

Chapter #5

DEPRESSIVE SYMPTOMS AND SUICIDAL IDEATION AMONG CZECH ADOLESCENTS

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ABSTRACT

The incidence of suicide and suicide attempts in Czech adolescent population are among the highest in Europe. Based on the data of crisis hotline counselors for children, the frequency of suicidal callers doubled in the last five years. There seems to be many reasons for this increase; the depression in children and adolescents being the major one besides socio-demographic factors, family-related factors, substance abuse etc. The aim of our study was to investigate the incidence of depression symptoms during the period of early adolescence and to compare them with Czech normative data from 1997. The study was conducted on a large sample (N=1708) of Czech adolescents aged 11-16 years (m = 13.65; 52% female), utilizing the Children's Depression Inventory (CDI - Kovacs, & Beck, 1977; Kovacs, 1992). The CDI evaluates the presence and severity of specific depressive symptoms in youth; depression is seen as a syndrome, not a specific behaviour. The proportion of the adolescents with the total score indicating higher risk of clinical depression was between 17,8 - 42,9 % in our sample, depending on the cut-off score. Regarding the incidence of suicidal ideation, almost 2 % expressed a commitment to suicide and further 21 % admitted ideation without a firm intention (the latter being twice more common in girls than in boys). Significantly higher scores both in CDI total score and in the scale scores were found when compared to Czech norms constructed more than 15 years ago. Detailed pattern of gender differences and the correlations of CDI scores and family-related factors or relationships with peers including belonging to a subcultures as emo or goth are also presented.

Keywords: depression, suicidal ideation, adolescents, CDI.

1. INTRODUCTION

In the Czech Republic, suicide is among the most frequent death causes of the children and adolescents (Czech Statistical Office, 2014) and the suicide rate of the children aged 0-14 years is above the mean of EU (e.g. five times higher than in Austria or Great Britain). The findings of the present study are particularly important from a prospective point of view because the increased level of depressive symptoms can contribute to the development of major depression disorder, or to contribute to the development of a number of forms of risky behavior such as substance abuse.

2. BACKGROUND

Early onset depression can have serious negative impact on further development, with tendencies of being recurrent and frequently associated with other mental health problems. The initial study and recognition of depressive disorders in children and adolescents dates back to the 1970s (Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993). In the following decades, correspondence in adult and childhood depression symptoms was observed.

The underlying assumption about the identical nature of the adult and childhood/adolescent depression is reflected in similar diagnostic criteria for the major depression disorder in DSM IV, with one important exception - it is possible to substitute the irritability for depressed mood in children and adolescents (Rao & Chen, 2009). Kovacs (1996) in her analysis of empirical studies of phenomenological features of the depression disorder in subjects ranging from 6 to 80+ years concluded that depression in youth was in many aspects similar to the depression in adults, representing the identical diagnostic entity. Carlson and Kashani (1988) compared four samples - preschool, prepubertal, adolescent and adult subjects, and despite of 12 of 17 depression symptoms being different across the age groups, they concluded that age modified symptom frequency but not the basic phenomenology. The symptoms of increasing frequency with age included anhedonia, diurnal variation, hopelessness, psychomotor retardation, and delusions; on the other hand, depressed appearance, low self-esteem, and somatic complaints decreased with age. Ryan et al. (1987) found differences in the symptoms frequency between children and adolescents but a similar factor structure of the symptoms for both groups. The reasons for the developmental differences in depressive symptoms are not known but it is believed that maturational effects on emotional and behavioral regulation and cognitive functions might play role (Rao & Chen, 2009). The developmental differences has been found also in the neurobiological correlates and treatment response of depression in children, adolescents, and adults (Kaufman, Martin, King, and Charney, 2001), such as basal cortisol secretion, corticotropin stimulation postcorticotropin releasing hormone (CRH) infusion, response to several serotonergic probes, immunity indices, and efficacy of tricyclic medications. Somewhat similar situation can be observed in the area of gender differences in depression. Higher incidence of depressive disorders in women (and adolescent girls) is well documented (e.g. Compas et al., 1997; Worchel, Nolan, and Wilson, 1987). Rao and Chen (2009) in their review article argue that although gender differences have been established with respect to the severity and symptom profiles of unipolar depression, there were found no convincing differences in the salient features.

3. OBJECTIVES

The main objective of our study was to explore the prevalence of depressive symptoms in Czech early adolescents, with respect to demographic factors as gender, age or urban settlement (city, town, village). We also aimed to compare our results with the Czech normative data of CDI from 1997. Furthermore, the relationships of depressive symptoms with family-related factors or relationships with peers were explored.

4. METHOD

4.1. Design

The study was a part of extensive survey research, conducted within a project focused on self-harm behavior screening.

4.2. Instruments

The Child Depression Inventory (CDI - Kovacs, & Beck, 1977; Kovacs, 1992) assesses the presence and severity of specific depressive symptoms in youth; it is based on adult depression syndrome model. The instrument yields five subscales (Negative Mood, Interpersonal Problems, Ineffectiveness, Anhedonia, and Negative Self-Esteem) and the

total score ranging from 0 to 54. Kovacs (1992) recommended 13 as a cut-off score for clinical populations and 19 as the cut-off score for community samples. All the scales had a good internal consistency in our samples (see Table 1). The set of items asking about the quality of respondents' relationships with their parents and peers was a part of the instrument constructed only for this study).

4.3. Sample and Procedure

The 68 schools in randomly selected municipalities in the Czech Republic were asked to participate in the survey; the 7th, 8th and 9th grade's classes were randomly selected in the 20 schools who agreed to participate. The questionnaires were administered by trained research associates and school psychologists and completed anonymously by the participants (group administration in the classroom). The characteristics of the resulting sample were as follows: N = 1708; age 11-16 years (m = 13.65; sd =0,96); 52,3% female.

4.4. Data Analysis

The cut-off scores of 19 or 20 points in CDI total score is recommended by Kovacs (1992) for non-clinical samples (13 for clinical ones). Reaching that point indicates possible risk of clinical depression syndrome. Recent Belgian-Dutch study (Van Beek, Hessen, Hutteman, Verhulp, & Van Leuven, 2012) suggests a cut-off score to reach maximal balance between sensitivity and specificity at 16 points. There is also possibility to use either cut-off score 20 points and/or presence of suicidal ideation indicated by item 9 as a criterion for the risk of clinical depression.

The mean scores in CDI scales and total score were compared with respect to gender and family environment, dichotomized as either divorced/single parent family or both parents family, by General Linear Model.

5. RESULTS

5.1. Prevalence of depressive symptoms and suicidal ideation

The mean of the total score was almost 13 points (see Table 1). The Anhedonia scale mean was the highest but it is due to the 8 items contributing to the scale. When taking the number of items into consideration, the adolescents had the highest scores in the Ineffectiveness scale.

Table 1. Cronbach's alpha and descriptive statistics of CDI scales.

<i>CDI scale</i>	<i>Cronbach's alpha</i>	<i>number of items</i>	<i>mean</i>	<i>sd</i>
Negative Mood	0,715	6	2,66	2,30
Interpersonal Problems	0,516	4	1,04	1,26
Ineffectiveness	0,565	4	3,18	1,54
Anhedonia	0,682	8	3,35	2,59
Negative Self-Esteem	0,668	5	2,35	1,75
CDI Total Score	0,886	27	12,62	7,67

The proportion of our sample above the cut-off score 19 points was almost 22% (see Table 2); when using the combination of the criteria, it was almost 35% of the adolescents, with higher proportion of the girls. Regarding the suicidal ideation, 1,7% of the sample agreed with 'I want to kill myself' and 20,8 % with 'I think of killing myself but I would not do it' (27% among girls and 14 % among boys).

Table 2. Proportion of the sample above cut-off scores for clinical depression risk.

cut-off score	boys	girls	all
>=13	31,9 %	51,8 %	42,9 %
>=19	13,8 %	27,2 %	21,8 %
>=20	11,2 %	23,1 %	17,8 %
>=20 or suicidal ideation	25,9 %	42,4 %	34,9 %

5.2. Age and gender differences

Although the incidence of depressive symptoms generally increases with age in adolescence, there were no age differences found in our study. That may be attributed to our relatively homogenous sample - most of the subject were aged 13 or 14 years. There were also no differences in the CDI scores among adolescents from cities, towns and villages. Regarding gender differences, girls scored significantly higher in all scales and also the total score (see Table 3). Although the differences in both Interpersonal Problems and Ineffectiveness scale scores were statistically significant, they were rather small. On the other hand, the differences in Negative Mood, Anhedonia and Total score were substantial (around half of the standard deviation).

Table 3. Gender differences in CDI scales scores.

CDI scale	boys mean (sd)	girls mean (sd)	t	p
Negative Mood	2,0 (1,9)	3,2 (2,4)	10,20	0,001
Interpersonal Problems	1,0 (1,3)	1,1 (1,2)	1,95	0,05
Ineffectiveness	3,1 (1,5)	3,3 (1,6)	2,45	0,05
Anhedonia	2,8 (2,5)	3,9 (2,6)	8,31	0,001
Negative Self-Esteem	2,0 (1,7)	2,7 (1,8)	7,27	0,001
CDI Total Score	10,8 (7,0)	14,1 (7,9)	8,02	0,001

5.3. Comparison with Czech norms from 1997

Czech norms were constructed on a random sample of 369 of Prague children in 1997. The means for both the scales and total score were found to be somewhat lower than in USA normative samples; there were no gender differences found. As there are only norms for 13-14 years available, we took a subsample of our sample in that age range for the comparison and compared boys and girls separately. In the sample of boys, the total score was 2 points higher than in 1997 norms, mostly due to the differences in the Ineffectiveness scale. However, the increase in girls' scores was much more significant: the total score of our sample almost doubled the total score of 1997 normative sample and there was a considerable increase in all scales scores. The results of one-sample t-tests are presented in the Table 4. There were only 4 % of girls above 20-point cut-off score in 1997 but 17.8 % in our sample.

Table 4. Comparison with Czech norms (sub-sample of adolescents aged 13-14 years).

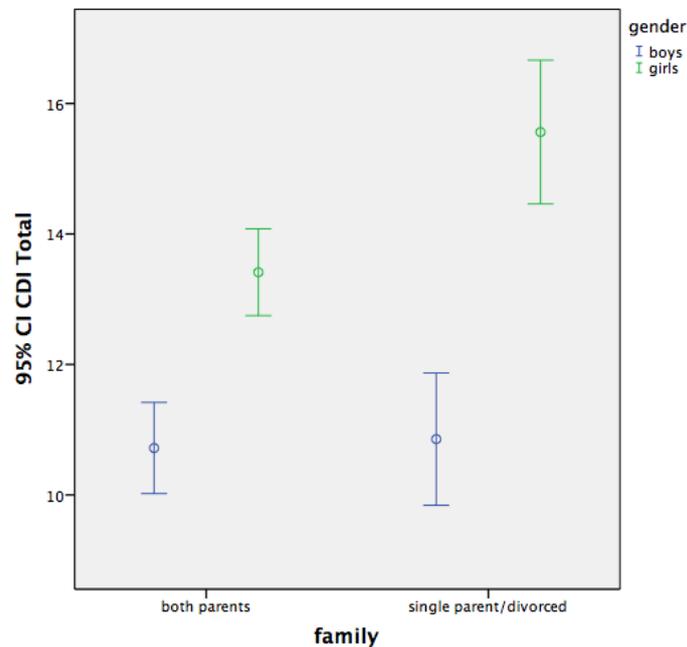
CDI scale	boys 1997 mean (sd)	boys 2013 mean (sd)	t	girls 1997 mean (sd)	girls 2013 mean (sd)	t
Negative Mood	1,6 (1,4)	2,0 (1,9)	4,38***	2,5 (1,6)	3,2 (1,9)	14,12***
Interpersonal Problems	0,8 (1,0)	1,0 (1,3)	2,62**	0,6 (0,8)	1,1 (1,2)	9,29***
Ineffectiveness	1,9 (1,4)	3,1 (1,5)	16,83***	1,8 (1,5)	3,2 (1,6)	22,13***
Anhedonia	2,4 (1,8)	2,7 (2,4)	2,50*	2,4 (1,9)	3,8 (2,6)	12,97***
Negative Self-Esteem	2,1 (1,2)	2,1 (1,7)	-0,51	2,1 (1,3)	2,8 (1,8)	8,83***
CDI Total Score	8,7 (5,0)	10,7 (7,3)	5,37***	8,7 (5,4)	14,1 (7,9)	15,03***

* p<=0,05; ** p<=0,01; *** p<=0,001

5.4. Family environment, peer relationships as correlates of depressive symptoms

Both main effects and interaction effect were significant ($F=4,9$; $p<0,001$ for the total score). Boys had generally lower total scores regardless family environment category; girls with divorced/single parents had the highest scores (see Figure 1 with 95% confidence intervals for means). The same pattern of the differences was also found for scale scores. Correspondingly, worse relationships with parents, especially when combined with good relationship with peers, as well as belonging to subcultures as emo or goth meant higher CDI scores.

Figure 1. Comparison of CDI Total score means for gender and family environment.



6. FUTURE RESEARCH DIRECTIONS

Significant differences in CDI scores, both in the total score and in the scale scores, were found when compared to Czech norms constructed more than 15 years ago. Either the revision of the Czech norms or the adaptation of a new revision of the CDI - Children's Depression Inventory 2 - is highly recommended. Moreover, CDI 2 is available as a self-report, parent and teacher form (Kovacs, 2011) therefore it offers multiple informant perspective in the assessment of depression symptoms.

On basic research level, the future research should examine developmental trends of depression in children and adolescents, including its components and correlates. The developmental differences should be studied not only on individual symptom level but also on a syndrome level, i.e. the differences in relationships among the symptoms, as suggested by Weiss and Garber (2003). Furthermore, the relationship of depressive symptoms with comorbid conditions and other correlates should be explored as well.

7. CONCLUSION/DISCUSSION

The high prevalence of depression symptoms among Czech adolescents were found in our study, especially compared to normative data from 1997. The comparison must be interpreted with caution because the population for the normative data was exclusively urban, whereas children from both cities and villages are included in our sample. Scores in our sample were more similar to e.g. Swedish adolescents results (Ivarsson, Svalander, & Litlere, 2006). Based on our findings, we would suggest establishing new norms of Czech version of CDI or even an adaptation of CDI 2, which contains parent and teacher form as well, allowing multi-informant assessment. We were not able to find age differences; that may be due to a relatively homogenous sample. In comparison with Czech normative data, gender differences were found in both scale scores and total score; it is not clear whether they are real differences or more an artifact of the measure. Carle, Millsap, and Cole (2007) found measurement invariance with respect to gender on the Children's Depression Inventory administered to a sample of 3rd and 6th grade pupils, while Van Beek et al. (2012), when using the same instrument on a sample of 4048 children aged 8-17 years detected measurement bias with respect to both gender and age for each of the scales of CDI and a differential item functioning for many items; their findings indicate that the phenomenology of depression varies with both age and gender.

In our study, we also found a relationship of depressive symptoms in adolescents with family environment, which, due to the growing number of families with divorced/single parents may partly explain the increase in these symptoms in the population of Czech adolescents. Girls appear to be particularly at risk: they are either more sensitive to family situation than boys or they react to family related stress with depressive symptoms, while boys are more prone to display externalized problems, e.g. conduct disorders. Preventive measures targeted at adolescent population should take these findings into considerations.

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