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Factor structure of symptoms in the Krakow Depression Inventory KID IO „B1” among 15-year-olds

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Summary

Aim: The aim of the article is to partially verify the theoretical concept of depressive symptoms in adolescents, based on KID IO”B1”, as well as to check the accuracy of the questionnaire.

Method: The KID results from an untreated sample population of 15-year-olds were statistically analysed. Of the 1118 KID IO”B1” questionnaires submitted, 594 (246 boys and 348 girls) underwent factor analysis, of which 297, i.e. half, gained a result higher than the diagnostic threshold for depression. In search of the presence of general factors, as well as to verify the principles used to categorise depressive symptoms according to clinical criteria, analysis of the factors using methods consisting of oblimin, quatrimax and varimax rotations was carried out separately and combined for both genders.

Results: The following new factors were distinguished for boys: I – lowered mood, and anxiety, II – self-destruction, III – apathy, cognitive disturbances, IV – somatic symptoms, V – somatisation, apathy, self-destruction, VI – boredom and avoidance of social contact, and for girls: I – lowered mood, lack of consideration for future repercussions, II – lowered drive, learning difficulties, cognitive and motivational disturbances, III – anxiety, IV – dysphoria with self-destruction, V – self-destruction, VI – eating pattern disturbances.

Conclusions: Depression as derived from factor analysis of the KID IO”B1” questionnaire positions is heterogeneous. Theoretical division of symptom groups, relating to the specific scale in the questionnaire, was confirmed to a very small degree through the analysis of the

factors. The list of factors in genders differs. The groups of symptoms appearing in both genders gained from analysis are different in boys and girls with one exception, which may partially result from the different factor overviews of depressive symptoms in both genders.

Key words: adolescent depression, Kraków Depression Inventory (KID), factor analyses

In the mid-seventies of the last century, based on a qualitative analysis of clinical experience, Antoni Kępiński presented the concept of adolescent depression [1]. Adolescent depression, in his view, is associated with developmental bio-psycho-social breakthrough, and in terms of quality, its symptoms are indistinguishable from symptoms of mental disorders in adolescents. Kępiński also pointed to the perinatal and involutionary breakthroughs as crises which may be accompanied by depressions of sorts. Adolescent depression itself as defined by the author of the concept should not be treated as a mental disorder, but it can hinder the diagnosis of mental disorders. Though not a disease, however, it requires therapeutic help, because it is a signal of increased difficulty in overcoming the developmental breakthrough and a disease risk factor.

Empirical verification of Kępiński's concept was carried out in a clinical trial of adolescents hospitalized in a psychiatric hospital for the first time and in a five years' follow-up. The study found very high prevalence of depressive syndrome in the treated (94.12%). The direct causes of psychiatric hospitalization and the nosographic diagnoses established through clinical observation were without effect on the presence and image of depression. In a five-year prospective follow-up of people who were not diagnosed with schizophrenia, eating disorders or disorders associated with brain injury in their first phase of study (during hospitalization), no affective disorders were identified [2].

A further step in empirical verification of Kępiński's concept required research into adolescents who received no psychiatric treatment. Such research was undertaken in the late 1970s. Scientific interest in affective disorders in children and adolescents was only starting at that time. Psychiatric epidemiology did not have a tool for screening diagnosis of depression based on the presence of symptoms, which could be used in studies into children and adolescents in the subsequent phases of adolescence. The team at the Child and Adolescent Psychiatry Clinic in Kraków undertook the task of developing such a tool¹. The intention was to develop a tool for identifying the presence of symptoms in subjects considered to be

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symptoms of depression in children and adolescents. These symptoms were derived from descriptions of psychopathology of depression in children and adolescents presented by Kępiński [1], Bomba [2, 3], Nissen [4, 5], Poznansky [6], Cytryna and McKnew [7], Albert and Beck [8] Pużyński [9], Witkowska-Roszka [10]. Descriptions of symptom manifestations were adapted to specific forms of psychopathological expression in the individual stages of development and summarized in the form of a questionnaire addressed to the respondents, and in the form of an observation sheet addressed to the child carers. The symptom questionnaire is designed for adolescents in early, mid and late adolescence. The observation sheet - for parents and carers for children at preschool and younger school ages. The study of diagnostic accuracy and reliability of the Krakow Depression Inventory (KID) was performed by analyzing the compatibility of test results with the results of a direct clinical trial, test structure, the discriminant value of its position. The results of examinations of the same adolescents in late adolescence using the KID test and Beck's test for adolescents were also compared [11]. Because of the low rates of accuracy and reliability of the tool for preschool children (KID AO "A") and inventory which was filled in by younger children school-age children themselves (KID IO "B") their further use was dropped. Satisfactory indices were obtained for the following versions of the Krakow Depression Inventory (KID):

Observation sheet AO "B1" - for younger school-aged children (7 – 12 years)

The Symptoms Inventory IO "B1" -for adolescents in the early and medium stages of adolescence (13-15 years)

The Symptoms Inventory IO "C1" -for adolescents in the late stage of adolescence (16-19 years)

Originally, in addition to screening diagnosis, the purpose of KID was also to allow the widest possible range of sensations, feelings and behaviours that make up or are related to depression in children and adolescents to be recorded. As adolescence happens, the ability of introspection, recognition and naming emotions, the repertoire of skills, relationships and behaviours all change, which corresponds to a change in the expression of psychopathology symptoms. To maximize the full record of symptoms that adolescent depression is expressed in, the decision was taken to leave all items in the questionnaires, including those with low discriminant value. As a consequence, the various versions of KID are extensive and differ in the number of items.

When assigning descriptions of experiences, feelings and behaviours to the symptomatic areas, the guide was the theoretical assumption that experience (behaviour) is related to the

following functions: mood, anxiety, mental operations (cognitive), activity level (drive). Two specific symptomatic areas were identified as well: self-harming behaviours and somatisations. Consequently, KID was broken down into six symptomatic areas:

- A. Mood disorders
- B. Anxiety
- C. Cognitive disorders
- D. Drive disorders
- E. Self-harm
- F. Somatizations

Standard ten scales were developed, both a generic one and one for specific symptomatic areas.

The Kraków Depression Symptoms Inventory “B1” (KID IO “B1”) consists of 104 statements describing the phenomenon whose presence in themselves is stated by the respondents. Eighty-nine KID IO “B1” statements describe depression symptoms, taking into account specificities related to the development phase. The introductory instruction refers the truthfulness of the statements to the month preceding the survey. Some questions (e.g. on self-harm, especially suicide attempts), by their very nature force reflection covering a longer time than that specified in the instructions for the test. The depression diagnosis based on the KID takes into account the standard ten results for individual scales and for the overall scale. The reliability coefficient for the overall scale KID IO ‘B1’ Cronbach’s $\alpha = 0.9425$. The diagnosis accuracy as measured by the spot-biserial correlation coefficient $r = 0.6917$.

Goal

The aim of this article is partial empirical verification of the theoretical concept of the symptomatic image of adolescent depression underlying the KID IO ‘B1’ construction, and a check of the questionnaire’s factor relevancy.

Description of the test group

Using a two-stage sampling frame, a representative group of third grade 15-year-old junior high students living in Krakow was chosen, keeping correct proportions between the boys and the girls (age 15). The population sample selected were tested using version IO ‘B1’ of the Krakow Depression Inventory (KID).

For the factor analyses, questionnaires were selected following the general value of the ten scale result of KID IO ‘B1’ (upwards of 3). By sampling, questionnaires were chosen so

that the results of the overall IO 'B1' scale would be close to normal in distribution with an average of about 6.5 in standard ten scale. This treatment was applied separately for boys and girls. Of the overall number of 1,118 KID IO 'B1' questionnaires qualified for analysis, factor analyses were applied to 594 sheets (including 246 boys and 348 girls), of which 297, i.e. half, received a score above the depression screening diagnosis criterion.

Factor analyses were performed using principal components with quartimax and varimax rotation and Kaiser normalization of the KID version IO "B1" item separately and jointly for boys and girls. They aimed to find an answer to the question concerning the presence of a general factor on the one hand (quartimax rotation) and the merits of the division of depressive symptoms according to clinical criteria into 6 groups (varimax rotation) on the other. In addition, the level of correlation was checked between the agents isolated after applying direct oblimin rotation to get an additional argument in favour of the existence of a general factor. If a general factor were detected, it might indicate the existence of a common mechanism of depressive symptoms in adolescents.

A cluster analysis was also carried out to group the subjects tested according to a system of factors. In this way, symptomatic forms of manifestation of possible disorders were verified.

Factor analysis results

(According to the scree test criterion,) factor analyses yielded solutions with 6 or 2 factors both in the entire test group and boys and girls separately. Due to the six-scale structure of the questionnaire assumed when it was being developed, six-factor solutions were adopted.

The results of the factor analyses point to significant differences between factor structures of the questionnaire for boys and girls. Because obtaining a transparent matrix of correlation coefficients between the factor loadings for boys and girls failed, it was not possible to determine the cross-population reliability of the extracted factors for the entire sample tested. At the same time, it turned out that for six factors extracted separately for boys and girls, the distribution of factor loadings varied, even when they could be given a similar clinical interpretation. In this situation, presentation of results of factor analyses for the whole sample was dropped.

Factor analysis results for boys

The total explained variance for the 6 - factor solution was 32%, the measure of KMO sample adequacy = 0.794 with highly statistically significant Bartlett's sphericity test values ($p < 0.0005$). Rotation reached the following convergence, respectively: for quartimax in 25 iterations, oblimin - in 37 and for varimax – in 11. About half the items (53) of the questionnaire had factor loadings above the accepted criterion (value .30) in a single factor following quartimax rotation.

The largest loadings were obtained for item A071 (I often feel depressed .669), A090 (Even among the friendly people, I feel lonely - 0.624) and B083 (I am afraid of something all the time - .600), as well as for factor 3 for C003 (I am unable to concentrate on books - .642) and factor 5 for E020 (Sometimes I do want to take my own life - .608) and E038 (I often think about taking my own life - .681).

Quartimax rotation analysis yielded results that tend to undermine the hypothesis of the existence of a general factor. Direct oblimin rotation resulted in six separate factors, weakly or very weakly correlated with one another. The correlation coefficients are low enough to reject the hypothesis of the existence of a general factor.

The components extracted in the varimax rotation have sufficiently high loadings for semantic interpretation. The sums of the squares of loadings after rotation were similar for each component (from 4.8 to 6.3% of a variance explained).

Factor 1, identified as depressed mood, apathy, lack of projection into the future, had the highest loadings at items: A071 – I often feel depressed (.714), A042 - I'm always sad (.550) and B062 – I often don't know what to do with myself (.548). The distribution of the number of items for the individual scales was as follows. 8 items in the scale of A, 7 items in the scale of B, 3 items in the scale of D, 2 E scale items and one item in scales E and F each.

Factor 1 - Depressed mood and anxiety: A042 I am sad all the time; A043 for no apparent reason, my mood changes; A060 lately, nothing makes me happy; A071 I often feel depressed; A072 even silly things can lead me to despair; A082 nobody cares about me; A090 even among friendly people, I feel lonely; B045 I fear that I am never going to have a friend, B047 I often feel that I am not being fair to others, B062 I often don't know what to do with myself; B073 sometimes I am afraid, I do not even know why; B083 I am afraid of something all the time; B089 I am afraid that I will not be able to cope with my responsibilities, B093, even though I eat regularly, I often suddenly feel hungry, C064, I am not happy with myself; C087 I often feel guilty, even when others believe that there is no good reason; D077 I have no strength to do anything;

Factor 2 shows high loading at the following items: E038 (I often think about taking my own life - .719), E020 (Sometimes I do want to take my own life - .674), E014 (I often think about death - .643); The vast majority of factor loadings above .30 are at E scale items (8), and 3 items sequentially at three items of the scale of B, 2 items of the scale of A and 1 item in the scale of D.

Factor 2 - Self-harm: B061 there is nothing good waiting for me in the future; B074 it seems to me that everything is going to end badly; B098 sometimes I feel such a strong fear that I am unable to deal with it; D095 the way life is, it is not even worth getting out of bed, getting dressed; E014 I often think about death; E020 sometimes I do feel like taking my own life; E027 when I think about the future, I see no purpose I could pursue; E038 I often think about taking my own life; E057 I cannot stop thinking about suicide; E079 sometimes I wish I were dead; E081 my life has no meaning; E091 in my opinion, life in general does not make sense

Factor 3 has the most significant loadings in the scales C (7) and D (7), and one load each in scales A, E and F. The closest connection it has is with item C003 (I am unable to focus on books .638).

Factor 3 - Apathy, cognitive difficulties: A010 I get no success with whatever I do; C003 I am unable to focus on books, C012 when I study, nothing comes easily to me; C016 I noticed that lately I have been working very slowly when solving tasks; C033 even though I study as much, I am getting worse grades; C048 lately, I have been unable to get down to studying; C076 studying has ceased to interest me; D013 I often do nothing; D053 I cannot keep up with anything; D058 even if I have been studying for a short time, I get very tired; D065 I am always so tired that I cannot get down to anything; D080 it seems to me that it is so far to get anywhere; D096 I stopped studying at all; E104 it does not matter what I do, as long as it is cool; F069 even if I have slept all night, I feel tired in the morning.

Factor 4 has no clearly dominant loadings. Most related items are in the scale of F (7), including item F008 with the highest loading (I often have headaches - .572), five loadings above .30 at scale A items, four on the scale of B, three on the scale of E.

Factor 4 - Somatic symptoms: A001 I often feel irritable for no apparent reason; A007 I cry or get angry for no reason at all; A018 I often cry for no reason at all; B006 I sometimes get the feeling that I have no air, B032 I can often feel my heart beating; E025 I sometimes do something bad to myself (cut, burn); F008 I often have headaches; F015 I have stomach pains; F021 there is something wrong with me all the time; F036 in the evenings, I am unable to sleep; F039 it seems to me that I am sick.

Factor 5 has the highest loadings at item B075 (I often have diarrhoea - .616) and has loadings distributed in different scales (five in the scale of F, three in scales of A and D, two each in B, C and E).

Factor 5 - Somatisation, apathy, self-harm: A088 I do not care what is going to happen to me; A100 I am unable to cope with anything; B044 I am often all shaking; B075 I frequently have diarrhoea; C059 I learn nothing new from other people; D019 recently, I have not been washing or taking care of my appearance; E067 I have tried to take my life because I could take it any longer; E085 many times, I tried to commit suicide; F051 I am afraid that I can get sick; F056 I often have unpleasant dreams; F068 I am constantly thinking about what ails me; F070 I have lost a lot of weight recently

Factor 6 has the highest loading at item D011 (I rarely and reluctantly meet up with friends - .629). It has the most significant loadings in the scales D (5), in scales C and F (4), three loadings in scale A and two loadings in the scale of B.

Factor 6 - Boredom and avoiding social contact: A030 I cannot seem to find myself an interesting occupation; A084 I rarely laugh; B031 I am always afraid that something bad happens; C046 when I am supposed to do something, no ideas come to mind; C066 nothing I say or think is interesting; D011 I meet up with friends less often and reluctantly; D049 I move slower than usual; D086 I do not feel like coming up with anything or doing anything; D099 I have given up on a game I always liked playing; D102 most often, I do not take part in games or activities that I used to like; F022 I wake up early and I cannot sleep; F024 I cannot force myself to eat anything; F035 I have no appetite; F054 nothing tastes good to me lately.

Factor analysis results for girls

The total explained variance for the 6 – factor solution was 35%, the measure of KMO sample adequacy = .864 with highly statistically significant Bartlett's sphericity test values ($p < 0.0005$). Rotation reached the following convergence, respectively: for quartimax in 8 iterations, oblimin - in 31 and for varimax – in 10. About half the items (56) of the questionnaire had factor loadings above the accepted criterion (value .30) in a single factor following quartimax rotation.

The largest loadings were obtained for item B074 (It seems to me that everything is going to end badly - .697), E081 (My life has no meaning - .676) and B061 (There is nothing good waiting for me in the future - .672), as well as in factor 4 for E085 (Many times, I tried to commit suicide- .637).

Like with the boys, quartimax rotation analysis yielded results that tend to undermine the hypothesis of the existence of a general factor. Direct oblimin rotation resulted in six separate factors, weakly or very weakly correlated with one another. The correlation coefficients are low enough to reject the hypothesis of the existence of a general factor.

The components extracted in the varimax rotation have sufficiently high loadings for semantic interpretation. The sums of the squares of loadings after rotation for each component were as follows: for the first one - 8.4% of explained variance, for the second one - 7.1%, for the third one - 5.5%, for the fourth one - 5.3%, for the fifth one 4.8% and 3.6% for the sixth one.

Factor 1, identified as depressed mood, apathy, lack of projection into the future, had the highest loadings at items: E081 - (My life has no meaning - .652), A010 - (I get no success with whatever I do - .609) and B061 - (There is nothing good waiting for me in the future - .602). The distribution of the number of items for the individual scales was as follows. 9 items in the scale of A, 6 items in the scale of B and E, 3 items in the scale of C and D, one item (with an inversion of the direction) in the scale of F.

Factor 1 - Depressed mood, lack of projection into the future: A010 I get no success with whatever I do; A030 I cannot seem to find myself an interesting occupation; A042 I'm always sad; A060 lately, nothing makes me happy; A082 nobody cares about me; A090 Even among the friendly people, I feel lonely; A100 I am unable to cope with anything; B045 I fear that I am never going to have a friend; B047 I often feel that I am not being fair to others; B061 there is nothing good waiting for me in the future; B062 I often don't know what to do with myself; B074 it seems to me that everything is going to end badly; B089 I am afraid that I will not be able to cope with my responsibilities; C064 I am not happy with myself; C066 nothing I say or think is interesting; D095 the way life is, it is not even worth getting out of bed, getting dressed; D099 I have given up on a game I always liked playing; E027 when I think about the future, I see no purpose I could pursue; E081 my life has no meaning; E091 in my opinion, life in general does not make sense; F015 I have stomach pains (negative loading).

Factor 2 interpreted as low drive, difficulty in learning, cognitive and motivational difficulties. It shows high loading at the following items: D058 (even if I have been studying for a short time, I get very tired - .640), D065 (I am always so tired that I cannot get down to anything - .624). The vast majority of factor loadings of over .30 are at D scale (10) and C scale (7) items, 2 items in the scale of B and F each and 1 item in the scale of A.

Factor 2 - Low drive, difficulty in learning, cognitive and motivational difficulties: B093 even though I eat regularly, I often suddenly feel hungry; C003 I am unable to concentrate on books; C012 when I study, nothing comes easily to me; C016 I noticed that lately I have been working very slowly when solving tasks; C033 even though I study as much, I am getting worse grades; C046 when I am supposed to do something, no ideas come to mind; C048 lately, I have been unable to get down to studying; C076 studying has ceased to interest me D004 In the morning, I cannot get out of bed; D013 I often do nothing; D049 I move slower than usual; D053 I cannot keep up with anything; D058 even if I have been studying for a short time, I get very tired; D065 I am always so tired that I cannot get down to anything; D077 I have no strength to do anything; D080 it seems to me that it is so far to get anywhere; D086 I do not feel like coming up with anything or doing anything; D096 I stopped studying at all; F040 recently, I have been sleepy all the time; F069 even if I have slept all night, I feel tired in the morning

Factor 3 has the most significant loadings in the scale of B (10), in the scale of F (6), in the scale of C (2) and one loading in the scale of A. The strongest loading is that for item B083 (I am afraid of something all the time - .597) and for items B098 (Sometimes I feel such a strong fear that I am unable to deal with it - .548) and B073 (sometimes I am afraid, I do not even know why - .542).

Factor 3 - Anxiety: B005 I am afraid of all the changes; B006 I sometimes get the feeling that I have no air; B031 I am always afraid that something bad happens, B037 I cannot be sure what tomorrow brings, B044 I am often all shaking; B073 sometimes I am afraid, I do not even know why; B083 I am afraid of something all the time; B098 sometimes I feel such a strong fear that I am unable to deal with it; C017 when I have to decide something, I find it difficult; C087 I often feel guilty, even when others believe that there is no good reason, F021 there is something wrong with me all the time; F029 I pay special attention to how my body works; F039 it seems to me that I am sick; F051 I am afraid that I can get sick; F056 I often have unpleasant dreams; F068 I am constantly thinking about what ails me.

Factor 4 does not have high loadings, and the vast majority of medium and small loadings involve scales A (7) and E (5). Three small loadings in the F scale and a small one in the scale of C. Almost all of the symptoms associated with this factor can be described as mood swings and self-harm.

Factor 4 - Dysphoria with self-harm: A001 I often feel irritable for no apparent reason; A007 I cry or get angry for no reason at all; A018 I often cry for no reason at all; A043 for no apparent reason, my mood changes; A071 I often feel depressed; A072 even silly things can

lead me to despair; E014 I often think about death; E020 I often think about taking my own life; E038 I often think about taking my own life; E079 sometimes I wish I were dead; F008 I often have headaches; F015 I have stomach pains.

Factor 5 has the highest loadings at E scale items associated with suicide attempts, E085 (many times, I tried to commit suicide - .684) and E067 (I have tried to take my life because I could take it any longer - .609). Most items with loadings of over .30 in the scale of E (6), two items in the scales of B and D each and a single item in the scale of F.

Factor 5 - Self-harm: A088 I do not care what is going to happen to me; B075 I frequently have diarrhoea; D019 recently, I have not been washing or taking care of my appearance; E025 I sometimes do something bad to myself (cut, burn); E057 I cannot stop thinking about suicide; E067 I have tried to take my life because I could take it any longer; E085 many times, I tried to commit suicide; F070 I have lost a lot of weight recently.

Factor 6 identified as an eating disorder. Items with the two highest loadings are F035 (I have no appetite - .610) and F024 (I cannot force myself to eat anything - .600). The most items with loadings of over .30 are in the scale of F (7), two items in the scale of C and a single item in the scale of B and E each. All items from other scales, except F, have very low loadings.

Factor 6 - Abnormal eating patterns: B032 I can often feel my heart beating; E052 I have given up on something I really dreamed of; F022 I wake up early and I cannot sleep; F024 I cannot force myself to eat anything, F035 I have no appetite; F036 in the evenings, I am unable to sleep; F054 nothing tastes good to me lately.

Cluster analysis results

Cluster analysis was performed using k average method, imposing the isolation of 6 clusters in both boys and girls.

The results of cluster analysis for the group of boys are shown in Figure 1.

Cluster 6 – 89 respondents (36.2 %): Five factors have results close to half the standard deviation below the mean. Only factor 5 (somatisation, apathy and self-harm) has a score above the average (.3 deviation).

Cluster 4 – 43 respondents (17.5 %): elevated levels of factor 3 (about .8 of standard deviation above the mean), and factor 6 (levels over .6) and low scores on factor 2 (-0.7).

Cluster 3 – 37 respondents (15 %): high scores on factor 1 (0.9) and elevated scores on factor 4 (0.6), significantly lower scores on factor 3 (-1.2).

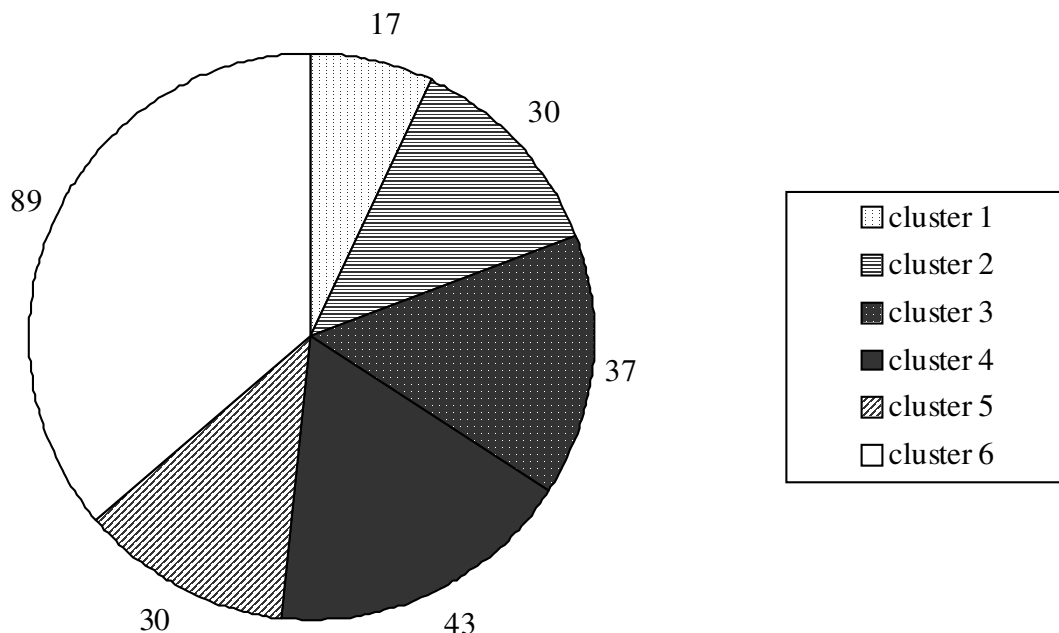
Cluster 2 – 30 respondents (12.2 %): very high levels of factor 2 (1.7) at comparatively low levels of factor 5 (-0.6) and factor 4 (-0.6).

Cluster 5 – 30 respondents (12.2 %): very high levels of factor 2 (1.4), comparatively high levels of factor 3 (.8) and low levels of factor 6 (-0.6).

Cluster 1 – 17 respondents (6.9 %): very high levels of factor 5 and 6 (both 1.8) and relatively high levels of factor 4 (0.9).

Cluster analysis conducted for the group of boys shows that slightly more than a third of respondents declared no presence of symptoms treated as an expression of depression. Others described experiences and behaviours that could be grouped according to their subject matter. And so, what comes to the fore in 17% is difficulties (cognitive) at school, which were accompanied by depressed mood and withdrawal from social contacts; in 15% - the depressed mood was accompanied by anxiety and somatic symptoms; in 12% the primary concern was self-harming experiences and behaviours; with a further 12% - somatic symptoms and learning difficulties, in 7% the depressed mood was accompanied by somatic symptoms.

Figure.1. Results of cluster analysis of 15-year-old boys' group



The results of cluster analysis carried out for the group of girls are shown in Figure 2.

Cluster 4 – 124 respondents (35.6 %): without symptoms, the results are below average for all factors.

Cluster 3 – 67 respondents (19.3 %): significantly elevated levels of factor 2 (1.3),

Cluster 1 – 52 respondents (14.9 %): high scores on factor 1 (1.3) with relatively low factors of 5 (-0.7) and 2 (-0.6).

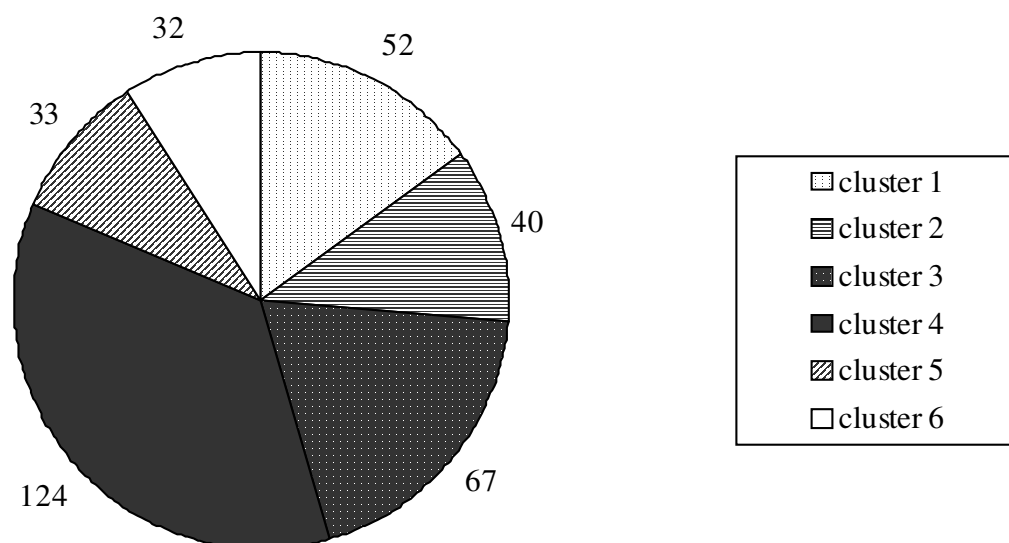
Cluster 2 – 40 respondents (11.5 %): high scores on factor 3 (1.1) and 6 (1.1) and relatively low values at factor 1 (-0.6).

Cluster 5 - 33 respondents (9.5 %): very high scores in factor 5:

Cluster 6 – 32 respondents (9.2 %): high scores on factor 6 (1.4) and 4 (1.4).

Cluster analysis conducted for the group of girls shows that slightly more than a third of respondents declared no presence of symptoms treated as an expression of depression. Others described experiences and behaviours that could be grouped according to their subject matter. And so, what comes to the fore in 19% is difficulties (cognitive) at school, which were accompanied by depressed mood and withdrawal from social contacts; in 15% - the depressed mood was accompanied by apathy and lack of projection into the future; in 11%, the primary concern was eating disorders and anxiety; in 9% - self-harming symptoms, with a further 9% - eating disorders were accompanied by dysphoria and self-harming.

Figure.1. Results of cluster analysis of 15-year-old girls' group



Configurations of symptoms declared by the girls and boys differ. The exception is adolescents of both sexes describing difficulties at school in conjunction with mood disorders. This subgroup is the largest, actually. It is interesting that other configurations of experiences and symptomatic behaviours declared by girls and boys differently are similar to differences in mental disorders and behaviours described at this age. In boys, these were self-harming behaviours, and anxiety and somatisation. In girls - depressed mood from with lack of projection into the future, but also two symptomatic configurations centred around food. In one of them, the problems were accompanied by anxiety, in the other - mood swings and self-harming.

Discussion:

Modern mental disorder classification approaches are based on the similarity of symptoms found in people whose mental and social functioning is not satisfactory. Both the international classification of World Health Organisation (ICD-10) and the U.S. American Psychiatric Association (DSM-IV), with exceptions, do not assume pathogenic homogeneity of disorders clustered based on symptomatic criteria [12, 13]. The aim of the classification, however, is to facilitate the search for the pathomechanism.

Kępiński's concept of adolescent depression points to developmental breakthrough as a syndrome of biological, psychological and social factors which may cause the occurrence of psychopathological symptoms similar to those of depression.

Statistical analyses of questionnaire results of psychiatrically untreated fifteen-year-olds aimed at determining, in accordance with the theoretical assumptions of factor analysis, whether the symptoms of depression, the presence of which was declared by subjects, may be due to one factor. It was assumed that the adolescence breakthrough (puberty, taking on new social roles, implementation of psychological developmental tasks) could be treated collectively as a factor. The results of this analysis did not confirm the supposition. The presence of depressive symptoms in early adolescence is therefore most likely the result of many factors in harmony. These results argue against the idea that growing up can cause the presence of mental disorders and behaviour disorders [14, 15, 16]. What seems more important is that such a result speaks against single-factor concepts of mental disorder pathogenesis and, what is more, it weakens the theoretical search for such causes in the research into groups of young people based on symptomatic selection criteria. Recent studies, for instance on the pathogenesis of behavioural disorders and emotions occurring during

adolescence (which, moreover, sometimes included adolescent depression [17]) suggest that the share of series of genetic determinants and family interactions in the genesis of the emotional phenotype predisposing the occurrence of behavioural and emotional disturbances [18, 19, 20, 21]

In this context, it seems particularly interesting that cluster analysis has led to results similar to those obtained by examining the symptomatic image of adolescent depression based on clinical observation [1] and using other statistical methods [3].

Conclusions:

1. Depression image in terms of factor analyses of KID IO 'B1' questionnaire items is heterogeneous.
2. Theoretically discrete groups of symptoms in the questionnaire corresponding to the individual scales have been confirmed by the results of factor analyses to a very limited extent.
3. The content of the factors in boys and girls is generally different.
4. Groups of co-occurring symptoms obtained from cluster analysis with the exception of one are different in boys and girls, which may be partly a consequence of different factor images of depressive symptoms in both sexes.

References:

1. Kępiński A. Melancholia. Warszawa: PZWL; 1974, s. 12-20.
2. Bomba J: Psychopatologia i przebieg depresji u młodzieży. Psychoter., 1981; 39: 3-11.
3. Bomba J: Depresja u młodzieży. Analiza kliniczna. Psychiat. Pol. 1982; 16: 25-30.
4. Nissen G: Symptomatik und Prognose depressiver Verstimmungszustände im Kinder- und Jugendalter. W: Annel A.-L. (eds.): Depressive states in childhood and adolescence. Stockholm: Alquist ing wiksell., 1972, s. 501-509.
5. Nissen G: Depressives Syndrome bei Kinder und Jugendlichen. Nervenarzt 1975; 46: 302-307.
6. Poznansky EO: Childhood depression: A psychodynamic approach to the etiology of depression in children. W: H.P. French, J.N. Berlin (eds.): Depression in children and adolescents. New York, London: Human Sciences Press; 1979, s. 46-48.
7. Cytryn L, McKnew DH: Proposed classification of childhood depression. Am. J. Psychiatry 1972, 129, 2: 63-69.
8. Albert N, Beck AT: Incidence of depression in early adolescence. A preliminary study. J. Youth Adol. 1975; 4: 301-307.
9. Pużyńska E: Depresje i choroby afektywne. W: S.Dąbrowski, J.Jaroszyński, S.Pużyński (eds.): Psychiatria. Warszawa: PZWL; 1987, s. 368-381.

10. Witkowska-Roszka J: Zespoły depresyjne u dzieci w wieku 7 do 14 lat. Maszynopis pracy doktorskiej Akademia Medyczna we Wrocławiu 1978.
11. Rdzanek-Golonka A: Trafność diagnostyczna kwestionariusza IO „C1”. Praca magisterska pod kierunkiem Janusza Pałczyńskiego w Zakładzie Psychologii Klinicznej UJ, 1986.
12. First MB: Tendencje w klasyfikacji psychiatrycznej: od DSM-III-R do DSM-IV. W: J Bomba, B de Barbaro (ed.), Psychiatria amerykańska lat dziewięćdziesiątych. Kraków: CM UJ; 1995, s. 86-93.
13. Klasyfikacja zaburzeń psychicznych i zaburzeń zachowania w ICD-10. Opisy kliniczne i wskazówki diagnostyczne. Kraków-Warszawa: Uniwersyteckie Wydawnictwo Medyczne „Vesalius”. Instytut Psychiatrii i Neurologii; 1977, s. 15.
14. Freud A: Normality and pathology in childhood. Assessment of development. London: Hogarth Press; 1966.
15. Offer D: Normal adolescent development W: JR Novello (ed.): The short course in adolescent psychiatry. New York: Brunner/Mazel Publ.; 1979, s. 54-75.
16. Wiener JM: Introduction: adolescent psychiatry today. W: JR Novello (ed.): The short course in adolescent psychiatry. New York: Brunner/Mazel Publ.; 1979, s. 2-10.
17. Bomba J, Namysłowska I, Orwid M: Zaburzenia zachowania i emocji rozpoczynające się zwykle w dzieciństwie i w wieku młodzieńczym. W: A. Bilikiewicz, S. Pużyński, J. Rybakowski, J. Wciórka (eds.): Psychiatria t. 2. Wrocław: Urban & Partner; 2002, s. 655-695
18. Feinberg ME, Button TM, Neiderhiser JM, Reiss D, Hetherington EM: Parenting and adolescent antisocial behavior and depression: evidence of genotype x parenting environment interaction. Arch. Gen. Psychiatry 2007; 64: 457-465.
19. Natsauki MN, Ge X, Reiss D, Niderhiser JM: Aggressive behavior between siblings and the development of externalizing problems: Evidence from a genetically sensitive study. Dev. Psychol., 2009;45(4): 1009-18.
20. Neiderhiser J, Reiss D, Hetherington EM: Genetically informative designs for distinguishing developmental pathways during adolescence: Responsible and antisocial behaviour, Develop. Psychopathol. 1996, 8: 779–791.
21. Neiderhiser J, Reiss D, Lichtenstein P, Spotts EL, Ganiban J: Father-adolescent relationships and the role of genotype-environment correlation. J. Fam. Psychol. 2007; 21(4): 560-71.

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