

Follow-up of Preschool Children with Severe Emotional and Behavioral Symptoms

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Abstract: *Background:* Biological and environmental factors have been related to the persistence of psychopathology in preschool children. The objective of the study was to identify the factors predicting the clinical outcome in preschool inpatients with emotional and behavioral disorders. *Method:* Twenty-eight children aged 3 to 6.5 years attending a therapeutic nursery were evaluated. Clinical data were collected from the children's charts, including: biological parameters, developmental milestones, intelligence level, socioeconomic status, and stressful life events. Severity of symptoms at follow-up was assessed using the Clinical Global Impression Scale. *Results:* Low socioeconomic status, excess stressful life events, and female gender were associated with poor clinical outcome. Biological factors such as pregnancy and birth complications and genetic factors were not significant predictors. *Limitations:* The study was limited by its retrospective design and small sample size. *Conclusions:* More effort in social interventions and supportive family therapy may improve the outcome of young children with emotional and behavioral problems.

Introduction

Behavioral and emotional problems are common in preschool children, occurring to a moderate to severe degree in 7 to 21% (1, 2). Although children and adolescents with psychiatric disorders often have a history of problems that began in the preschool years (3), there are relatively few studies on the continuity of behavioral and emotional problems from preschool to later life. This information is important to clinicians treating young children and may lead to a better understanding of the factors that contribute to the evolution and fixation of psychopathology.

Child development in the preschool years is marked by rapid shifts, and it is often difficult to distinguish between age-appropriate behaviors, transient conflicts and symptoms, and true psychiatric morbidity (4, 5). Yet early intervention may be crucial.

Studies have shown that half the children who have disruptive or emotional behavioral problems at age 3 meet the criteria for a psychiatric disorder at

age 6 and at adolescence (2, 6–8). These data indicate that psychiatric problems may persist in individuals who fail to show an improvement in symptoms during early follow-up (4).

Several environmental factors have been linked with the development of psychopathology in preschool children and to its persistence to school age. These include general adverse family circumstances, such as low socioeconomic status, stressful life events, such as single parenting, poor family relations, moves, and serious illness of a relative, and family psychopathology (2, 4, 6–11). The role of biological factors is less clear. Pregnancy and birth complications, low IQ, and gender were reported to be associated with slightly higher rates of behavioral problems in some studies but not in others (2–4, 7, 12).

The aim of the present study was to determine which of the above-mentioned factors are predictive of the clinical prognosis in children with mixed psychiatric disorders treated in a psychiatric setting.

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Methods

Subjects

Twenty-eight children aged 3 to 6.5 years consecutively admitted to the therapeutic nursery of Ge'ha Mental Health Center from September 1998 to March 2000 were included. These children were diagnosed as suffering from developmental and emotional-behavioral disorders, including: pervasive developmental disorders ($n=3$), attachment disorders ($n=3$), attention deficit and hyperactivity disorder (ADHD) ($n=3$), conduct disorder ($n=5$), adjustment disorder ($n=4$), anxiety disorders ($n=9$), and eating disorders ($n=1$). Referrals were by pediatricians, school psychologists and social services.

The therapeutic nursery is a part of the children's day department which was established 20 years ago. It is located in central Israel and serves the local population. The therapeutic work is based on a unique model in which the child attends both a community nursery and therapeutic nursery school. In addition, ambulatory treatment is offered for preschoolers and first-graders. The therapeutic program is tailored for every child and family. It consists of individual play therapy, parental counseling, dyadic therapy, family therapy, parent-child movement groups, music therapy, art therapy, occupational therapy, speech therapy, pet therapy, parental or sibling support groups, pharmacological treatments and educational intervention. All children had spent at least 12 months in the program. Emphasis is on continuous collaboration with the nursery school in the community, and with regional psychological and social services.

Written informed consent was obtained from the parents. Ten subjects received the therapeutic program during the whole week, 10 came 3 days per week, and 8 were receiving ambulatory treatment. Weekly psychotherapy sessions, parental counseling, remedial education, speech and occupational therapy, and multiple-milieu activities were provided in all cases attending the nursery. Subjects treated in the ambulatory setting were provided with child and parent psychological treatments only.

Assessment

Intake. Clinical data were collected from the children's charts from April to June 2001 using a coding

procedure developed for this study. The following parameters were recorded:

1. Pregnancy and birth complications (maternal bleeding, high-risk pregnancy, premature labor, prolonged labor, prolapse of cord, low birth weight) and perinatal complications (seizures, infections, feeding or breathing problems, and pathological jaundice) as assessed by the Obstetric Complications Scale (13).
2. Milestones of walking and speech.
3. Intelligence scores on the Kaufman Assessment Battery for Children and 4 verbal scales of the Wechsler Preschool and Primary Scale of Intelligence (WPPSI).
4. Abnormal findings on neurological examination: micro/macrocephaly, cranial nerve dysfunction, hypo/hypertonicity, abnormal deep tendon reflexes and pyramidal signs.
5. Socioeconomic status as assessed by the Hollingshead Factor Index of Social Status (14). Raw scores range from 8 (lowest socioeconomic status) to 66 (highest socioeconomic status). In homes with two employed parent figures, the scores were averaged to obtain one score per family. The families were divided into 3 groups: class 1/2 (score 40 to 66), class 3 (score 30-39) and class 4/5 (score 8-29).
6. Stressful life events from birth to admission (parental/family discord, living out of the house, history of major medical illness, major trauma to child or parents, death of a close relative, and history of child abuse or neglect).
7. History of psychiatric disorders in the parents (attention deficit/hyperactivity disorder [ADHD], learning disability, psychotic disorder, affective disorder, anxiety disorder, drug abuse and criminality).

DSM-IV psychiatric diagnoses were made by consensus of two senior child psychiatrists (DG and SS) on the basis of the chart information. In addition, a primary diagnosis was given to each child. For the study, the primary diagnoses were clustered into 2 groups: emotional-reactive disorder (anxiety disorders, depressive disorders, reactive attachment disorder and adjustment disorder) and developmental disorder (ADHD, oppositional-defiant disorder,

conduct disorder and pervasive developmental disorder).

Follow-Up. At the time of the follow-up evaluation, mean stay at the nursery was 16.1 ± 8.9 months. The change in severity of symptoms of the primary diagnosis from baseline (admission) to the study end-point was assessed with the Clinical Global Impression Scale (CGI) Global Improvement score (15), by consensus of two senior child psychiatrists (DG and SS) who reviewed all the clinical files. Scores on the Clinical Global Impression scale are ranked on a 7-point Likert scale. For purposes of analysis, the children were divided by the Clinical Global Impression scale scores into 2 groups: Those who were very much improved (score 1 on the scale) or much improved (score 2) were clustered together into a group we called "improved"; those who were minimally improved (score 3) or showed no change (score 4) were clustered into the "not improved" group.

Data Analysis

The significance of differences in the clinical parameters between the groups by diagnosis and outcome was analyzed with chi-square and t-tests. Pairwise logistic regression was conducted to determine the contribution of each of the predictive factors to the clinical improvement.

Results

Seventeen patients had emotional-reactive disorders (9 anxiety disorders, 4 adjustment disorder, 3 reactive attachment disorder, 1 eating disorder) and 11 had developmental disorders (5 conduct disorder, 3 ADHD, 3 pervasive developmental disorders). There were no between-group differences in any of the background parameters. The study sample included 22 male and 6 female patients aged (mean \pm SD) 61.1 ± 13.1 months at admission. Treatment duration was 16.1 ± 8.9 months; IQ scores, 83.1 ± 16.3 (Kaufman) and 85.6 ± 22.3 (WPPSI); and number of pregnancy and birth complications, 1.3 ± 1.5 ; 43% were in the Hollingshead socioeconomic status class 1/2, 29% in class 3, and 28 in class 4/5. Thirteen children (46%) had delayed development of walking and 10 (36%) of speech.

On follow-up 64% of the children "improved" (Clinical Global Impression score 1 or 2) and 36% were "not improved" (score 3 or 4). None of the patients became clinically worse (score 5 to 7). No significant difference was found in the rate of improvement between the emotional-reactive disorder and the developmental disorder groups.

Table 1. Factors significantly differentiating subjects with much or no clinical improvement

	IMPROVED	NOT IMPROVED	STATISTICS
Total sample (n=28)			
Gender:			$\chi^2=7.6$; $p=0.006$
Male	17/22 (77.3%)	5/22 (22.7%)	
Female	1/6 (16.7%)	5/6 (83.3%)	
Neurological signs:			$\chi^2=4.4$; $p=0.04$
Present	11	2	
Absent	7	8	
Emotional-reactive disorder (n=17)			
Socioeconomic status	46.3 ± 21.1	27.4 ± 7.3	$t=-2.3$, $p=0.04$
Stressful life events	1.9 ± 1.1	3.7 ± 2.1	$t=2.3$, $p=0.04$
Psychopathology in parents			$\chi^2=9.3$; $p=0.03$
Drug abuse/criminality	0	4	
Mood disorder	3	0	
ADHD/LD	2	0	

ADHD= attention deficit/hyperactivity disorder, LD= learning disability

Table 1 summarizes the clinical factors found to be significantly different between the improved and not improved groups. Much improvement was associated with male gender and presence of neurological signs in the whole sample and with higher socioeconomic status, fewer stressful life events, and less drug abuse/criminality in the parents in the emotional-reactive disorders group. The other factors studied, namely, duration of treatment, primary diagnosis, pregnancy and birth complications, delayed development of speech or walking, and IQ scores, failed to differentiate between patients with much and no improvement.

A pairwise multiple regression analysis was performed, once for the total sample and once for the emotional-reactive disorders group, to determine the contribution of the following factors to global improvement: socioeconomic status, stressful life events, abnormal neurological signs, gender, Kaufman IQ scores and parental psychiatric disorders. For the total sample, only gender ($\beta=0.56$, $p=0.02$) and socioeconomic status ($\beta=0.44$, $p=0.02$), $r^2=0.46$ (0.40 adjusted) contributed significantly to the prediction of global improvement. For the emotional-reactive disorders group, socioeconomic status ($\beta=0.55$, $p=0.005$), stressful life events ($\beta=-0.47$, $p=0.01$), and abnormal neurological signs ($\beta=0.36$, $p=0.04$), $r^2=0.76$ (0.69 adjusted) contributed significantly to the prediction of global improvement.

Discussion

The present study of the continuity of emotional and behavioral problems in preschoolers showed that in 64% of the children, psychiatric symptoms significantly improved during the time they attended the therapeutic nursery school. This finding agrees with previous studies wherein about half the preschool children outgrew their behavioral problems (2, 6-8). Being that our children had relatively severe problems, the similar recovery rate is particularly encouraging. It may be attributable to developmental maturation, treatment efficacy, or both.

Male gender and presence of neurological signs had a positive influence on outcome. The male:female ratio in our study was 3.7:1, suggesting that preschool boys have higher rates of extreme behaviors requiring treatment in a psychiatric setting; however,

in the few girls who exhibit extreme symptoms, the prognosis is worse. The association of more abnormal neurological signs on admission with a better prognosis could be related to the fact that most of our hospitalized children suffered from developmental delays, expressed as motor, language and communication problems, which impaired their social and academic function. The improvement in these functions with the intensive occupational and speech therapy they received may have induced a secondary improvement in their psychiatric symptoms.

The study had two major findings which replicate most previous research in this age groups (4, 7, 8, 10, 11). In children with emotional and reactive disorders, who account for the majority of patients treated in our department, low socioeconomic status and high stressful life events have an overwhelming negative impact on development and may induce severe long-lasting psychiatric morbidity. Intrinsic biological risk factors, such as IQ, perinatal complications, and delayed milestones play a relatively minor role. Even parental drug abuse and criminality in parents, which could indicate a genetic contribution to outcome, were much less significant than socioeconomic status and stressful life events.

The present study was limited by its retrospective design and small sample size. Nonetheless, it indicates the need for more specific interventions, such as supportive family therapy for preschool children, especially girls who come from families of low socioeconomic status with many life stressors.

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