

A prospective study on the dynamics of depression in late adolescence

Jacek Bomba, Renata Modrzejewska

Summary

Aim: To assess changes in the occurrence of depressive disorders during late adolescence a prospective epidemiological study was carried out.

Subjects and method: A representative sample of 17-year-old school adolescents (N=2094) was screened for depression with the Krakow Depression Inventory (KID) in 2001, 2002 and 2003.

Results: Point prevalence of depression was as follows: 27.27 % for 17-year-olds, 27.43 % for 18-year-olds, and 26.69 % for 19-year-olds, and was relatively stable in the sample studied.

Conclusions: It was found that depression is more frequent in late-adolescent girls than in boys of the same age. The dynamics of depression across the years suggests a differentiated nature of the disturbance.

adolescent depression / epidemiology of mental disorders in adolescence

INTRODUCTION

The paper presents the results of the study conducted in accordance with the principle of the developmental nature of depressive disorders during adolescence, as it was formulated in Poland by Antoni Kępiński [1]. Kępiński's assumption was verified in clinical studies [2], as well as in cross-sectional studies of the untreated population [3, 4]. In literature, a more popular approach is the one based on theoretical principles of the integrity of all affective disorders [5], with a clear distinction between a disorder perceived as pathology on the one hand and sadness seen as the child's or adolescent's adequate response to unpleasant current experience on the other

[6]. The classifications of mental disorders which are nowadays in use (ICD-10, DSM-IV) are fundamentally provisional. In these classifications, disorders with a depressive picture which occur during adolescence are categorised as affective disorders, behavioural and emotional disorders, somatogenic disorders or posttraumatic disorders – depending on the context. This justifies an anosologic approach in the studies and the perception of depression (for which the term depressiveness is used interchangeably) as a complex of symptom.

The results of the Cracow epidemiological studies on depression among adolescents make it possible to conclude that in late adolescence depression is less frequent, providing the conditions of entering adulthood are favourable [7]. These findings, achieved as a result of the comparison of incidence of disorders among the students of Cracow and Helsinki secondary schools, proved similar to those achieved earlier by Italian psychiatrists [8]. Moreover, the Cracow studies showed that the occurrence of depression in late adolescents is related to the earlier occur-

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rence of unspecific factors affecting the development. [9]. A catamnestic study involving the same population sample, conducted 15 years later [10] revealed certain relationships between depression, also in late adolescence, and unfavourable further course of life, especially among women. Such a relationship has already been indicated beforehand, although on the basis of studies with a considerably shorter catamnestic period [11, 12, 13, 14, 15, 16]. The following aspects of adult life of subjects suffering from depression during adolescence have been pointed out: worse general health state [17], requiring health care and assistance more often, more frequent drug taking [18, 19], abuse of and addiction to nicotine [20] and other psychoactive substances [21], giving up school education [18, 22], women's earlier entering into marriages [20, 23], lack of satisfaction from sexual life [23] and delinquency [18].

AIM OF THE STUDY

The aim of this work was to search for data which would enable an answer to the questions about the variability of depression during late adolescence. The assumption was that, in accordance with earlier observations [3, 4], the rate of depression prevalence can be relatively stable in this phase of adolescence, although it depends on the type of education, and, furthermore, that it would be higher among girls than among boys.

SUBJECTS AND METHOD

A prospective study including a representative population sample of students of big-city secondary schools was planned. In 2001, with the use of the two-stage draw method, a group of 2094 second-form students of grammar secondary schools, technical secondary colleges and vocational secondary schools (17-year-olds) was selected. They were examined three times, in 2001, 2002 and 2003, with the use of the Krakow Depression Inventory (Krakowski Inwentarz Depresyjny, KID). KID is a questionnaire which includes the combination of depression symptoms (the combination of mood disturbance, anxiety,

cognitive disturbance, activity disturbance, self-destruction, somatic symptoms) characteristic of preadolescents and adolescents in the early, middle and late phase of adolescence. It was prepared in three versions, namely: AO "B1" for the parents of children aged about 10, IO "B1" for young people aged 13–15 and IO "C1" for young people aged over 16. In order to retain the descriptive value of the tool, questions of a low discriminative value were kept in the questionnaire. The diagnostic accuracy of KID in screening studies corresponds to the accuracy of Beck's questionnaire for the youth. KID IO "C1" consists of 119 statements, 104 of which describe depression symptoms, taking into account the specificity related to the developmental stage. In the introductory instructions the subjects were asked to take into account in their answers the month preceding the examination. Some questions (such as those about self-aggression, especially suicidal thoughts) by their very nature require a reflection covering a longer period of time than that specified in the test instructions. KID results are assessed according to the sten scale. Cronbach's alpha reliability coefficient of KID IO "C1" = 0.9425. The diagnostic validity assessed by means of the point-biserial correlation coefficient $r = 0.6917$.

The subjects were asked to sign their questionnaires, so that it was possible to identify them in the sample during the subsequent stages of the study. Depression prevalence in the same population sample was analysed three times (2001, 2002, 2003). Moreover, the dynamics of the intensity of depression symptoms in individual subjects was analysed.

Subjects

In 2001 among the students selected, 2094 copies of KID IO "C1" were distributed, and 1949 completed questionnaires were received back. In subsequent years, 2002 and 2003, 1505 and 1175 questionnaires were received, respectively. In the study, only those returned questionnaires which were completed in full could be taken into consideration, while in the analysis of dynamics it was possible to consider only those which were signed thus enabling the identification during further stages of the study. Due to a shorter pe-

Table 1. Population sample and information gathered

Year	Initial sample size	Number of filled-in KID questionnaires returned	%
I – 2001	2094	1949	93.08
II – 2002	2094	1505	71.87
III – 2003	2094	1175	56.11

riod of education in vocational schools and because members of a given school class change, some students could not participate in all three stages of the study. The proportions of the analysed group to the whole selected population sample are presented in Tab.1.

The proportions of male and female students of grammar secondary schools to those of oth-

er secondary schools are presented in Fig.1. Secondary schools other than grammar secondary schools were integrated due to the fact that the percentage of vocational school students was very small (6%).

It was possible to assess the point prevalence of depression on the basis of the results achieved from 56–93% of the selected population sample of late-adolescent students. The dynamics could be investigated in the group constituting 14.76% of the population sample (N = 309, with the initial sample N = 2094). The proportions between the groups analysed in subsequent years as compared to the whole population sample, are presented in Fig.2.

The rates of point prevalence of depression in the first stage of the study in 2001 in the whole studied population (27.27%; girls 34.0%, boys 18.9%) and in the group of subjects studied in

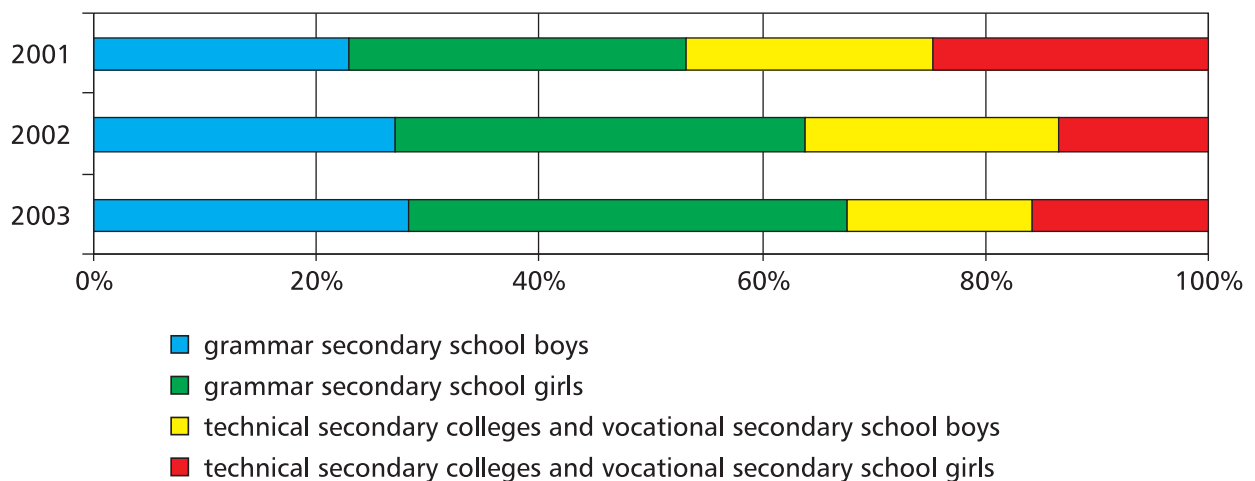


Fig. 1. Population sample of second-form students

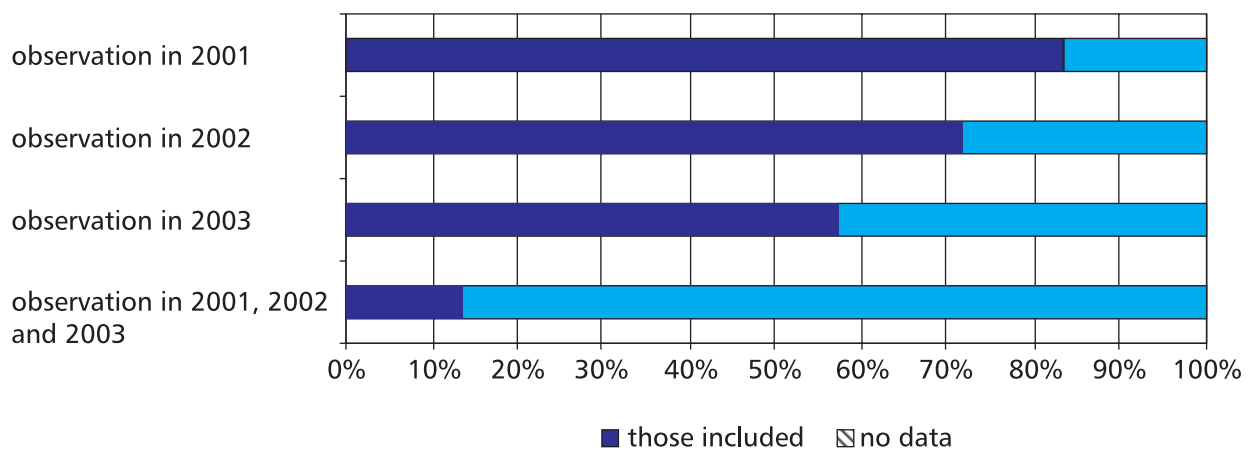


Fig. 2. Completeness of data received from the studied sample of late adolescents

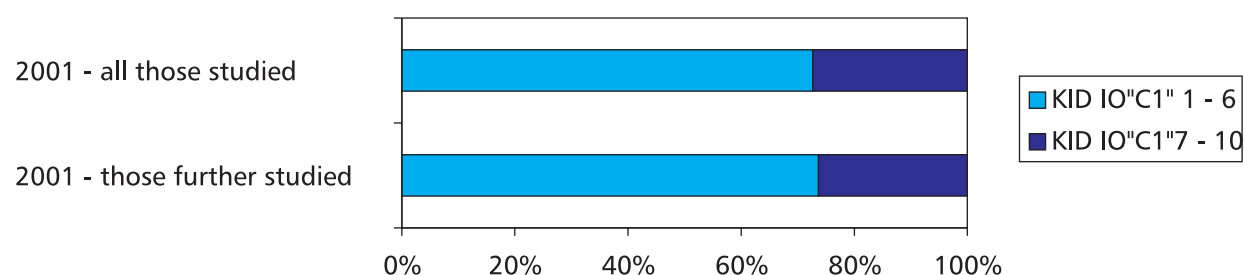


Fig. 3. Depression prevalence in 2001 amongst the 17 y.o. population

subsequent years and included in the analysis of dynamics (26.21%; girls 30.54%, boys 17.92%), are presented in Fig.3.

Point prevalence of depression in the population of late adolescents

The rate of point prevalence of depression was assessed on the basis of a screening diagnosis of depression, made, in turn, on the basis of the KID result ≥ 7 . The assessment was conducted in the same representative sample of secondary school students in 2001 (II-formers), 2002 (III-formers) and 2003 (IV-formers). The results are presented in Tab.2 and Fig.4.

The rate of point prevalence of depression in the population sample studied successively in age 17, 18 and 19 is similar, namely: 27.27% in 2001, 27.43% in 2002, and 26.69% in 2003.

Depression vs. sex

The results of earlier studies [3, 4] suggested that depression is more prevalent among girls during late adolescence than among boys of the same age. In order to verify this regularity the relationship between depression occurrence and sex was compared in the same population sample in subsequent years. The results are presented in Tab.2 and in Fig. 5.

The rates of point prevalence of depression in girls in subsequent years are higher than in boys, and the changes in values in subsequent years are small and statistically insignificant.

Table 2. Depression prevalence in the 17, 18 and 19 y.o. population

Year of study	2001				2002				2003			
	17		18		18		19		19		19	
Age	depressive		nondepressive		depressive		nondepressive		depressive		nondepressive	
	N	%	N	%	N	%	N	%	N	%	N	%
Boys	142	18.9	610	81.1	139	20.2	550	78.9	98	19.1	414	80.9
Girls	320	34.0	622	66.0	248	34.3	474	65.7	210	32.7	432	67.3
Together	462	27.27	1232	72.73	387	27.43	1024	72.57	308	26.69	846	73.31

Differences in depression prevalence amongst boys and girls in the years 2001, 2002 and 2003:

In 2001: Pearson's $\chi^2 = 47.990$; $df = 1$, asymptotic significance < 0.0005

In 2002: Pearson's $\chi^2 = 35.589$; $df = 1$, asymptotic significance < 0.0005

In 2003: Pearson's $\chi^2 = 26.806$; $df = 1$, asymptotic significance < 0.0005

Differences in depression prevalence amongst boys in the years 2001, 2002 and 2003:

Pearson's $\chi^2 = 0.415$; $df = 2$, asymptotic significance = 0.813

Differences in depression prevalence amongst girls in the years 2001, 2002 and 2003:

Pearson's $\chi^2 = 0.448$; $df = 2$, asymptotic significance = 0.799

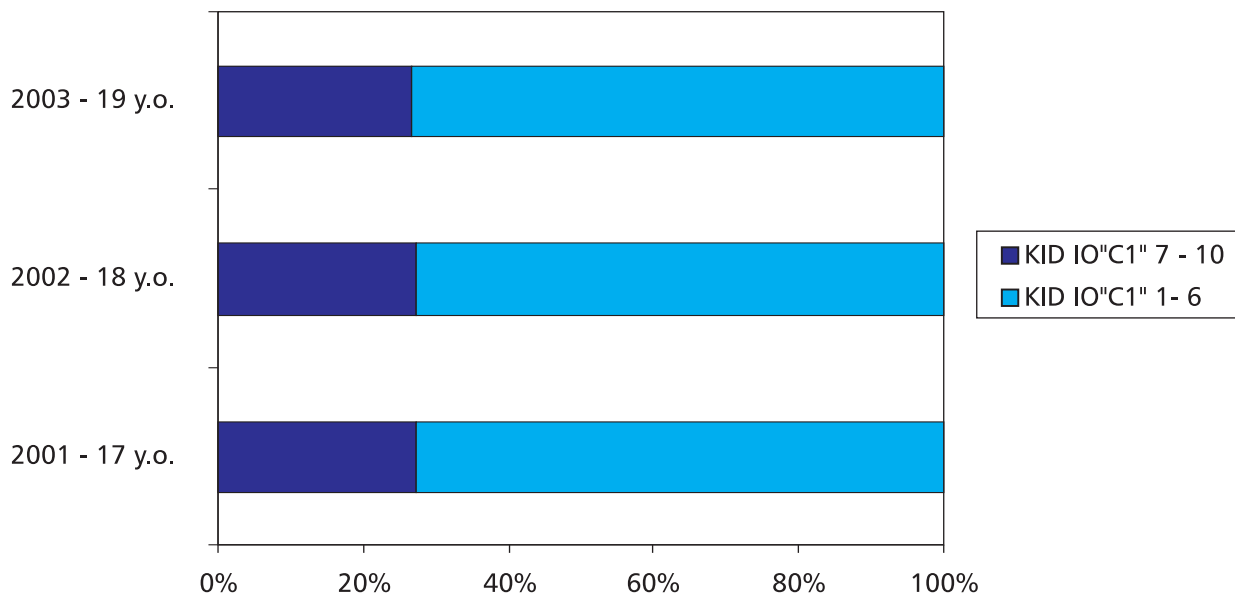


Fig. 4. Point-prevalence of depression in the 17, 18 and 19 y.o. population in the years 2001, 2002 and 2003

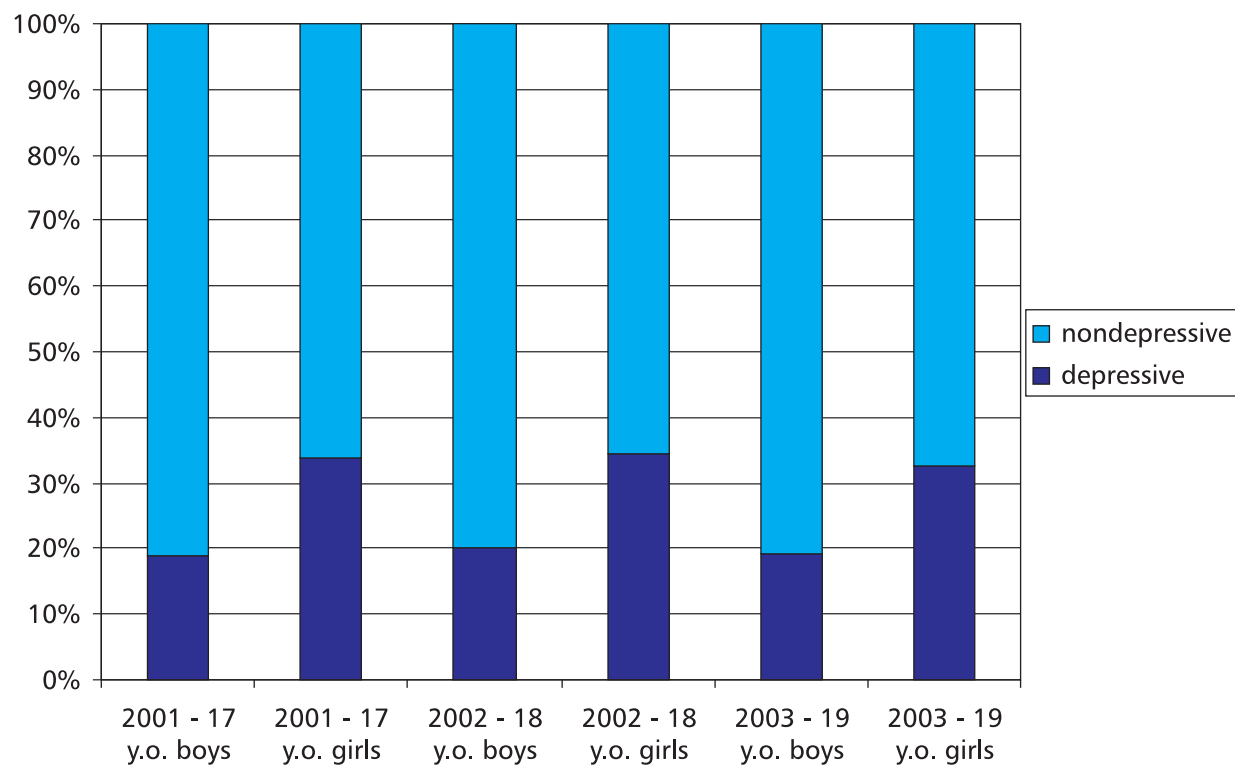


Fig. 5. Depression prevalence and sex

The dynamics of depression between age 17 and 18 as well as 19

Changes in the level of depressive symptoms intensity between the subsequent stages of the study in the group of 309 students were investi-

gated: in 2001, when the subjects were 17 on average; in 2002, when they were 18, and in 2003, when they were 19. The results of KID IO "C1" in the years 2001 and 2002 as well as 2001 and 2003 were compared. On the basis of the identified questionnaires, four subgroups of the stud-

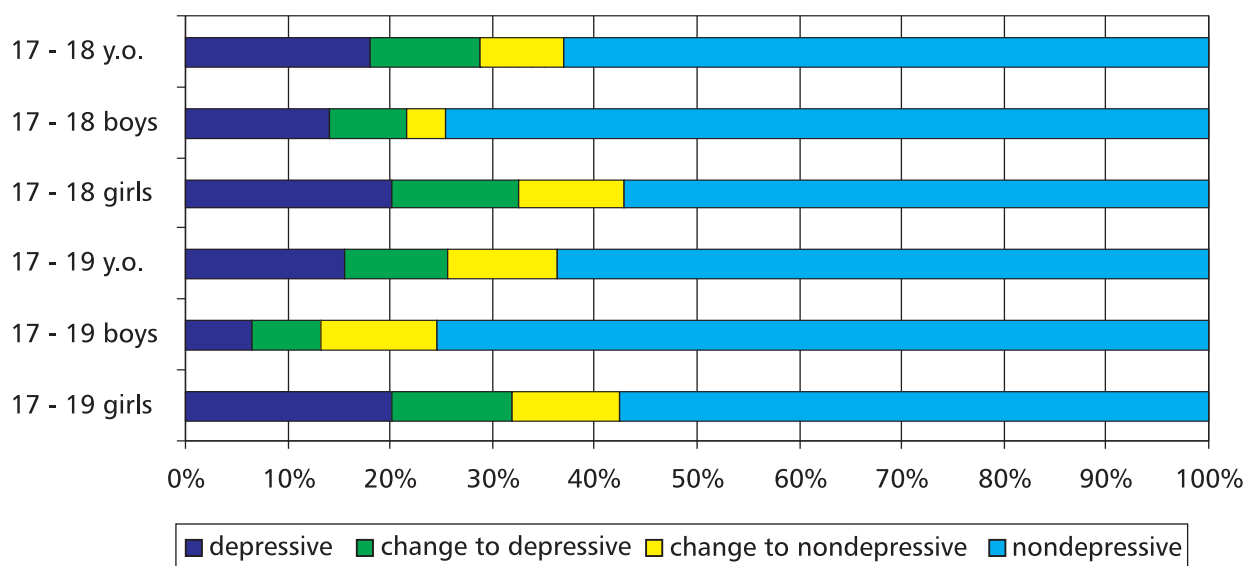


Fig. 6. Change in depressiveness between 17, 18 and 19 y.o.

ied students were distinguished; the subgroups differed in the compatibility of results in the two stages of the study:

- A a subgroup of students whose KID result ≥ 7 , which indicated depression in both stages of the study;
- B a subgroup of students who developed depression in subsequent years, i. e. 2002 or 2003;
- C a subgroup of students in the case of whom depression subsided in subsequent years, i.e. 2002 or 2003;
- D a subgroup of students, both boys and girls, whose KID result < 7 at each stage (2001/2002 and 2001/2003).

Fig.6 and Tab. 3 show the proportions of subgroups distinguished in that way in the group whose results could be individually identified and compared.

Taking into account the occurrence, subsidence or temporary presence of depression it was possible to distinguish 5 groups, including two groups characterised by the occurrence or absence of depression during three subsequent years. The most numerous group, that of nondepressive students, during three subsequent years involved 182 students out of the general number of 309, which constituted 58.9%, including 74 boys (69.8% out of 106) and 108 girls (53.2% out of 203). The group of depressive students during three years involved altogether 39

students (12.6%), including 7 boys (6.6%) and 32 girls (15.8%). The remaining groups included students in the case of whom depression subsided or appeared during subsequent years. The group of students whose depression appeared in 2002 and lasted in 2003 or appeared only in 2003, involved 31 students (10.0%), including 7 (6.6%) boys and 24 (11.8%) girls. Depression subsided in 2002 or 2003 in 33 (10.7%) students, including 12 (11.3%) boys and 21 (10.3%) girls. The remaining groups – those in which depression was present temporarily – involved 24 (7.8%) students, including 6 (5.7%) boys and 18 (18.8%) girls.

Depression occurred in 2001 and 2002 (but it was not diagnosed in 2003) in 17 students (5.5%), including 8 (7.5%) boys and 9 (4.4%) girls; whereas it occurred in 2002 and 2003 (but it was not diagnosed in 2001) in 18 students (5.8%), including 2 (1.9%) boys and 16 (7.9%) girls. The least numerous group (2.9%) was constituted by the students in the case of whom depression occurred in 2001 and 2003 but did not occur in 2002; it included 9 girls only (4.4%). Depression occurred during two years out of three covered by the study altogether in 44 students (14.2%), including 10 boys (9.4%) and 34 girls (16.7%).

In 2001 only, depression was diagnosed in 16 students (5.2%), including 4 boys (3.8%) and 12 girls (5.9%); in 2002 only, it was diagnosed in 15 students (4.9%), including 6 boys (5.7%) and 9 girls (4.4%); finally, in 2003 only, it was diagnosed in 13 students

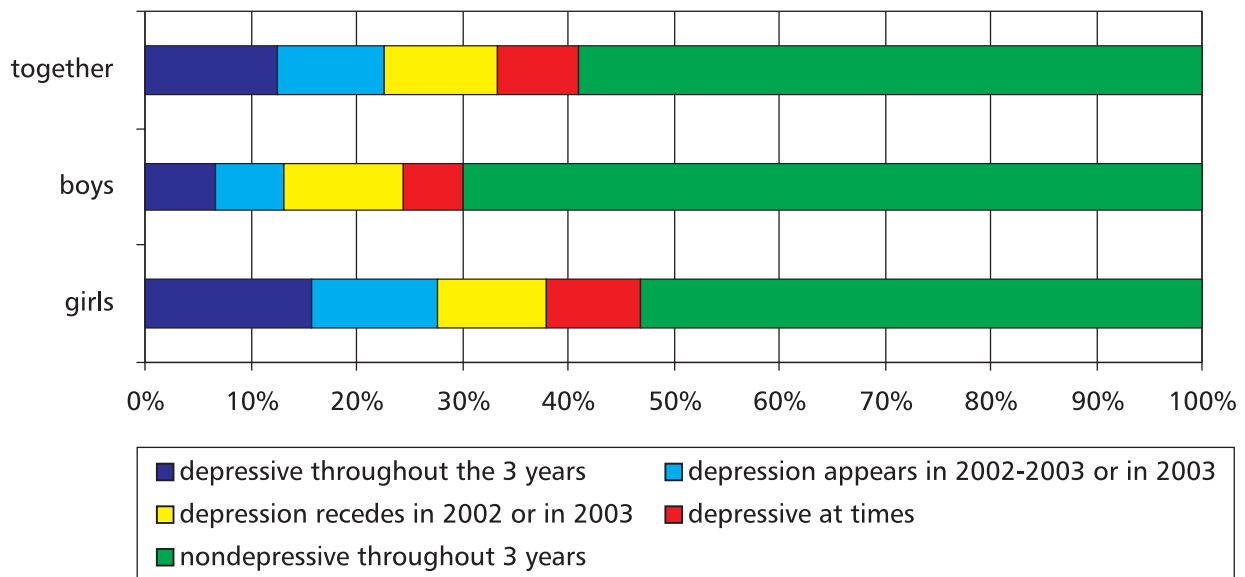


Fig. 7. Change in depressiveness between 17, 18 and 19 y.o.

Table 3. Dynamics of depression in late adolescence amongst boys

Depression prevalence in the year		2003 nondepressive	2003 depressive	
2001 nondepressive	2002 nondepressive	74 (69.8%)	5 (4.7%)	
2001 nondepressive	2002 depressive	6 (5.7%)	2 (1.9%)	
2001 depressive	2002 nondepressive	4 (3.8%)	0 (0.0%)	
2001 depressive	2002 depressive	8 (7.5%)	7 (6.6%)	
Generally		92 (86.8%)	14 (13.2%)	106 (100.0%)
Amongst girls				
Depression prevalence in the year		2003 nondepressive	2003 depressive	
2001 nondepressive	2002 nondepressive	108 (53.2%)	8 (3.9%)	
2001 nondepressive	2002 depressive	9 (4.4%)	16 (7.9%)	
2001 depressive	2002 nondepressive	12 (5.9%)	9 (4.4%)	
2001 depressive	2002 depressive	9 (4.4%)	32 (15.8%)	
Generally		138 (68.0%)	65 (32.0%)	203 (100.0%)
In both sexes				
Depression prevalence in the year		2003 nondepressive	2003 depressive	Generally
2001 nondepressive	2002 nondepressive	182 (58.9%)	13 (4.2%)	195 (63.1%)
2001 nondepressive	2002 depressive	15 (4.9%)	18 (5.8%)	33 (10.7%)
2001 depressive	2002 nondepressive	16 (5.2%)	9 (2.9%)	25 (8.1%)
2001 depressive	2002 depressive	17 (5.5%)	39 (12.6%)	56 (18.1%)
Generally	230 (74.4%)	79 (25.6%)	309 (100.0%)	

(4.2%), including 8 girls (3.9%) and 5 boys (4.7%).
 Depression was diagnosed in only one year out of

three altogether in 44 students (14.2%), including
 15 boys (14.2%) and 29 girls (14.3%).

Girls were more numerous (by nearly 10%), which was statistically significant, in groups where depression remained for 3 years ($\text{Chi}^2 = 5.298$, $\text{df} = 1$, $p = 0.021$) or where depression recurred or occurred in 2002 and remained in 2003 ($\text{Chi}^2 = 9.497$, $\text{df} = 1$, $p = 0.002$); boys, on the other hand, were more numerous (by nearly 16%) in the group where depression was absent for 3 years ($\text{Chi}^2 = 7.936$, $\text{df} = 1$, $p = 0.005$). In the remaining groups (with depression subsiding in 2002 or 2003 or diagnosed only in 2002 or 2003) the differences between sexes were small and statistically insignificant ($\text{Chi}^2 < 0.5$, $p > 0.5$).

DISCUSSION

The fact that there are no distinct changes in the rate of point prevalence of depression during the subsequent years in which the population sample was observed, can suggest that the incidence of the studied disorders among late adolescents is relatively stable. Such a result is against the claim put forward beforehand, suggesting that depression incidence decreases in late adolescence [7]. In earlier studies the same tool for a screening diagnosis was used but in later studies the sample was more numerous.

Differences in depression prevalence among boys and girls, namely higher rates for girls, manifested themselves in the period between the subjects' age 17 and 19. Therefore, they revealed a tendency similar to that described in adults.

Moreover, more often in girls than in boys depression remained throughout the three years of the study. Another situation which involved girls more often than boys, was the occurrence of depression during the subsequent years of the study in those subjects who had not been diagnosed as depressive during the first examination.

Depression, diagnosed by means of screening on the basis of the KID result, is a phenomenon of considerable prevalence during late adolescence. On the other hand, though, a longitudinal study makes it possible to conclude that depression does not occur in over 60% of secondary school students, especially in boys. In subjects who develop depression its course is different.

The nature of depression cannot be determined on the basis of the dynamics of depressive symptoms intensity. However, one can carefully suppose that depressive disorders in late adolescence do not constitute a homogeneous group.

The question of the predictive value of the screening diagnosis of depression in late adolescence still remains unanswered, although numerous studies referred to above, including Polish studies, indicate some relationships between a depressive course of adolescence and the quality of adult life.

CONCLUSIONS

Depression occurring in late adolescence is a syndrome of a heterogeneous nature, which manifests itself mainly in the differences in the course of disorders.

Point prevalence of depression, measured with depression course taken into consideration, in late adolescence is higher among girls.

The predictive value of the early screening diagnosis of depression requires further studies.

Appendix

The group of subjects constituted 12.6% throughout the period of the study. In slightly more than 15% of the subjects depression was diagnosed in individual examinations. These observations suggest a different course of mood disorders in late adolescents, which can be an argument for the heterogeneity of these disorders.

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