depressive symptoms without clinical impairment. In depression with clinical impairment females outnumbered males. Depressed children displayed suicidal behavior and experienced psychosocial stressors more than nondepressed children.

(Received for publication on May 17, 1996)

REFERENCES

1. Cytryn L, McKnew DH, Bunney WE. Diagnosis of depression in children. Amer J Psychiat 1980; 137: 22-5.
2. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (Third edition -revised). Washington, American Psychiatric Press, 1987.
3. Angold A. Childhood and adolescent depression. I. Epidemiological and aetiological aspects. Br J Psychiat 1988; 152: 601-17.
4. Angold A. Childhood and adolescent depression. II. Research in clinical populations. Br J Psychiat 1988; 153: 476-92.
5. Boonyaprakob V. The prevalence of psychiatric problems in children. J Psychiat Assoc Thai 1976; 21: 293-307.
6. Limsuwan N, Noppon K. The prevalence of depression in children. J Psychiat Assoc Thai 1984; 29: 21-7.
7. Hodgman CH. Child and adolescent depression, in Behavior Pediatrics. Edited by Greydanus DE, Wolraich ML. New York: Springer-Verlag, 1992.
8. Sornmanee W, Kubhitaksa P. Depressive symptoms in Thai children. J Psychiat Assoc Thai 1972; 17: 1-12.
9. Kovacs M. The Children's Depression Inventory (CDI). Psychopharmacology Bulletin 1985; 21: 995-8.
10. Trangkasombat U, Likanapichitkul D. The use of Children's Depression Inventory, Thai version, as a screen for depression in children. Research Abstracts of the Scientific Annual Meeting of the Psychiatric Association of Thailand, 1993.
11. Kashani JH, Carlson GA, Beck NC, et al. Depression, depressive symptoms, and depressed mood among a community sample of adolescents. Am J Psychiat 1987; 144: 931-4.
12. Anderson J, Williams S, McGee R, et al. DSM-III disorders in preadolescent children. Arch Gen Psychiat 1987; 44: 69-76.
13. Kandel DB, Davies M. Epidemiology of depressive mood in adolescents- an empirical study. Arch Gen Psychiat 1982; 39: 1205-12.
14. Kashani JH, Sherman DD, Parker DR. The utility of the Beck Depression Inventory with clinic-referred adolescents. J Am Acad Child Adolesc Psychiat 1989; 29: 278-82.
15. Kashani J, Rosenberg T, Reid J. Developmental perspectives in child and adolescent depressive symptoms in a community sample. Am J Psychiat 1989; 146: 871-5.
16. Kashani J, Holcomb W, Orvaschel H. Depression and depressive symptoms in preschool children from the general population. Am J Psychiat 1986; 143: 1138-43.
17. Garrison C, Schluchter M, Schoenbach V, et al. Epidemiology of depressive symptoms in young adolescents. J Am Acad Child Adolesc Psychiat 1989; 28: 343-51.
18. Kovacs M, Gatsonis C, Paulauskas SL, et al. Depressive disorders in childhood. IV. A longitudinal study of comorbidity with and risk for anxiety disorders. Arch Gen Psychiat 1989; 46: 776-82.
19. Kovacs M, Feinberg TL, Crouse-Novak M, et al. Depressive disorders in childhood. I. A longitudinal prospective study of characteristics and recovery. Arch Gen Psychiat 1984; 41: 229-37.
20. Kovacs M, Feinberg TL, Crouse-Novak M, et al. Depressive disorders in childhood. II. A longitudinal study of the risk for a subsequent major depression. Arch Gen Psychiat 1984; 41: 643-9.
21. Trangkasombat U. Suicidal behavior in children. Chulalongkorn Medical Journal 1992; 37: 87-96.

ความชุกและปัจจัยเสี่ยงของภาวะซึมเศร้าในเด็ก: การศึกษาในผู้ป่วยนอก แผนกกุมารเวชศาสตร์

อุมาพร ตรังคสมบัติ, พ.บ., ดุสิต ลิขนะพิชิตกุล, พ.บ.***

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาความชุก ชนิด และปัจจัยทางจิตและสังคมที่เกี่ยวข้องกับภาวะซึมเศร้า โดยทำการศึกษาในผู้ป่วยที่มารับการตรวจในแผนกผู้ป่วยนอก กุมารเวชศาสตร์ โรงพยาบาลจุฬาลงกรณ์ จำนวน 81 ราย เป็นชาย 39 ราย และหญิง 42 ราย อายุตั้งแต่ 9.3 – 15.3 ปี ผลการศึกษาพบความชุกของภาวะซึมเศร้าร้อยละ 34.6 ชนิดของภาวะซึมเศร้ามีดังต่อไปนี้ ภาวะซึมเศร้าแบบเล็กน้อยร้อยละ 7.4 การปรับตัวผิดปกติแบบมีอารมณ์เศร้า (adjustment disorder with depressed mood) ร้อยละ 17.3 โรคซึมเศร้าเรื้อรัง (dysthymia) ร้อยละ 6.2 และโรคซึมเศร้ารุนแรง (major depression) ร้อยละ 3.7 เพศหญิงมีอาการซึมเศร้ารุนแรงกว่าเพศชาย ร้อยละ 60.7 ของกลุ่มที่ซึมเศร้าเคยมีพฤติกรรมฆ่าตัวตายมาก่อนในอดีต แต่เพียงร้อยละ 20.6 ของกลุ่มที่ไม่ซึมเศร้าเคยมีพฤติกรรมดังกล่าว ความแตกต่างนี้มีนัยสำคัญทางสถิติ ($P < 0.001$) การเปรียบเทียบปัจจัยเครียดทางจิตและสังคมพบว่าในกลุ่มที่ซึมเศร้ามีปัจจัยต่าง ๆ สูงกว่าทุกปัจจัย แต่ที่มีนัยสำคัญทางสถิติคือ การเจ็บป่วยทางจิตเวชของบิดามารดา การไม่มีที่อยู่เป็นหลักแหล่ง และประวัติการถูกทารุณทางกาย นอกจากนี้ยังพบว่าเด็กที่มีภาวะซึมเศร้าจะมีปัจจัยเครียดสูงกว่าเด็กที่ไม่ซึมเศร้าถึงสองเท่า การศึกษานี้แสดงให้เห็นว่าภาวะซึมเศร้าเป็นปัญหาที่พบได้บ่อยในผู้ป่วยเด็กที่มีโรคทางกาย จำเป็นที่แพทย์จะต้องตระหนักถึงปัญหานี้ โดยเฉพาะในกลุ่มที่มีปัจจัยเครียดทางจิตและสังคมสูง

* ภาควิชาจิตเวชศาสตร์, คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย, กรุงเทพฯ 10330

** โรงพยาบาลยุวประสาทไวทโยปถัมภ์, กรมสุขภาพจิต, กระทรวงสาธารณสุข, จ.นนทบุรี 11000