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ORIGINAL ARTICLE

Does Family Structure Play a Role in Depression in Adolescents Admitted to Psychiatric Inpatient Care?

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Abstract We examined whether adolescents' family structure associate with depression in a clinical sample of 508 adolescents (age 13–17 years) treated in psychiatric hospital between April 2001 and March 2006. Psychiatric disorders of adolescents were based on the K-SADS-PL-interview. Adolescents with depression were characterized by a single parent family background (58 %), but less commonly by a child welfare placement (37 %). Depression in adolescents was significantly related to female gender and a single parent family background, but less significantly related to comorbid psychotic or conducts disorders. The association between family structure and depression presents a challenge to mental health services. Early screening for depression in adolescents admitted for psychiatric treatment from "at risk" family types is important to enhance their future wellbeing and coping strategies.

Keywords Adolescent · Depression · Mental disorders · Nuclear family · Blended family · Single parent family

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Introduction

Family structures have undergone significant changes in Western societies over the past few decades. These changes in family structure are related to general demographic trends, such as postponement of family formation and the instability of married and unmarried partnerships [1, 2]. There has also been a transition away from the traditional family of two biological parents to other compositions, such as single parent or blended families. In Finland changes in family structure have also been apparent, with the proportion of single parent families increasing by 40 % between 1980 (84,490) and 2013 (118,315). Blended families accounted for 6.9 % of all families with children in Finland in 1990 and 9.2 % by 2013 [3].

Childhood family instability, which may partly be a consequence of changes in family structure, has been shown to have long-lasting negative effects on mental health, including internalizing problems [4]. Adolescents from a single-parent family background have been reported to suffer more commonly from depression than those from a two-parent family background [5–8]. The transition from two biological parent families to single-mother family or cohabiting stepfamily units has been shown to increase the likelihood for depression in a general population sample of adolescents with an average age of 15-years [1]. With family transition in our society still ongoing, it is necessary to examine the impact these changes have on children's psychological well-being.

Since low social support for the family is associated with depression in adolescence [9], we felt it important to examine whether the prevalence and severity of depression differs between young adolescents admitted to psychiatric hospital from different family structures. Further, we wanted to determine the factors underlying admissions to psychiatric

hospitals from different types of family when adolescents required hospitalization due to acute psychiatric illness.

Materials and Methods

Study Sample

The present study is part of a clinical follow-up project called Study-70, which was initiated to examine the long-term outcomes of adolescents treated in psychiatric hospital for severe mental disorders. The original sample consisted of 508 adolescent inpatients (208 males, 41 %, and 300 females, 59 %) aged 13–17 years ($M = 15.4$ years, $SD = 1.3$) consecutively admitted to Unit 70 at Oulu University Hospital, Department of Psychiatry, between April 2001 and March 2006. The catchment area of Unit 70 of Oulu University Hospital covers the regions of Oulu and Lapland. All adolescents from this area in need of acute psychiatric hospitalization in a closed ward were initially treated at Unit 70.

In the study sample, 98.4 % of the adolescents were Caucasian and only 1.6 % had another ethnic background. Following admission to unit 70, the subjects and their parents (or guardian) were asked about their interest in participation in Study-70. Signed informed consent was required from both the subject and at least one parent (or guardian) before allowing an adolescent's participation in the study. Subjects aged over 18 years, or who had intellectual disability or organic brain disorders or who did not provide written informed consent for participation were excluded from the data. 83.7 % of the eligible adolescents participated in the study.

Research Instruments

All participants were interviewed using several research instruments. DSM-IV diagnoses were determined by using the semi-structured Schedule for Affective Disorder and Schizophrenia for School-Age Children, Present and Lifetime (K-SADS-PL)—interview [10]. The face-to-face structured interview was completed using the European modification of the Addiction Severity Index (EuropASI) instrument in order to gather information on various aspects of each adolescent's life, such as physical health, family structure and social conditions [11].

Family Structure

The information regarding the adolescents' family type was obtained from the K-SADS-PL interview. Family type was categorized as follows: (1) Two-parent family (biological mother and biological father); (2) Blended family (Biological mother or biological father with a married or cohabiting partner); (3) Single-parent family (one biological parent); (4)

Foster family (adoptive/foster parents, grandparents, other relatives, non-relatives); (5) Child welfare placement (Children's home or family community home); and (6) Other home environment (Living alone, residential home). The distribution of the various family types is presented in Table 1. In light of the small sample size (9 boys and 28 girls) and heterogeneity of the "other home environment" group, this group was excluded from subsequent statistical analyses. The final study sample for the current study was 471 adolescents (199 boys, 272 girls).

Definition of Depression

The definition of depression was based on the K-SADS-PL interview and used the following DSM-IV diagnostic codes: 296.2, major depressive disorder (MDD), single episode ($n = 151$); 296.3, MDD, recurrent ($n = 10$); 296.9, mood disorder NOS ($n = 1$); 300.40, dysthymic disorder ($n = 3$); 301.13, cyclothymic disorder ($n = 1$); and 311, depressive disorder NOS ($n = 54$). The severity of affective disorder was determined according to the DSM-IV diagnostic criteria as follows: (1) mild, 296.20–.21, 296.9, 311.x ($n = 71$), (2) moderate, 296.22, 296.32 ($n = 104$), and (3) severe, including psychotic depression, 296.23, .30, . 33, 296.24 ($n = 40$, including 9 psychotic depression). The assessment of severity could not be reliably made for diagnoses 296.35 (MDD, recurrent, in partial remission) ($n = 1$), 301.13 (cyclothymic disorder) ($n = 1$) and 300.40, dysthymic disorder ($n = 3$).

Causes for Admission

Causes for admission to hospital were based on the information gathered on admission to psychiatric inpatient care. This information was categorized as follows: depressive mood, suicidality (including suicidal ideation and behaviour), psychotic symptoms, anxiety or sleep problems, substance use, behavioural problems and aggression. Cause of admission was based on the judgement of the treating physician or nurse in co-operation with the adolescent patient and/or their parent(s)/guardian(s) on admission to the psychiatric hospital. Some patients had several reasons for admission.

Covariates

Educational level and employment status of the parents of each adolescent was used to determine the socio-economic status of the parents. The mother and father's educational level and employment status were obtained from the EuropASI. Levels of professional educational involved the following categories: (1) None/not known (only compulsory education), (2) Student or vocational courses, (3) Vocational qualification (upper secondary education), and (4) Higher educational degree (polytechnic, university). The

Table 1 Family structure at admission for psychiatric inpatient care

Family type	Total ($n = 508$) n (%)	Gender of adolescents	
		Boys ($n = 208$) n (%)	Girls ($n = 300$) n (%)
Two-parent family	189 (37.2)	57 (27.4)	132 (44.0)
Blended family	58 (11.4)	39 (14.4)	28 (9.3)
Single parent family	97 (19.1)	41 (19.7)	56 (18.7)
Foster Family	38 (7.5)	19 (9.1)	19 (6.3)
Child welfare placement	89 (17.5)	52 (25.0)	37 (12.3)
Other home environment	37 (7.3)	9 (4.3)	28 (93.3)

employment status indicates whether or not an adolescent's mother or father has part- or full-time work (yes, no).

Comorbid psychiatric diagnoses were based on the K-SADS-PL interview. The categories of comorbid psychiatric diagnoses according to DSM-IV criteria were as follows: (1) Substance-related disorders (303.9, 304.0–.6, 304.8–.9, 305.0, 305.2–.7, 305.9), (2) Anxiety disorders (300.00–.02, 300.21–.23, 300.29, 300.3, 308.3, 309.81), (3) Conduct and oppositional defiant disorders (312.8–.9, 313.81, 314, 299.80), and (4) Psychotic disorders (295, 296.0, 296.4–9, 297.1–3, 298.8–9, 301.13. 301.22). Diagnoses occasionally overlapped, with some patients having several psychiatric diagnoses.

Statistical Methods

Statistical significance of group differences in categorical variables was assessed using Pearson Chi Square test or Fisher's Exact test, and in continuous variables using Student's t test or Mann–Whitney U-test. The association of family structure with depression in adolescents was examined using a logistic regression analysis after controlling for parents' education and employment status and adolescent's comorbid psychiatric disorders (conduct, anxiety, psychotic and substance use related disorders) and interaction term for gender and family type. The statistical software used in analyses was the PASW Statistics 18. All statistical tests were two-tailed and a limit for statistical significance was set at $p \leq 0.05$.

The research plan for the Study-70 project—which the present research is part of—was reviewed and approved by the Ethics Committee of the Faculty of Medicine, University of Oulu, Finland, on 11th April 2001.

Results

Prevalence of Depression

Depression was present in 220 (46.7 %) adolescents, and was more common in girls 153 (56.3 %) than boys 67

(33.7 %) ($p < .001$). Of the total depressed adolescents, 71 (33.0 %) had mild, 104 (48.4 %) moderate and 40 (18.6 %) severe depression.

Characteristics of Depressed Adolescents

Characteristics of the study sample by depression status are presented in Table 2.

Adolescents' depression was not found to be associated with the educational level or current employment status of the parents. Adolescents with a background of depression were statistically significantly more likely to have depressive mood ($p < .001$) and suicidality ($p < .001$) and less commonly psychotic symptoms ($p < .001$) or behavioral problems or aggressiveness ($p < .001$) as the cause for admission to psychiatric hospital compared with adolescents without depression. Adolescents with depression were less likely to be admitted due to comorbid conduct disorder ($p < .001$) or psychotic disorders ($p < .001$) than adolescents without depression.

Depression and Family Structure

As shown in Fig. 1, adolescents with depression were more commonly admitted for psychiatric inpatient care from a single parent family (58 %), but less commonly from a child welfare placement (37 %). A statistically significant greater proportion of adolescent girls, compared to boys, with depression had a family comprising of two biological parents (boys vs. girls: 29.8 % vs. 53.0 %, $p = .003$) or a single parent (43.9 % vs. 67.9 %, $p = .018$) or they came from a child welfare placement (23.1 % vs. 56.8 %, $p = .001$), while no gender difference was observed among adolescents from blended families (43.3 % vs. 53.6 %, $p = 0.44$) or those living in foster families (36.8 % vs. 47.4 %, $p = .51$).

Table 3 presents the distribution of severity of depression in adolescents from different family types. Adolescents from child welfare placements more commonly had

Table 2 Depression in relation to socio-demographic, causes for psychiatric admission and clinical characteristic of adolescent psychiatric inpatient boys and girls

	Total sample		
	Yes (n = 220) n (%)	No (n = 251) n (%)	p
Professional education of parents			
Mother's education			.77
None/not known	59 (26.8)	57 (22.7)	
Courses/student	53 (24.1)	65 (25.9)	
Vocational school	62 (28.2)	76 (30.3)	
University level of education	46 (20.9)	53 (21.1)	
Father's education			.70
None/not known	79 (35.9)	83 (33.1)	
Courses/student	36 (16.4)	48 (19.1)	
Vocational school	76 (34.5)	81 (32.3)	
University level of education	29 (13.2)	39 (15.5)	
Working status of parents			
Mother unemployed	88 (40.0)	107 (42.6)	.56
Father unemployed	89 (40.5)	96 (38.2)	.62
Reasons for psychiatric admission			
Depressive mood	115 (52.3)	49 (19.5)	<.001
Suicidality	103 (46.8)	65 (25.9)	<.001
Psychotic symptoms	10 (4.5)	50 (19.9)	<.001
Anxiety or sleep problems	37 (16.8)	50 (19.9)	.39
Substance use	15 (6.8)	25 (10.0)	.22
Behavioral problems or aggression	39 (17.7)	83 (33.3)	<.001
Psychiatric disorders of adolescent at psychiatric inpatient care[a]			
Conduct disorders	73 (33.2)	139 (55.4)	<.001
Substance use related disorders	74 (36.6)	97 (38.6)	.26
Anxiety disorders	55 (25.0)	48 (19.1)	.12
Psychotic disorder	13 (5.9)	54 (21.5)	<.001

[a] In depressed adolescents indicates comorbid psychiatric diagnoses and in non-depressed adolescent the prevalence of psychiatric disorders

mild or moderate depression ($p = .040$) compared to all other family types.

Cause of Admission and Family Structure

Table 4 shows that the family type of adolescents with depression did not statistically significantly associate with the cause for admission to psychiatric inpatient care.

Family Type as Predictor for Depression

Table 5 shows that statistically significant predictors for adolescent depression were an adolescent's female gender ($p < .004$) and single family background ($p = .026$). Further, depressed adolescents had a decreased likelihood of having comorbid conduct ($p < .001$) or psychotic ($p < .001$) disorders. No statistically significant interactions were found for gender and or family type.

Discussion

Summary of Main Results

The results of our study showed that the risk for depression is doubled in adolescents from single parent families. Depressive mood and suicidality were the most common reasons for psychiatric hospital admission among adolescents with depression.

Strength and Weaknesses of the Study

The strength of our study is that the adolescents' psychiatric disorders were assessed using the K-SADS-PL interview, which has an evidence base demonstrating good psychometric properties for the screening and diagnoses of DSM-IV disorders in adolescent populations [10]. Our study was conducted in a large sample of adolescents admitted to inpatient psychiatric care from a
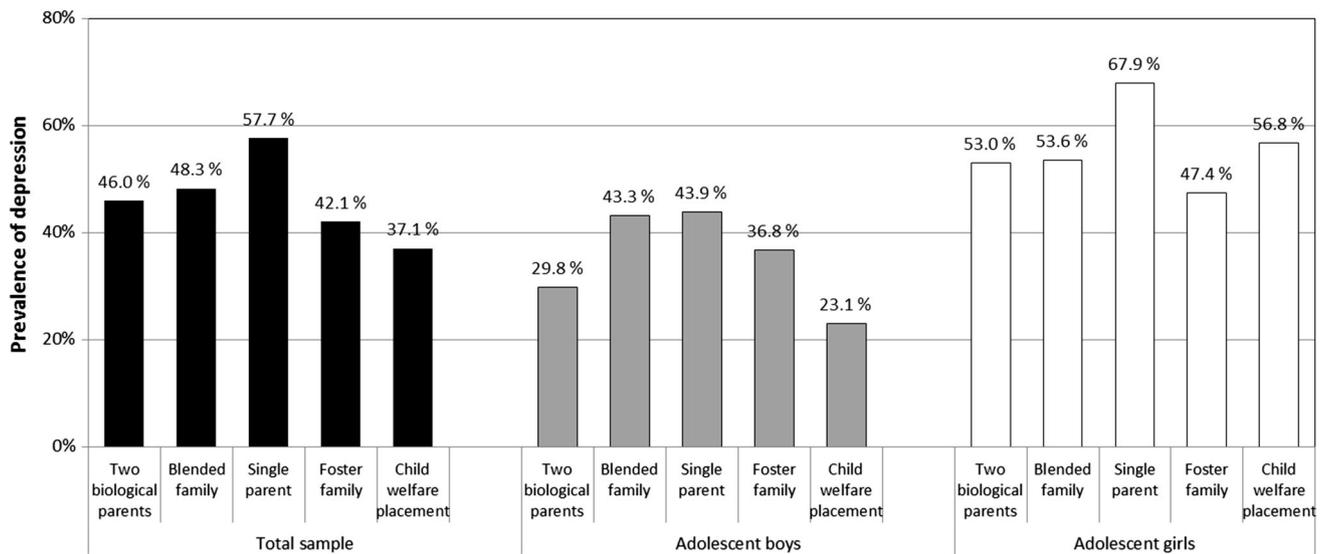
Fig. 1 Prevalence of depression in adolescents admitting to psychiatric inpatient treatment from different family structures

Table 3 Family structure and severity of depression in adolescent boys and girls

	Severity of depression			Group difference
	Mild ($n = 71$) n (%)	Moderate ($n = 104$) n (%)	Severe ($n = 40$) n (%)	p^a
Total sample				
Two biological parent	29 (34.1)	36 (42.4)	20 (23.5)	.23
Blended family	13 (48.1)	11 (40.7)	3 (11.1)	.18
Single parent family	11 (20.0)	32 (58.2)	12 (21.8)	.06
Foster family	4 (26.7)	7 (46.7)	4 (26.7)	.68
Child welfare placement	14 (42.4)	18 (54.5)	1 (0.0)	.040

Details of the severity of depression was missing for 5 adolescents (2 boys, 3 girls)

[a] p indicates the statistical significance of difference between family type in question versus rest of the family types

geographically large area in Northern Finland which covers about 45 % of the area of Finland. The patients represent the most serious cases in the young adolescent population of that area. This limits the generalization of our findings to the entire Finnish adolescent population. Our findings also cannot be generalized to populations other than Caucasians. Another limitation of our study is that our database does not measure whether adolescents had experienced a transition, or at what age and how many times a transition may have occurred during each adolescent's lifetime. Our measurement of the severity of depression was based on the DSM-IV diagnosis set at the K-SADS-PL interview. Additional data, such as symptom counts or information on functional impairment may have allowed more accurate measures of the level of depression. The small number of cases in some subgroups may have reduced the power in statistical analyses, thus causing Type II errors. Since many

statistical comparisons were performed in our study, a risk of spurious findings (Type I error) may also exist.

Comparison with Existing Literature

Several epidemiological studies have reported a positive association between adolescent depression and single parent status [1, 5]. Our results are in line with those studies. One explanation may relate to reduced parental skills. In a single parent family, the parent is usually solely responsible their children's physical and emotional well-being and may not have enough time to attend to their children's basic needs [7].

When the association of a parent's educational level and employment status to their child's depression was examined, no significant association was observed. This contradicts the findings of many previous studies

Table 4 Reasons for psychiatric hospital admission among depressive adolescents from various family types

Reason for admission	Two biological parents (n = 87) n (%)	Blended family (n = 28) n (%)	Single parent family (n = 56) n (%)	Foster family (n = 16) n (%)	Child welfare placement (n = 33) n (%)	Group difference p
Depressive mood						.24
No	43 (49.4)	13 (46.4)	21 (37.5)	11 (68.8)	17 (51.5)	
Yes	44 (50.6)	15 (53.6)	35 (62.5)	5 (31.3)	16 (48.5)	
Suicidality						.76
No	45 (38.5)	16 (13.7)	33 (28.2)	8 (6.8)	15 (12.8)	
Yes	42 (40.8)	12 (11.7)	23 (22.3)	8 (7.8)	18 (17.5)	
Anxiety and sleep problems						.93
No	72 (39.3)	22 (12.0)	48 (26.2)	13 (7.1)	28 (15.3)	
Yes	15 (40.5)	6 (16.2)	8 (21.6)	3 (8.1)	5 (13.5)	
Psychotic symptoms						.76
No	83 (39.5)	28 (13.3)	53 (25.2)	15 (7.1)	31 (14.8)	
Yes	4 (40.0)	0	3 (30.0)	1 (10.0)	2 (20.0)	
Behavioral problems or aggression						.06
No	76 (42.0)	22 (12.2)	49 (27.1)	12 (6.6)	22 (12.2)	
Yes	11 (28.2)	6 (15.4)	7 (17.9)	4 (10.3)	11 (28.2)	
Substance use						.47
No	83 (40.5)	25 (12.2)	50 (24.4)	16 (7.8)	31 (15.1)	
Yes	4 (26.7)	3 (20.0)	6 (40.0)	0	2 (13.3)	

A patient can have several causes of admission simultaneously

Table 5 Statistically significant predictors for depression in adolescent psychiatric inpatients

Predictors	B	SE	Wald	OR	95 % CI of OR	P
Gender, female	0.75	0.21	12.64	2.11	1.40–3.19	<.001
Single parent family	0.56	0.25	4.98	1.75	1.07–2.86	.026
Statistically significant covariates						
Conduct disorders	−1.14	0.22	28.16	0.32	0.21–0.49	<.001
Psychotic disorders	−1.89	034	30.02	0.15	0.08–0.30	<.001

Odds Ratios (ORs) with 95 % Confidence Intervals (95 % CIs) are adjusted for age (method = enter) and, by using stepwise selection criteria (method = LR), for mother's and father's educational level and employment status, adolescent's co-morbid psychiatric disorders (conduct, anxiety, psychotic and substance use related disorder) and interaction term for gender * family type. Only the statistically significant results are reported in the table

reporting adolescent depression to be related to a parent's academic and employment status [12–15]. In Finland the educational system offers equal opportunities of education for all, irrespective of matters of residency, sex, economic situation or linguistic and cultural background [16]. Therefore, the impact of a parent's socio-economical background is perhaps not emphasized in Finnish adolescents' well-being.

Adolescent boys from blended and single parent families had the highest prevalence of depression. In our data, 30 % of males and 53 % of females had been admitted for treatment from families with two biological parents. In males, this differs markedly when compared to the general 1987 Finnish birth cohort of the same age range (males 59 %, females 57 %) [17]. Further, adolescent boys from child welfare placements had the lowest prevalence of depression. This may be because the most common reason for child welfare placement in boys is behavioral problems [18]. Conversely, depression in boys may be masked by externally directed behavioral problems, which may lead to an increased likelihood for risk behavior, such as violent or risk taking acts [19]. A challenge is to separate masked depression in boys behind externalizing symptoms. This challenge requires further studies.

Summary

Parenting skills may be affected by the absence of a cohabiting parent [7] and should be a key focus when offering psychosocial support to parents of adolescents with mental health problems. This parental support, whether provided by mental health care services or social service authorities, should be relevant to their current circumstances not only during an adolescent's psychiatric inpatient care but also after discharge from hospital. It should also be designed to help adolescents identify and cope with difficulties in their future psychosocial development [20]. It is important to recognize the signs and symptoms of depression beyond the more typical presentation, particularly in boys whose depression may be masked by behavioral symptoms. Information on the family type of adolescents is an important background factor when assessing the living conditions and social support available for adolescents presenting with depression. Early screening for depression in adolescents from "at risk" family types is essential in order to enhance their coping strategies and act to prevent more serious psychiatric problems developing in the future.

Compliance with Ethical Standards

Conflict of interest None.

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