

Depressive symptoms among adolescents in non-clinical Krakow's population – thirty years' follow-up

Renata Modrzejewska¹, Jacek Bomba¹, Agnieszka Pac²

¹ Jagiellonian University Medical College, Department of Child and Adolescent Psychiatry

² Jagiellonian University Medical College, Chair of Epidemiology and Preventive Medicine

Summary

Aim. Assessment of predictive value of the occurrence of depressive symptoms during adolescence. For this purpose, the life history of untreated adolescents screened for the presence of depressive symptoms was assessed twice, at intervals of fifteen years, including an assessment of their health history, their family-related, occupational, material and social situation. The comparison of the fate of depressive adolescents with the fate of their non-depressive peers was aimed at answering the question about the influence of adolescent depression on health in adulthood.

Method. In 1985, a random sample of 1,035 people – students aged 15 and 17 – was examined for a screening diagnosis of adolescent depression. The Krakow Depression Inventory (KID) questionnaires version for 15-year-olds (“IOB1”) and for 17-year-olds (“IOC1”) were used. After 15 years, data on 238 people (23%) were obtained. In 2015, responses were obtained from 101 people (9.8% of those surveyed in 1985).

Results. An analysis of the results of a 30-year prospective study of the relationship between depressiveness in adolescence, in untreated adolescents, and the health and functioning in adulthood indicates that, contrary to predictions, the appearance of depression in this phase of development cannot be treated as a predictor of mental disorders later in life.

Conclusions. Long-term observation in our prospective study supports the hypothesis of a developmental character of adolescent depression.

Key words: adolescent depression, prospective studies

Introduction

At the beginning of the 21st century, it was predicted that depressive disorders would become one of the most important health-related problems (global disease burden) in the developed world [1]. The burden of depressive disorders remains in connection with their destructive impact on the quality of life and productivity as well

as the fulfilment of the roles in the context of the society and the family. The problem is particularly pronounced in countries with a lower level of economic development. In a significant way, these disorders result in poverty, discrimination and affect the emergence of other mental disorders [2].

The concept of depressive disorders is not precise and for many years has been raising a number of nosological, etiological and diagnostic doubts, which is reflected, among others, in the evolution of diagnostic classifications and endless controversies in this regard [3]. Such concerns also apply to depression in the developmental period. The relationship between depressive disorders occurring during adolescence and the risk of recurrence of depression in adulthood is undeniable [4, 5]. The question which is still open is how the occurrence of individual symptoms of depression or mild symptoms translates into a risk of depression or other psychiatric and life-related problems in subsequent decades of life.

Mood swings are a normative aspect of adolescence [6]. Also clinical practice in this regard often indicates a pro-developmental nature of depressive reactions in adolescence. In this context, they constitute a fragment of the adolescent crisis, which is an attempt to overcome the challenges of puberty [7]. We must take note that our research also shows that depression in untreated adolescents takes various courses. It is found at various stages of the development period. It occurs episodically or chronically [8, 9].

Attempts have been made to solve the problem of the predictive role of depression in adolescence by investigating the association between its occurrence and the presence of other psychopathological symptoms. The co-occurrence of depression with other psychopathological syndromes among adolescents was noted as early as the 1980s [10, 11]. The comorbidity of depressive symptoms with symptoms of anxiety disorders, eating disorders and the use of psychoactive substances was observed in the Krakow studies of the untreated population [12]. In addition, the Krakow studies also indicate that the mere fact of depressive characteristics occurring in an adolescent may also be of predictive significance, rather than the severity of depression [13].

Attempts were made to solve the issue in longitudinal retrospective and prospective studies. Numerous results of research on adolescent groups treated for depression have been published, observed in follow-up periods of up to several dozen years [14]. Prospective studies of depression in the general adolescent population are less frequent, and observation ends in early adulthood, without exceeding 10 years [14]. The lack of long-term studies seems to be particularly significant in the case of untreated depressive disorders. Their negative short-term influence on the occurrence of mental problems in early adulthood is well-documented. However, the question about the long-term consequences of depression during the development period remains open [14–16]. The literature on the subject provides ambiguous data in this regard.

In a 10 years' follow-up of 1,027 adolescents aged 16–17 from Canada, the occurrence of depression during the first assessment was associated with a more frequent recurrence of depression, its greater severity, migraines, headaches, low self-assessment of health, and poor social support [16].

In Uppsala, in years 1991–1993, a population of 2,300 adolescents aged 16–17 was examined for the presence of depressive disorders. 15 years after the first study,

382 people were examined again. After this period, it was found that the occurrence of long-term depressive symptoms or dysthymia in the baseline study was associated with a more frequent occurrence of anxiety disorders, other mental disorders, suicide attempts, and psychiatric treatment compared to the group without depressive symptoms. The problems mentioned above occurred slightly less frequently in people with episodic depressive symptoms. The group with subclinical symptoms of depression did not differ from the group of healthy adolescents. The group with long-term depressive symptoms had symptoms of depression which were more persistent, more recurrent and required longer pharmacological treatment after 15 years [17].

In a 15 years' follow-up of depressive disorders in the population of Polish youth (985 people) studied for the first time in 1985, a statistically significant relationship was observed between the occurrence of depression during adolescence and worse overall health and more frequent smoking. In the case of depression in the middle adolescence period, lack of significant partner relationships was observed in men; in women, earlier maternity and early divorce were observed. Depressive symptoms in early adolescence proved to be associated with a lower intensity of social relations outside the family circle. In turn, women who were depressed in middle adolescence were found to have a more intense social life [18].

In a 15 years' follow-up, based on record data, groups of 362 Swedish teenagers with depressive symptoms surveyed at the age 16–17 were compared. Adolescents whose score in the Beck's questionnaire was higher than 15 points or higher than 10 points in the Beck's questionnaire and at the same time higher than 29 points on the CES-DC scale, or there was a suicide attempt history, were included in this group. A control group (250 persons) was selected from a population sample of 2,270 adolescents. Among other things, statistically, girls with symptoms of depression turned out to be using medical help more often, had a bigger number of various health problems, accidents and suicide attempts. In both depressive women and men, the incidence of depression influenced the frequency of psychiatric hospitalizations. As for most of the studied health problems, they were not seen to be related to the incidence of depressive symptoms in the adolescence period. Unlike dysthymia and subclinical symptoms, in women, symptoms of major depression were associated with a higher incidence of anxiety disorders and other psychiatric and behavioral problems [19].

In a study of Reef et al. [20], a 24 years' follow-up study included 2,076 Dutch children whose psychological condition had been assessed by parents in 1983. The initial diagnosis of aggression symptoms, socially maladaptive behavior, anxiety and depression turned out to be a strong predictor of a variety of mental disorders. Mixed anxiety-depressive disorders were the strongest predictor of emotional problems when surveyed with other symptoms controlled. The group under study was comprised of children aged 4 to 16 years [20].

A 40-year follow-up of 3,279 children born in Great Britain in 1946 found that the occurrence of internalizing disorders assessed at 13 and 15 years of age is associated with more frequent anxiety and depression as well as psychiatric treatment in adulthood. A statistically significant difference was found in an assessment performed

among respondents aged 36 and 43. It was not found for the continued prevalence of disorders and treatment evaluated in the 53rd year of life of the subjects [14].

The results of the cited studies neither resolve doubts nor give unambiguous answers. This may be due to differences in the method of conducting these studies, but also in significant changes that take place in the classification of mental disorders during the period required for prospective long-term observations.

Aim of the study

The aim was to assess the predictive value of the occurrence of depressive symptoms during adolescence. For this purpose, the life history of untreated adolescents screened for the presence of depressive symptoms was assessed twice, at intervals of fifteen years, including an assessment of their health history, their family-related, occupational, material, and social situation.

The comparison of the fate of depressive adolescents with the fate of their non-depressive peers was aimed at answering the question about the influence of adolescent depression on health in adulthood.

Material and methods

In 1985, a random sample of 1,035 people – students aged 15 and 17 – was examined for a screening diagnosis of adolescent depression. These studies used the *Krakow Depression Inventory* (KID) questionnaires version for 15-year-olds ('IOB1') and for 17-year-olds ('IOC1'). In this group, 29.5% of the respondents were identified as depressive (basic study). The average score on the KID questionnaire was 5.6 points. ($SD = 1.86$). In 2000 (15 years' observation), a short questionnaire regarding their situation was sent to all respondents surveyed in 1985. The survey returned data regarding 238 people. The people who responded had a slightly higher KID questionnaire score obtained in 1985 than those who did not respond to the questionnaire (5.8 $SD = 1.96$ vs. 5.5 $SD = 1.83$). In 2015, a follow-up questionnaire was sent to the subjects again (30-year observation). In 2015, responses were obtained from 101 people (9.8% of subjects surveyed in 1985). People who responded to the questionnaire had a slightly lower score on the KID questionnaire in 1985.

Of all those who participated in the study in 1985, only 69 people responded both after 15 and 30 years. (Figure 1)

The *Krakow Depression Inventory* (KID) is composed of items which capture depressive symptoms in areas identified on the basis of a clinical description of depression in children and adolescents, including based on a taxonomic analysis of the results of a clinical trial [11]. When assigning descriptions of experiences, sensations and behaviors to the identified areas, a theoretical assumption about the relationship between experience (behavior) and the following functions was used as a guide: mood, anxiety, intellectual (cognitive) actions, activeness (drive). Two specific symptomatic areas were also identified: self-destructive behaviors and somatic symptoms. The KID was consequently divided into six symptomatic areas: A – mood disorders; B – anxi-

ety; C – cognitive disorders; D – drive disorders; E – self-destruction; F – somatic symptoms. The various versions of the KID differ in the number of items in the entire questionnaire and in individual areas. This is due to differences in the abundance of symptomatic manifestation at various stages of development. Standard sten scales were developed, both general and for specific symptomatic areas.

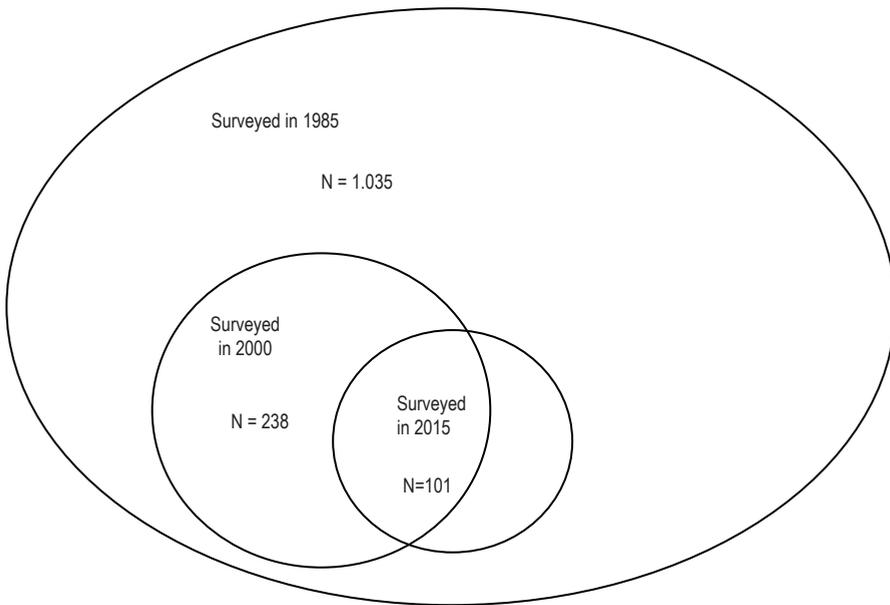


Figure 1. Group size in each study

To compare the current situation of depressive and non-depressive people during adolescence, percentages were used and statistical inference was based on the Chi² test and Fisher's exact test (for too small numbers). All analyses were carried out in the SPSS program ver. 24.

Results

238 people took part in the study conducted in 2000, 15 years after the first study, which constituted 23.0% of the population studied initially. In 2015, only less than 10% of those surveyed in 1985 took part in the study. In comparing the population structure of the three successive studies, it should be noted that in the following years an increasingly smaller percentage of the surveyed population included men: 47.2% in the 1985 study, 37.3% in 2000 and 33.7% in 2015. In the subsequent studies, however, a higher proportion of depressive people (in adolescence) who responded to the invitation to participate in the study, was observed. In the preliminary study, depressiveness

applied to 29.5% of respondents, while among those surveyed in 2000 there were 33.6% of depressive people during adolescence and in 2015, 40.6% (Table 1). There were no significant differences in the results of the KID questionnaire between those who responded to the questionnaire and those who did not respond in both 2000 and 2015.

Table 1. Comparison of population surveyed in 1985, 2000 and 2015 in terms of results on the KID depression scale

Specification	Basic study	15-year observation		30-year observation	
	1985	2000		2015	
N	1,035	238		101	
Age of subjects	13–19 years	28–34 years		43–49 years	
Gender: percentage of men	47.2%	37.3%		33.7%	
Percentage of depressive people	29.5%	33.6%		40.6%	
Study response rate		23.0%		9.8%	
		Respondents	No response	Respondents	No response
KID score – mean		5.8	5.5	5.4	5.6
KID score – SD		1.96	1.83	1.97	1.85

When data on the level of education achieved by depressive people were compared, it was observed that the proportion of higher educational attainment in the year 2000 was 28.4% (age 28–34) compared to 58.8% of depressive people surveyed in 2015 (age 43–49 years). Similarly, in the group of non-depressive people, it was observed that the proportion of higher educational attainment in 2015 was significantly higher (49.3%) than in studies conducted fifteen years earlier (29.9%; $p = 0.006$). In the group of depressive people, the proportion of employed people was slightly higher in 2015 (94.1%) compared to those surveyed in 2000 (86.4%; $p = 0.345$). On the other hand, among non-depressive people in both studies (in 2000 and 2015), the rate of employment was similar (84.5% and 86.2%, respectively).

In both analyzed groups (depressive and non-depressive people), the percentage of people who declared incomes below 50% of the national average for a given year was significantly lower in 2015 – in the depressive group – 21.2% compared to 91.3% in 2000 ($p < 0.001$) while in the non-depressive group 27.0% compared to 91.2% in 2000 ($p < 0.001$).

As regards housing conditions, measured by the number of rooms in the house/flat in which the respondent lives, in the 2000 study, statistically significant differences were found between depressive and non-depressive people during adolescence. Depressive people were less likely to declare that their apartment had 3 or more rooms (40.9% vs. 58.1% in the non-depressive group; $p = 0.011$). In both compared groups, the percentage of people with three or more rooms was higher in 2015 – 76.5% in the depressive group and 78.8% in the non-depressive group. The changes observed in both groups were statistically significant (Table 2).

Table 2. Demographic and social characteristics of people re-examined in 2000 and 2015

Specification		Depressives in 1985			Nondepressives in 1985		
		2000	2015	p	2000	2015	p
Education	Secondary	63 (71.6)	14 (41.2)	0.002	103 (70.1)	34 (50.7)	0.006
	Higher	25 (28.4)	20 (58.8)		44 (29.9)	33 (49.3)	
Employment	No	12 (13.6)	2 (5.9)	0.345*	23 (15.5)	9 (13.8)	0.750
	Yes	76 (86.4)	32 (94.1)		125 (84.5)	56 (86.2)	
Income	< 50% of average	73 (91.3)	7 (21.2)	<0.001	125 (91.2)	17 (27.0)	<0.001
	> 50% of average	7 (8.8)	26 (78.9)		12 (8.8)	46 (73.0)	
Number of rooms	< 3	52 (59.1)	8 (23.5)	<0.001	62 (41.9)	14 (21.2)	0.004
	>=3	36 (40.9)	26 (76.5)		86 (58.1)	52 (78.8)	

The respondents were also asked if they were single people. Both in the depressive and non-depressive groups, the percentage of people declaring single status in 2000 was slightly higher compared to 2015 (17.6% vs. 14.8% in the depressive group and 17.9% vs. 13.0% in the non-depressive group). These differences were not statistically significant. On the other hand, it was observed that the 2015 study had a lower (insignificant) percentage of people declaring the breakdown of previous relationships (30.3% vs. 39.3% in 2000 in the depressive group and 26.1% vs. 30.5% in the non-depressive group during adolescence).

In comparative studies carried out in 2000, depressive people were more likely to declare having children than were non-depressive people (75.0% vs. 61.5%; $p = 0.033$). When comparing data obtained in 2015, it can be noticed that the percentage of people with children is 82.4% in the depressive group (compared to the year 2000, a statistically insignificant difference) and 90.9% in the non-depressive group (statistically significant difference in relation to 2000; $p < 0.001$).

It was also observed that in the depressive group in 2015, the frequency of contacts with people outside the family was lower than in studies conducted 15 years earlier, but the difference was not statistically significant. In the non-depressive group, the frequency of meetings with other people was significantly lower in 2015; 20.0% of respondents declared such meetings at least once a week compared to 47.6% in 2000, while the percentage of those who declared such meetings less frequently than once a month was higher in 2015 (46.2% vs. 14.3% in 2000; $p < 0.001$).

Table 3. Family circumstances and meetings with people from outside the family among people re-examined in 2000 and 2015

Specification		Depressives in 1985			Nondepressives in 1985		
		2000	2015	p	2000	2015	p
Single person	No	75 (85.2)	28 (82.4)	0.695	127 (87.0)	55 (82.1)	0.347
	Yes	13 (14.8)	6 (17.6)		19 (13.0)	12 (17.9)	
End of previous relationships	n/a	51 (60.7)	23 (69.7)	0.364	98 (69.5)	48 (73.8)	0.524
	Breakup	33 (39.3)	10 (30.3)		43 (30.5)	17 (26.2)	
Having children	No	22 (25.0)	6 (17.6)	0.387	57 (38.5)	6 (9.1)	< 0.001
	Yes	66 (75.0)	28 (82.4)		91 (61.5)	60 (90.9)	
Meetings outside the family	Min. 1/week.	40 (45.5)	13 (39.4)	0.260	70 (47.6)	13 (20.0)	< 0.001
	1/month	31 (35.2)	9 (27.3)		56 (38.1)	22 (33.8)	
	Less frequently	17 (19.3)	11 (33.3)		21 (14.3)	30 (46.2)	

Both in the depressive and non-depressive groups, a significantly lower rate of cigarette smoking was observed in 2015 – in the depressive group, 11.8% vs. 31.0% in 2000 ($p = 0.029$), while in non-depressive people it reached 7.5% compared to 23.6% in the previous study ($p = 0.005$).

A comparison of the studies carried out in 2000 and 2015 indicates that in 2015 there were fewer non-drinkers in the depressive group, while there were more people who declared consumption several times a week and there were more people using alcohol every day than had been the case in studies conducted 15 years earlier. The difference, however, was not statistically significant ($p = 0.052$). In contrast, in the non-depressive group, the percentage of non-drinkers in 2015 was higher (28.8% vs. 23.6% in 2000) and at the same time the percentage of people who drank alcohol a few times a week or more often was higher. Like in the depressive group, the difference between the two studies was not statistically significant ($p = 0.084$).

Only two people (from the non-depressive group) declared drug use in 2000. However, none of the respondents in either group declared taking drugs during the 2015 survey.

Only one person in the depressive group in 2000 declared a criminal record; in 2015 there were no such individuals in the group. In the non-depressive group, a criminal record was declared by 4 people (2.7%) in 2000 and one person (1.5%) in 2015.

Table 4. Characteristics of the lifestyle and health status of people who were re-examined in 2000 and 2015

Specification		Depressives in 1985			Nondepressives in 1985		
		2000	2015	p	2000	2015	p
Smoking	No	60 (69.0)	30 (88.2)	0.029	113 (76.4)	62 (92.5)	0.005
	Yes	27 (31.0)	4 (11.8)		35 (23.6)	5 (7.5)	

table continued on the next page

Alcohol	Non-drinker	30 (34.5)	6 (17.6)	0.052	35 (23.6)	19 (28.8)	0.084
	< 1/week	43 (49.4)	17 (50.0)		85 (57.4)	28 (42.4)	
	<= 5/week	13 (14.9)	8 (23.5)		25 (16.9)	12 (21.2)	
	> 5/week	1 (1.1)	3 (8.8)		3 (2.0)	5 (7.6)	
Drugs	No	88 (100.0)	34 (100.0)	1.000	146 (98.6)	66 (100.0)	1.000*
	Yes	-	-		2 (1.4)	-	
Criminal record	No	85 (98.8)	34 (100.0)	1.000*	143 (97.3)	65 (98.5)	1.000*
	Yes	1 (1.2)	-		4 (2.7)	1 (1.5)	
Serious illness over a period of 15 years	No	60 (68.2)	23 (67.6)	0.955	113 (76.4)	51 (76.1)	0.970
	Yes	28 (31.8)	11 (32.4)		35 (23.6)	16 (23.9)	
Mental illness	No	83 (94.3)	33 (97.1)	1.000*	144 (97.3)	64 (95.5)	0.680*
	Yes	5 (5.7)	1 (2.9)		4 (2.7)	3 (4.5)	
Hospital stay	No	61 (70.9)	10 (50.0)	0.073	97 (65.5)	20 (47.6)	0.120
	Yes	25 (29.1)	10 (50.0)		51 (34.5)	22 (52.4)	

Discussion

Antoni Kępiński presented an original approach to the complexity of the problem of susceptibility to the occurrence of mental disorders in the period of adolescence and specificity of adolescence psychopathology [7]. Namely, he proposed that adolescence be examined together with other periods in a person's life, in which serious biological, psychological and social transformations occur simultaneously. He relied on the concept of development through crisis, introducing a holistic view on the parallel and interactive nature of changes in the activities of the endocrine system, the shape and functioning of the body, changes in brain efficiency, changes in mental activities and changes in social functioning. In Kępiński's view, it is also important to pay attention to the turning point's processual nature. Kępiński does not take a conclusive decision as to the issue of normativity–pathology of the manifestations accompanying the psychobiological turning points. He points out, however, that all of them exhibit features of depression. For those which accompany growing up, he used the name 'adolescent depression'. It is therefore a separate syndrome, consisting of mood disorders, anxiety, behavioral disorders, and a significant increase in self-destruction.

When describing the dynamics of the adolescence process, psychodynamic therapists paid attention to its critical nature and its central problem, that is identity [21] and the importance of the relationship with the parent of the same sex for its development [22]. Focusing on the subjective role of the adolescent made it possible to propose a thesis that development during adolescence is task-oriented. This proposition views new skills and abilities as developmental tasks, the achievement of which requires activity and effort, while failure adversely affects the attitude towards oneself. Of basic significance in the origin of adolescent depression in this approach is the instability of the self-image, which is only under construction, and the discrepancy between the ideal (expected) self-image and the real self-image with the steady fluctuations resulting from the successes and failures in performing developmental tasks. The tension between the perfect image of the 'self' and the shaky and unstable real (current) self-image is perceived both as a driving force to accomplish the developmental tasks of growing up, as well as a source of discomfort and suffering, which is the essence of depression.

Depending on the form, the current ICD-10 classification describes symptoms of youth depression as a mild depressive episode (F32.0), a recurrent depressive disorder, a mild depressive episode (F33.0), dysthymia (F34.1), or mixed depressive and anxiety disorders (F41.2), and depressive behavioral disorders (F92.0).

An analysis of the presented follow-up studies points to several important aspects of the distant consequences of depression found during childhood and adolescence in non-clinical populations. A one-off episode of depressive disorder is not necessarily a predictor of mental disorder in later life. Whether or not the symptoms are chronic is of greater importance here. In a significant way in terms of their long-term consequences, depressive symptoms are associated with anxiety symptoms but also with various health or life-related consequences. The relationships observed in women may differ significantly in this respect from those found in men. Comorbidity of other psychiatric problems can have a significant impact on the occurrence of psychiatric problems in adulthood in depressive adolescents. The influence of psychopathology from the developmental period seems to wear out over time or other factors which appear over time turn out to be more important.

An analysis of the results of a 30-year prospective study of the relationship between depressiveness in adolescence, in untreated adolescents, and the health and functioning in adulthood indicates that, contrary to predictions, the appearance of depression in this phase of development cannot be treated as a predictor of mental disorders later in life. The hypothesis of the predictive value of youth depression was derived from studies of comorbidity of psychopathological syndromes in adolescents [10, 13, 23, 24]. Double assessment: in the middle of the follow-up period and at its end, i.e., in the early fourth decade of the respondents' lives, and in the middle of the fifth one, however, gives information about the dissimilarities between the lives of depressive people in adolescence and those in whom depression was not observed at that time. People who were depressive in adolescence became parents earlier. In the fifth decade of life, however, they were more likely to remain childless than their peers who had not been depressive in adolescence. In the second half of the follow-up period, that is in the fourth and fifth decades of the respondents' lives, their material and housing

conditions improved. At the beginning of the fourth decade of life, people who were depressive in adolescence declared lower incomes and worse housing conditions. And the difference blurred in the second half of the follow-up period.

A study of Naicker et al. [16] showed that depression in adolescence was associated with numerous health disorders (especially in subjective assessment) and more frequent use of health care. The assessments were performed ten years apart. The results of our fifteen-year follow-up were similar [24].

A study of Bohman et al. [19] showed that depression during adolescence is associated with a higher incidence of psychiatric hospitalizations, and – especially in women – being diagnosed with dysthymia, anxiety and behavioral disorders. The difference in our results may be due to the differences in the initial qualification and follow-up data acquisition methods, as the Bohman team used record data. The results of the same study team, in fifteen-year follow-up, pointed to a relationship between depression in adolescence and the use of psychiatric treatment in later periods (mainly due to anxiety disorders and suicide attempts) [17]. Long duration of symptoms of depression in adolescence proved to be significant. The transient nature of depressive episodes meant that the fate of depressive adolescents did not differ from the fate of those in the non-depressive comparative group.

The solution to the dilemma of whether or not depressiveness in adolescence has predictive significance would require an assessment of the health and fate of adolescents whose depressiveness was assessed by studying its persistence over time.

What should be noted among the limitations of the presented study is that the data were collected based on mailbox surveys, which involves the risk of errors typical of this type of tools – primarily related to the respondents having to retrace certain facts from the past but also the risk of unconscious or conscious distortion of information. In addition, the use of the mailbox survey form in a way involves a relatively low percentage of obtained survey returns – this being a problem characteristic of many such studies. The resulting feedback at the level of 10% of the initial sample seems to be quite low, however, it should be considered that it is a study repeated 30 years after the first study. Such a small sample size does not make it possible to obtain the appropriate statistical power of inference, but it can be a basis for observing certain trends evident in the studied group.

Conclusions

Long-term observation in our prospective study supports the hypothesis of a developmental character of adolescent depression.

The study was carried out using JU MC's own funds (grant K/ZDS/005577). The study was conducted following JU MC's Bioethical Commission approval (122.6120.169.2015).

References

1. Mathers CD, Loncar D. *Projections of global mortality and burden of disease from 2002 to 2030*. PLoS Med. 2006; 3(11): 442.
2. Cuijpers P, Beekman AT, Reynolds CF. *Preventing depression: A global priority*. JAMA 2012; 307(10): 1033–1034.
3. Koukopoulos A, Sani G. *DSM-5 criteria for depression with mixed features: A farewell to mixed depression*. Acta Psychiatr. Scand. 2014; 129(1): 4–16.
4. Costello EJ, Pine DS, Hammen C, March JS, Plotsky PM, Weissman MM et al. *Development and natural history of mood disorders*. Biol. Psychiatry 2002; 52(6): 529–542.
5. Rutter M, Kim-Cohen J, Maughan B. *Continuities and discontinuities in psychopathology between childhood and adult life*. J. Child Psychol. Psychiatry 2006; 47(3–4): 279–295.
6. Larson R, Csikszentmihalyi M, Graef R. *Mood variability and the psycho-social adjustment of adolescents*. In: Csikszentmihalyi M. *Applications of flow in human development and education*. Springer Netherlands; 2014. P. 285–304.
7. Kępiński A. *Melancholia*. Warsaw: State Publishing House for Medicine; 1974. P. 12–20.
8. Bomba J, Modrzejewska R. *Prospektywne badanie dynamiki depresji u młodzieży w średniej fazie adolescencji*. Psychiatr. Pol. 2006; 40(4): 683–693.
9. Bomba J, Modrzejewska R. *Prospektywne badanie dynamiki depresji u młodzieży w późnej fazie adolescencji*. Psychiatr. Pol. 2006; 40(4): 695–706.
10. Bomba J. *Psychopatologia i przebieg depresji u młodzieży*. Psychoterapia 1981; 39: 3–11.
11. Bomba J. *Depresja u młodzieży. Analiza kliniczna*. Psychiatr. Pol. 1982; 16(1–2): 25–30.
12. Modrzejewska R. *Współwystępowanie objawów depresyjnych, zaburzeń jedzenia oraz obsesyjno-kompulsyjnych a używanie substancji psychoaktywnych w populacji 17-letniej młodzieży wielkomiejskiej*. Psychiatr. Pol. 2010; 44(5): 651–663.
13. Modrzejewska R. *Współwystępowanie objawów depresyjnych, zaburzeń jedzenia oraz obsesyjno-kompulsyjnych traktowanych jako zmienne kategoryjne lub dymensjonalne i ich znaczenie jako czynnika ryzyka używania substancji psychoaktywnych*. Krakow: Jagiellonian University Press; 2011.
14. Colman I, Wadsworth ME, Croudace TJ, Jones PB. *Forty-year psychiatric outcomes following assessment for internalizing disorder in adolescence*. Am. J. Psychiatry 2007; 164(1): 126–133.
15. Pine DS, Cohen E, Cohen P, Brook J. *Adolescent depressive symptoms as predictors of adult depression: Moodiness or mood disorder?* Am. J. Psychiatry 1999; 156(1): 133–135.
16. Naicker K, Galambos NL, Zeng Y, Senthilselvan A, Colman I. *Social, demographic, and health outcomes in the 10 years following adolescent depression*. J. Adolesc. Health 2013; 52(5): 533–538.
17. Jonsson U, Bohman H, Von Knorring L, Olsson G, Paaren A, Von Knorring AL. *Mental health outcome of long-term and episodic adolescent depression: 15-year follow-up of a community sample*. J. Affect. Disord. 2011; 130(3): 395–404.
18. Bomba J, Modrzejewska R, Pilecki M, Ślosarczyk M. *Depresyjny przebieg dorastania jako czynnik ryzyka powstawania zaburzeń psychicznych – piętnastoletnie badania prospektywne*. Psychiatr. Pol. 2003; 37(1): 57–69.
19. Bohman H, Jonsson U, Päären A, Von Knorring AL, Olsson G, Von Knorring L. *Long-term follow-up of adolescent depression. A population-based study*. Ups. J. Med. Sci. 2010; 115(1): 21–29.

20. Reef J, Diamantopoulou S, Van Meurs I, Verhulst F, Van Der Ende J. *Child to adult continuities of psychopathology: A 24-year follow-up*. Acta Psychiatr. Scand. 2009; 120(3): 230–238.
21. Erikson E. *Identity, youth and crisis*. New York: Norton and Co. Inc.; 1968. P. 128–141.
22. Blos P. *Son and father. Before and beyond Oedipus complex*. New York: The Free Press; 1985. P. 135–173.
23. Witkowska-Roszka J. *Zespoły depresyjne u dzieci w wieku 7 do 14 lat*. Typescript of doctoral thesis, Wrocław Medical University; 1978.
24. Bomba J, Modrzejewska R, Pilecki M, Ślosarczyk M. *Adolescent depression as a risk factor for the development of mental disorders. A 15-year prospective follow-up*. Arch. Psychiatr. Psychother. 2004; 6(1): 5–14.

Address: Renata Modrzejewska
Jagiellonian University Medical College
Department of Child and Adolescent Psychiatry
31-501 Kraków, Kopernika Street 21A
e-mail: renatam@cm-uj.krakow.pl