

Prevalence of mental disorders and associated factors in institutionalized 3-5 year old children

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Muhammed AYAZ¹, Ayşe Burcu AYAZ², Şaziye Senem BAŞGUL³, Işık KARAKAYA⁴, Şahika GÜLEN ŞİŞMANLAR⁵, Ahmet YAR⁶, Ekrem ŞENTURK⁷, Sema DİKMEN⁸

SUMMARY

Objective: In this study, we aimed to determine the prevalence and severity of mental disorders in institutionalized children between the ages of 3-5 years, investigate the factors associated with the mental disorders and compare these findings with the data of a community sample composed of children who were raised by their own families.

Method: Thirty-four children raised in three institutions in Kocaeli were compared with an age- and sex-matched community sample. Children were assessed according to DSM-IV diagnostic criteria. The Socio-demographic information form, and Early Childhood Inventory-4 (ECI-4) parent scale were used for data collection.

Results: Children that were reared in institutions had evidence of higher rates of mental disorders. In institution-reared children, symptom severity of attention deficit hyperactivity disorder, reactive attachment disorder, oppositional defiant disorder, and pervasive developmental disorder were higher than the community subjects. Age, time spent with father, duration of institutionalization, number of siblings, number of hospital admissions because of physical symptoms and presence of abuse before institutional care were determined to be predictive factors for psychiatric symptoms.

Conclusion: These findings revealed that institutionalized children are at risk for mental disorders and protective measures are as important as institutional care for these children. Our results suggest that essential steps should be taken to protect the mental health of children in institutional care.

Key Words: Institution-reared children, mental disorders, ECI-4

INTRODUCTION

When parents can not fulfill their responsibilities towards their children due to causes such as neglect, abuse, death of one or both parents, poverty, divorce, the presence of psychiatric diseases in parents or intra-family problems, children are taken into custody (Zeenah et al. 2003, Erol and Şimşek 2007).

Institutions are social service foundations which are responsible for the physical, educational and psychosocial development of children between the ages of 0 -12 years who are in need of protection and try to endow them with a healthy personality and good habits. Children who can not be cared for by their families or relatives and who can not be supported

while living with their families are placed into institutions. According to data from 2009, 6,395 children between the ages of 0-12 years reside in institutions in Turkey (Republic of Turkey Ministry of Family and Social Policies 2009).

Many of the children taken under institutional care are exposed to traumatic life events before being institutionalized. Moreover, difficulties in the institutionalization process and adjustment problems are seen as well. These children are confronted with problems such as desertion, neglect, refusal and inadequate education. The relationship between negative life events experienced in early childhood and psychological problems have been disclosed in many studies (Zeenah et al. 2009, Milot et al. 2010). Several factors may influence

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^{1,2}MD, Sakarya Training and Research Hospital, Child and Adolescent Psychiatry, Sakarya, ³MD, Göztepe Training and Research Hospital, Child and Adolescent Psychiatry, İstanbul,

⁴Assoc. Prof., ⁵MD, ^{6,7,8}Assist. MD, Kocaeli University Department of Child and Adolescent Psychiatry, Kocaeli, Turkey.

Muhammed Ayaz MD, e-mail: ayazmuhammed@yahoo.com

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Table 1. Sociodemographic characteristics of institutionalized children.

Characteristics	number (n=34)	Percent (%)
Status of parents		
together	8	23,5
divorced	6	17,6
live separately	16	47.1
one parent death	4	11.8
The cause of being institutionalized		
Divorce–living separately	11	32.4
Death of mother or father	2	5.9
Poverty	5	14.7
Neglect or abuse	8	23.5
Other	8	23.5
The presence of sibling institutionalized in the same place	30	82.4
The presence of sibling living with parents	6	17.6
History of abuse before being institutionalized	11	32.4
Change institution	2	5.9
Change caregiver	34	100
Seeing parents		
neither	9	26.5
both	12	35.3
only mother	5	14.7
only father	8	23.5
Staying with mother and/or father	7	20.6
Staying with relatives other than parents	2	5.9
Staying with volunteer family	8	23.5
Psychiatric evaluation before institutional care	9	26.5
The type of institution		
Ward type	18	52.9
Home type	16	47.1

the mental health of children, such as the child living with their family, being committed to institutional care due to family problems, the continuation of the relationship with the family after institutionalization, and exposure to family problems. The fact that parents are alive and do not care for their children may enhance feelings of desertion. It has been established that irregularity of family life has an adverse impact on the mental health of the child, both before and after being institutionalized if they continue to see their parents (Lee et al. 2010).

Children under institutional care experience developmental problems and growth retardation due to lack of health and nutrition needs and lack of stimulation. Lack of stimulation in the children and their need to form close contact lead to delays in general development, sensory-motor development, and language and intelligence development. Furthermore, lack of long term and permanent caregivers contributes to unfavorable influences on their social, behavioral, and emotional development (Gunnar et al. 2000).

Children reared in institutions display more hyperactivity, opposition, aggressive behavior, depression, anxiety and somatic complaints than children reared in families (Pluye et al. 2001, Ford et al 2007, Schmid et al. 2008, Şimşek et al.

2008). In studies where diagnosis was made according to DSM III-R (American Psychiatric Association 1987) and DSM IV (American Psychiatric Association 1994), institutionalized children and adolescents commonly displayed reactive attachment disorder-RAD (17-50%), conduct disorder-CD (17–45%), attention deficit hyperactivity disorder-ADHD (10-30%), depression (4–30%) and generalized anxiety disorder-GAD (4–20%). In these studies, it was established that 40-96% of the children under institutional care were diagnosed with at least one psychiatric disorder (Zeenah 2000, Tarren-Sweeney 2008). It was also determined that although the prevalence of psychological disorders was high in institutionalized children, referral to a hospital with psychological problems and psychopharmacological/psychotherapeutic treatment was seen at a low rate (Nützel et al. 2005).

Institutionalization at a younger age, a long duration of institutionalization, being institutionalized due to neglect and abuse, changes in institution, the presence of recurring physical disorders, poor caregiving and lack of communication with the family were established to be factors that may amplify emotional and behavioral problems (Şimşek et al. 2008). Genetic differences between children, traumas experienced, differences between experiences before and after being institutionalization, and inadequacy of the information obtained

Tablo 2. Psychiatric disorder diagnosis determined by DSM-IV based clinical interview, free play observation and ECI-4.

	Institution		Community	
	number	percentage	number	percentage
ADHD	14	41.2	3	8.8
ODD	9	26.5	2	5.9
CD	3	8.8	0	0
RAD	7	0	0	0
Anxiety disorders	10	29.4	9	26.5
Affective disorders	3	8.8	3	8.8
Eating disorders	0	0	1	2.9
Tic disorders	1	2.9	2	5.9
Sleep disorders	6	17.6	6	17.6
PDD	2	5.9	0	0
Diagnosis of psychiatric disorder	22	64.7	13	38.2

ADHD: Attention Deficit Hyperactivity Disorder, ODD: Oppositional Defiant Disorder, CD: Conduct Disorder, RAD: Reactive Attachment Disorder, PDD: Pervasive Developmental Disorder

from the family make it more difficult to carry out studies on these children (Lee et al. 2010). Since history is not obtained to a sufficient degree in institutionalized children and scales are not adequate for this age group, investigators usually focus on behavioral problems, and developmental, language, and cognitive retardation. There are very few studies screening for psychiatric disorders in this age group. In a study performed in Romania, based upon the feedback from caregivers of the institution, children between the ages of 2-6 years were examined. They reported that children showed symptoms of developmental delay, physical growth retardation, and anxiety/affective disorders to a high degree. The duration of institutionalization was determined to be the most important predictor of these symptoms (Ellis et al. 2004).

The aim of the present study was to determine the prevalence of psychiatric disorders according to DSM-IV criteria in 3-5 year old institutionalized children, to investigate the factors underlying these disorders, and to compare the findings with those obtained from a sample from the community.

METHOD

The study group comprised all 3-5 years old children living in three institutions in Kocaeli. As a control group, a community sample was used. This sample was chosen from 204 cases used in reliability and validity study of ECI-4 made with multi-staged, clustered, random sampling method, using the same measurement tools. In the community sample of the present study, the data of thirty-four children who were matched for age and sex with the institution sample were used. When choosing the community sample, if there was more than one child at the same age and sex with the corresponding child in the study group, the data of the child whose name preceded the other one alphabetically was used.

Measurement Tools

Sociodemographic Information Form: This form included information on the child's age, sex, and her/his family separate from information regarding the age of institutionalization, the duration of stay at the institution, the presence of abuse before being committed to institutional care, seeing parents after institutional care, whether psychological evaluation was made before institutionalization and staying with a volunteer family.

Early Childhood Inventory-4/ECI-4: ECI-4 is an inventory which helps to evaluate the behavioral, emotional and cognitive symptoms of children between the ages of 3-5 years (past three, not yet past six) according to DSM-IV diagnostic criteria. It was developed by Sprafkin and Gadow. In ECI-4, disorders such as schizophrenia, which are rare in 3-5 year old children, were not inquired, but diagnoses which occur more frequently in this age group such as eating and sleep disorders and reactive attachment disorder were included (Gadow and Sprafkin 1997, 2000).

ECI-4, includes 108 questions answered as "never", "sometimes", "often" and "almost always". In addition, the first part of the inventory includes twelve questions regarding the developmental characteristics of the child. Of these, the first four involve language development, number five regards gross motor development, six inquires about fine motor development and seven thru twelve ask about personal social space. Sprafkin and Gadow scored ECI-4 into two different forms: one score of the number of symptoms and the other score of the severity of symptoms. In the number of symptoms scoring, "never" and "sometimes" is scored as 0 and "often" and "almost always" as 1. Scores obtained for each disorder in ECI-4 are added. If this overall score is equal to or higher than the number of symptoms required for DSM-IV diagnosis, symptom criteria score for that disorder is evaluated as

Table 3. Severity of psychiatric symptoms scores from ECI-4.

	Institutionalized	Community	Statistics	
	meant $\pm$ SD	meant $\pm$ SD	T	p
Total symptom severity	80.62 $\pm$ 27.84	62.44 $\pm$ 22.79	-2.946	P=0.004
ADHD	21.50 $\pm$ 12.14	18.79 $\pm$ 8.32	-2.479	P=0.016
ODD	8.38 $\pm$ 5.10	6.03 $\pm$ 2.79	-2.360	P=0.021
CD	3.65 $\pm$ 3.68	1.91 $\pm$ 2.27	-2.337	P=0.022
Anxiety disorders	23.33 $\pm$ 7.00	22.12 $\pm$ 8.59	-0.634	P=0.528
Tic disorders	1.18 $\pm$ 1.59	0.59 $\pm$ 0.92	-1.869	P=0.066
Sleep disorders	2.52 $\pm$ 2.54	3.15 $\pm$ 2.44	1.023	P=0.310
Elimination disorders	1.91 $\pm$ 2.33	2.03 $\pm$ 2.54	0.199	P=0.843
Eating disorders	0.76 $\pm$ 0.70	1.38 $\pm$ 1.18	2.624	P=0.011
RAD	2.71 $\pm$ 1.29	1.88 $\pm$ 1.43	-2.491	P=0.015
PDD	1.94 $\pm$ 2.45	0.79 $\pm$ 1.07	-1.692	P=0.015

ADHD: Attention Deficit Hyperactivity Disorder, ODD: Oppositional Defiant Disorder, CD: Conduct Disorder, RAD: Reactive Attachment Disorder, PDD: Pervasive Developmental Disorder

“yes”. In scoring the severity of symptoms, “never” is scored as 0, “sometimes” as 1, “often” as 2 and “almost always” as 3. Scores obtained from questions are added and the severity score of the involved disorder is found (Gadow ve Sprafkin 1997, 2000). Its validity and reliability study has been carried out in Turkey (Başgöl et al. 2009). There are two forms of the inventory. One filled by parents and the other filled by the teacher if the child attends school. In the present study, the parent form was used.

Clinical Interview Based on DSM-IV Diagnostic Criteria:

A clinical interview based on DSM-IV diagnostic criteria was made with the main caregiver of all children participating in the study.

Procedure: The sociodemographic information form was completed by the investigators by examining the institution files of the children and interviewing the social workers in the institutions. The form was completed in the control group by interviewing the parents. Children whose sociodemographic information remained incomplete were not included in the study. The caregiver who spent the longest time with the child was informed about ECI-4 and asked to complete the form. In ECI-4, four children who gave negative answers to three or more items from the twelve items evaluating language, fine motor, gross motor and individual-social development of institutionalized children were excluded from the study. After inventories were collected by the investigators and checked for deficiencies, the child and caregiver were interviewed by the investigator in a room with suitable conditions. Based upon DSM-IV diagnostic criteria, a psychiatric evaluation of the child was made. The symptoms seen in ECI-4 were observed during the interaction of the child with other children during free play behavior. Axis-I diagnosis of the children was

made by the combined evaluation of the clinical interview, free play observation and data obtained by ECI-4. The data of institutionalized children was compared with those of the community sample chosen from the reliability and validity study of the ECI-4 inventory carried out similarly using clinical interview and free play observation methods. Children necessitating clinical diagnoses were referred to mental health centers for children for follow up and treatment.

Statistics: Data was analyzed using Statistical Program for Social Sciences-SPSS for Windows, 13.0. For the comparison of categorical data, Chi square (X^2) Test or Fisher's Exact Test was used, and in the comparison of continuous data, Student-t Test was used. The predictive value of selected independent variables for dependent variables was evaluated with multiple regression analysis. In all analyses, P values of ≤ 0.05 were considered significant.

Results: Sixty-eight children, with thirty-four in each group, were included in the study. The mean age of the children in both groups was 4.84 ± 0.82 years (min:3.19, max:5.96). In each group, there were eighteen boys and (52.9%) sixteen girls (47.1%). Mean duration of institutionalization was 24.4 ± 2.7 (min:3, max:55) months and the mean duration of the time spent with the caregiver from whom information was obtained was 9.1 ± 1.0 (min:2, max:24) months. Sociodemographic characteristics of institutionalized children are outlined in Table1.

The comparison between the two groups established that of the institutionalized children, twenty-two (64.7%) were diagnosed with at least one psychiatric disorder. Of the children in the community sample, thirteen (38.2 %) were diagnosed with at least one psychiatric disorder. The difference between them was significant ($X^2 = 4.769$, $p = 0.029$). Table 2 lists the psychiatric disorders diagnoses that were determined with a DSM-IV based clinical interview, free play observation and data obtained from ECI-4.

In the comparison of the symptom severity scores calculated with ECI-4 between the two groups, ADHD, ODD, and pervasive developmental disorder (PDD) were found to be more severe in institutionalized children, while eating disorder was found to be more severe in the community sample ($p \leq 0.05$). In Table 3, the symptom severity scores obtained by ECI-4 are displayed.

It was established that age, time spent with the father, time spent at the institution, the number of siblings, the number of referrals to hospitals with physical problems, and the history of abuse before being committed to institution were factors increasing the severity of psychiatric disorder ($p \leq 0.05$). In Table 4, a regression model showing the effect of sociodemographic variables on total symptom severity scores obtained by ECI-4 is shown.

Table 4. Regression model showing the effect of sociodemographic variables on total symptom severity scores in ECI-4 in institutionalized children.

Independent variables	Unstandardized coefficients		Standardized coefficients	p	Confidence interval %95	t	VIF
	Beta	Std. Error	Beta				
(constant)	59.18	16.421		0.001		3.604	
Age	-5.76	2.792	-.169	0.050	(-11.5)-(-0.1)	-2.064	1.319
Time spent with mother	.437	.256	.207	0.101	(-0.9)-(0.97)	1.707	3.042
Time spent with father	.779	.203	.413	0.001	(0.36)-(1.20)	3.839	2.408
Time spent in the institution	.883	.199	.504	0.000	(0.47)-(1.30)	4.434	2.680
The number of referrals to hospital with physical indications	1.611	.433	.398	0.001	(0.72)-(2.50)	3.717	2.380
The number of siblings	-3.026	1.241	-.199	0.023	(-5.60)-(-0.46)	-2.439	1.384
Parents together	-1.403	2.113	-.050	0.513	(-5.77)-(2.97)	-.664	1.178
Seeing parents	-1.539	1.948	-.066	0.438	(-5.57)-(2.49)	-.790	1.432
The presence of sibling living with parents	4.184	5.859	-.058	0.482	(-7.94)-(16.30)	.714	1.378
Abuse before being institutionalized	13.430	5.438	.229	0.021	(2.18)-(24.68)	2.470	1.787
R= 0.943 R ² = 0.889 F=18.47 P=0.000 Durbin-Watson=1.572							

DISCUSSION

According to the findings of our study, psychiatric disorders occurred at a higher rate in institutionalized children. While institutionalized children are diagnosed with at least one psychiatric disorder at the rate of 64.7%, this rate was found to be 38.2 % in the community sample. There are few studies evaluating psychiatric disorder diagnosis in this age group. In the study from which a community sample was chosen, of the 204 children between the ages of 3-6 years, 41.7% were diagnosed with at least one psychiatric disorder (Başgöl et al. 2009). In a Romanian based study carried out according to DSM-IV criteria, it was established that of children reared in institutions, 53.2% were diagnosed with a minimum of one psychiatric disorder (Zeenah et al. 2009). As far as we know, there is no such study on 3-5 year old children in Turkey. In a study in which diagnoses were made according to ICD-10 criteria (World Health Organization 1992), it was established that of children reared in institutions, 57.1% had been diagnosed with at least one psychiatric disorder (Nützel et al. 2005). In another study on adolescents between the ages of 12-17 years, 73% of the adolescents was diagnosed with at least one psychiatric disorder. (Stahlberg et al. 2010). The prevalence of psychiatric disorders found in institutionalized children between the ages of 3-5 years in the present study is comparable to that found in previous studies on institutionalized children of different age groups. Our results stress the importance of psychiatric evaluation and treatment at the preschool age in institutionalized children.

According to studies carried out on institutionalized school age children and adolescents according to DSM-III and DSM-IV diagnostic criteria, the rate of ADHD was found to be between 10-48% (Zeenah 2000, Tarren-Sweeney 2008, Stahlberg et al. 2010). In the present study, the rate of ADHD was found to be 41.2 %. In a study on children in the early adolescent period who grew up under institutional care until

the age of four that were then adopted, ADHD evaluation was made at the ages of six and eleven and the continuation of ADHD symptoms at eleven was found to be associated with deprivation during early childhood. In addition, it was established that the symptoms of attention deficit and hyperactivity were associated with behavioral problems, attachment problems, and executive function problems (Stevens et al. 2008). In this respect, our findings may be considered significant for preventive mental health.

ODD and CD symptoms were found to be more severe in institutionalized children. In studies on older age groups, CD is one of the most common psychiatric disorders with a rate of 17-45% (Tarren-Sweeney 2008). High symptom severity of CD found in the present study suggests that its symptoms start to appear at this age group even if they are not diagnosed with it.

As expected, the severity of RAD was found to be higher in institutionalized children. In various studies, it was determined that institutionalized children have no attachment with caregivers or commonly develop pathological attachment forms (Smyke et al. 2002, Smyke et al. 2010, Vorria et al. 2003, Zeenah et al. 2005). Under conditions when caregivers spend more time with children and they are changed less often, attachment disorder symptoms are reported to occur less frequently (Smyke et al. 2002). It was determined caregivers were changed in all children participating in the study. It was thought that changing of caregivers in institutions had an adverse impact on the attachment of children. In a study on children placed with foster families at an early period, it was established that attachment developed to a higher degree (Smyke et al. 2010). It was thought that initiating a foster family and a volunteer family system early in the institutionalization process would help to prevent the development of attachment disorder.

In various studies carried out with institutionalized children, externalizing problems were found at a higher rate than inter-

nalizing problems (Şimşek et al. 2008). In the present study, although ADHD, ODD, and CD symptom severity was higher in institutionalized children, internalizing problems such as anxiety and mood disorders were found at comparable rates with community sample.

Of institutionalized children, two were diagnosed with PDD and the symptom severity was found to be higher in institutionalized children. Severe psychosocial deprivation may result in symptoms similar to those of PDD (Rutter et al. 1999). In a study conducted in England, Romanian children growing under institutional care until they were four years of age were evaluated at the ages of 4, 6 and 11 years with 9.4% of the 4 year old children exhibiting a semi-autistic pattern. These symptoms disappeared in ¼ of the children when they were 11 years old. In the control group, those adopted immediately after birth did not display this pattern (Rutter et al. 2007). The fact that in institutions, one caregiver had to attend to more than one child simultaneously and that these children probably did not receive sufficient stimulation when they were together with their parents suggests that symptoms associated with lack of stimulation may be perceived as symptoms of PDD.

It was established that in children under institutional care, the severity of psychiatric disorders was adversely influenced by the time spent with the father; this finding was contrary to our expectations. It has been reported that psychiatric problems encountered in children under institutional care stem from not only institutional care but also improper care during pregnancy, substance abuse during pregnancy, substance abuse by parents, and parents psychiatric problems (Johnson 2000). It was thought that if institutionalized children experience negative conditions during time spent with their family, they could be subjected to neglect and abuse, thus placing

them at risk of developing psychiatric disorders. Therefore, it is important to take protective measures while the child is with his/her family. On the other hand, prolongation of institutional care was determined to be another factor enhancing the severity of psychiatric symptoms. Keeping institutional care as short as possible, and supporting foster family and adoption systems may contribute to the prevention of psychiatric disorders.

Factors which may protect from psychiatric disorders such as psychiatric evaluation before institutionalization, staying with a volunteer family, and caregiving by the same person were present at low rates in our institutionalized sample. It was established that children and adolescents who were adopted or who stayed with a foster family displayed psychiatric disorders or behavioral problems at a lower rate than children growing up in institutions (Zeenah et al. 2009). One of the striking findings from the present study was the lack of children followed in a mental health service for psychiatric disorders in the institutionalized sample. Obtaining more support from pediatric mental health units may help to prevent and treat psychiatric symptoms and disorders. Our findings indicate that more progress needs to be made to protect the mental health of children under the care of institutions.

Not obtaining information from the parents of institutionalized children, the low number of cases, and lack of statistical comparison for each psychiatric disorder due to low numbers of children diagnosed with psychiatric disorders are limitations to the study. However, since there are few studies concerning institutionalized children and since psychiatric evaluation was conducted in the present study, the research presented here may contribute to the existing literature on the subject.

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