# Patterns of extrinsic maladjustment in middle childhood

## Rita Žukauskiene

Socialinių mokslų daktarė,
docentė
Vilniaus Pedagoginio universiteto
Psichologijos katedra
Studentų g. 39, LT-2034 Vilnius
Tel. 72 77 79, faks. 33 60 22

## Roma Šimulioniene

Doktorantė, asistentė
Klaipėdos universiteto
Psichologijos katedra
S. Nėries g. 5, LT-5799 Klaipėda
Tel. (8 26) 29 35 63

Empirical studies of adjustment problems as they are experienced in middle childhood and early adolescence in non-clinical populations often apply a broad perspective on maladjustment, covering various symptoms and problem behaviors as well as the children's relationships with other people. A tentative taxonomy of general maladjustment was constructed by Bergman and Magnusson (1983). The major distinction in this taxonomy is between extrinsic and intrinsic maladjustment. Extrinsic maladjustment (conduct problems, poor social relations, etc.) is defined as disagreement between child's behavior and existing norms. Intrinsic maladjustment (child's experience of misery, of negative evaluation) is defined as disagreement between child's needs and rewards he or she gains in his/her environment. This distinction is in accordance with the well-established two-factor model separating emotional problems from behavioral problems (Achenbach & Edelbrock, 1978).

This study deals only with some kinds of extrinsic maladjustment: aggressive behavior, underachievement, poor peer relations (rejection). Early learning problems, peer rejection and aggressive behavior have problematic consequences extending far into the life course, and they have been found to be correlated early in children's schooling. However, the processes underlying the negative correlation between school achievement and early aggressive behavior and peer rejection are not clear (Kellam, 1998). Walker, at al. (1998) examined health, nutrition, and behavioural determinants of school achievement, attendance, and dropout in 452 female students (aged 13–14 years). Results show that girls who were anaemic, sexually active, or aggressive showed worse achievement levels.

Results show that peer nominations of aggression are predictive of multiple indicators of aggressive behavior, particularly for boys. Antisocial behavior and poor peer relationships in childhood have been identified as

risk factors for a variety of externalizing problems in adolescence and adulthood (Parker, Asher 1987). Dishion (1990) reports a r= .51 correlation between antisocial behavior and peer rejection among the fourth grade boys of the Oregon Social Learning Center longitudinal sample. Coie, et al. (1995) examine the links between 3 constructs that are potentially predictive and clinical significant for the development of adolescent delinquent behavior: (1) early childhood aggressive behavior and poor peer relations, (2) the development of peer social networks in early adolescence, and (3) concurrent antisocial behavior and poor peer relations in early adolescence. He proposes that the structure of social relations among adolescents and the location of individuals within the peer network may have important behavioral consequences for both the individual and the peer system as a whole. In a review of the behavioral bases for peer rejection, Coie et al. (1990) found that aggression is the variable most consistently related to peer social rejection in both correlational studies and experimental studies of newly formed peer groups. Poor peer relationships in most studies have been associated with developmental difficulties. Coie, et al. (1992) longitudinal study of two large cohorts provides a better picture of the independent predictive power of childhood aggression and peer relations. Of the children who were both rejected and aggressive in the third grade, 61% had serious problems in sixth grade. At the same time only 18% of nonrejected – nonaggressive children showed poor adjustment. These findings demonstrate that the two childhood factors have a clear additive effect in predicting early

adolescent adjustment and conduct problems. Brown, Bradley (1997) suggest different risk trajectories for aggressive and non-aggressive rejected children. These 2 groups experience peer rejection differently and have different styles of coping with the stress they experience.

For girls, peer rejection also appeared to be linked to poorer academic achievement (Ialongo, et al., 1998). Chen, et al., (1994) investigated the relation between academic achievement and social adjustment: A sample of children, initially aged 10 and 12 years, participated in this 2-year longitudinal project. Information on academic achievement and indexes of social adjustment, including social competence, aggression, social inhibition, leadership, and peer acceptance, was collected from multiple sources. It was found that academic achievement predicted children's social competence and peer acceptance. In turn, children's social functioning and adjustment, including social competence, aggression-disruption, leadership, and peer acceptance, uniquely contributed to academic achievement. These results generally supported the "reciprocal effects" model concerning the relations between academic achievement and social adjustment.

Our study is based on a holistic view on the development of individual's adjustment problems. Therefore, the central question is how problems in different domains are interrelated, and what kinds of patterns of extrinsic maladjustment in middle childhood exist. The objective of this study is to investigate patterns (separately for boys and girls) of extrinsic maladjustment: aggressive behavior, underachievement, poor peer relations. This implies that variable approach

has to be complemented with a person-oriented approach. We also propose that exist different patterns of adjustment problems separately for boys and girls, and this difference reveals in the level of aggression, peer rejection and poor school performance.

## Method

### Sample

Data is used from the longitudinal research, started in Lithuania in 1996–1997. The aim of the longitudinal study is to investigate development of adjustment problems in males and females from early school years (ages 6–7) to pre-adolescence and adolescence. The original cohort consists from 695 children, both boys and girls. Subjects were repeatedly tested in 1998 and in 1999. The data collection was performed in six age groups, from 7 to 12 years old. From the original cohort, only 510 children were included in the cluster analysis because of the missing data on school achievement. The reason is that children in some primary schools are not estimated by with marks.

### Procedures and materials

Multiple assessments procedures were used in the research. It was supposed that the use of the multi-method and multi-agent research strategy will result in higher validity of the obtained data. Assessment consisted of:

**Peer assessments** (OSLC – Peer nomination instrument) was used to collect the data on child aggressive behavior. Each child was asked to nominate up to 3 peers from the class who fit best each behavioral description ("kids who fight a lot", etc.). The total number of nominations received from all classmates to all children was calculated separately for items loading on aggressive factor. Total nomination scores were subjected to a square transformation to reduce skewness, and converted to z-scores to remove the effects of class sizes.

**Child interview** was used for self-evaluation of behavioral difficulties. Each child was asked to evaluate on 5 point scale how often he/she behaves in a certain way ("fight", "tease", "hit siblings" etc.). Children were interviewed and tested in their classroom.

**TRF/11–18 and CBCL/4–18** (Achenbach, 1991), *under the written permission from T. M. Achenbach,* to collect the data on behavioral and emotional difficulties for each child, as reported by their teachers or parents. Items of aggression scale were following: Teases, cruelty, argues, threatens, shows off, fights, disturbs others, temper tantrums, screams, etc. Teachers and parents were given minimal instructions on rating.

**Peer ratings (sociometric assessment) as an indicator of negative status among peers.** Within each of classrooms, subjects were asked to nominate up to three classmates they like most at school (positive nominations) and up to three classmates they don't like (negative nominations). The standardised scores were used to determine each child's positive and negative status. Children were interviewed and tested in the school that they attended. Total sociometric nomination scores were subjected to a square transformation to reduce skewness, and converted to z-scores.

**School achievement score**, based on teacher's ratings of academical competencies (mean score of mathematics and native language).

Collected variables were standardized before further analysis. For graphical

presentation (in order to avoid negative scores) we used z-transformed scores plus 3.

## Results and discussion

### Variable approach

**Aggressive expression.** We begin with an examination of the interrelations among several measures of aggressive expression (aggressive behavior as reported by parents, teachers and peers). The internal correlations among aggression measures were consistently positive, and in some cases – moderately strong. The highest correlation involved the relation between teacher ratings and peer nominations for boys (r = .56**). This pattern of relations between peers and teachers nominations reflect the fact that teachers and peers observe child's aggressive behavior in the same circumstances (at school) and in the comparison with other children's behavior, while parents rate child's behavior at home and separately from others. The self-ratings on aggression poorly correlated with teacher, parents and peers nominations for girls, but not for boys. Surprisingly, boys self-report ("private" information) correlated significantly with peers, teachers and parents ("public" source). This pattern of relations differs from Cairns, Cairns (1984) findings. Even when the correlations between all sources of information were statistically reliable (for boys) they tended to be of relatively low magnitude (i.e., r = .23** –.31**).

Parents rated girls to be almost as aggressive as boys. The reliable main effect of aggression (as rated by parents) for child's gender (F = 14.78, p < .001) must be interpreted in the light of strong gender-by-age interactions (F = 3.24, p < .001). Boys have higher prevalence of aggressive behavior in teacher reports. The reliable main effect of aggression (as rated by teachers) for gender is F = 70.69, p < .001, and for gender-by-age interactions is F = 7.50, p < .001. The analysis of the distribution of ratings made by parents and teachers for boys and girls is very informative. A large proportion of girls were assigned the lowest possible scores on the teacher 's summary scale. By contrast, distributions of a large proportion of girls were assigned the high or middle possible scores on the parents summary scale. The attenuation in the distribution of scores might be expected to have consequences for correlational analyses which involves these scores. Peers rated boys to be much more aggressive in comparison with girls. Most girls were assigned the lowest possible scores on the peers summary scale. The reliable main effect of aggression (as rated by peers) for gender is F = 84.21, p < .0001, and for gender-by-age interactions is F = 8.35, p < .001.

**Peer rejection.** Results of this study show significant gender differences in inter-correlations between social status and aggressive behavior as rated by peers, parents, teachers and child himself. Our data indicate that aggressive behavior as rated by peers is significantly and very strongly related to negative social status, both for boys (r = .66**) and girls (r = .50**). Positive social status is negatively related with childhood aggression as rated by peers, but the strength and significance for boys (r = –.23**) and girls (r = –.22**) differ. ANOVA of peer ratings on childhood aggression by negative social status and gender resulted in F = 171.6, p < .001. Besides, aggressive boys are more disliked than aggressive girls by same-sex peers

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and were viewed by peers and teachers as engaging in more aggressive behavior than aggressive girls.

**School achievement.** School achievement seems to be more strongly related with boys aggressive behavior as rated by peers (r = = -.33**) , teachers (r = -.21**), and child himself.( r = -.12*). For girls, self-ratings and teacher's ratings on behavioral problems were significantly negatively related to school achievement (r = -.13* ). Our data indicate that aggressive children tend to be poor school achievers. Many peer-rejected children display high levels of aggressive behavior toward their peers, are disruptive in the classroom.

## Cluster analysis

For the sample of 510 children (272 boys and 238 girls), a cluster analysis of extrinsic adjustment problems selected for the study was also performed. The construction of adjustment problem indicators was based on literature review, some conceptual considerations and on variable analysis of self-report, parents, teachers, peers report on aggression, peer rejection and school achievement. The interaction term for the ANOVA testing the effect of aggressive behavior (as rated by parents), by school achievement with negative status and gender was significant (F = 2.774, p < .004).

*Table 1. Description of variables*

| Name | Description |
|------|-------------|
| CBCL | Aggressive behavior as reported by parents (the standardized total score of the CBCL4/18 on aggression scale) |
| TRF | Aggressive behavior as reported by teachers (the standardized total score of the TRF11/18 on aggression scale) |
| Peers | Aggressive behavior as reported by peers (the standardized total score of peer ratings on aggression scale) |
| Ach | The standardized mean of total score of achievement in mathematics and native language (Lithuanian) |
| NS | Negative status among peers (the standardized total score of peer ratings on sociometric assessment) |

**Identifying a residue.** It has long been recognized (Bergman, 1996) that multivariate outliers may disturb the results of cluster analysis and it has been suggested that in some situations it might be useful to have less 100% coverage, i.e., to not classify everybody (Edelbrock, 1979). In addition to technical reasons for this, theoretical reasons have been suggested by Bergman (1988). Only a small number of "unique" individuals due to extreme environmental conditions and particular genotypes usually exist and they should not be forced into a cluster. He indicated an objective procedure, RESIDAN, for a priori identifying and analyzing separately a residue of unclassified (Bergman, 1996). First, the RESIDAN approach was used to remove a residue which is analyzed separately. Similarity measures were computed as average squared Euclidean distances. Distance measures were computed with standardized values. Using the earlier described RESIDAN rationale a residue of unclassified 11 boys and 9 girls were removed.

*Table 2. Descriptive information about the residue cases*

| Variable | Boys (N = 11) | | Girls (N = 9) | |
|---|---|---|---|---|
| | Mean | SD | Mean | SD |
| CBCL | 1.21 | .88 | .84 | 1.06 |
| TRF | 1.75 | 1.19 | 2.47 | 2.17 |
| Peers | 3.14 | 1.67 | 2.56 | 3.88 |
| Ach | -.75 | 1.21 | -1.17 | 1.44 |
| NS | 2.30 | 1.01 | 1.23 | 1.29 |

**Cluster analysis.** Cluster analysis was undertaken using Ward's (1963) hierarchical cluster analysis method. 8-cluster solution was chosen for further analysis, both for boys (N = 262, explained error sum of squares = 65,4 percent ) and girls (N = 229, explained error sum of squares = 68,9 percent). 8-cluster solution was chosen based on the fact that the clusters at this point were interpretable and reasonably homogeneous; increasing the number of clusters would not improve these qualities to 8-cluster solution and would result in fusion of two clear, homogeneous clusters into an inconveniently heterogeneous cluster, while the 7-cluster solution would result in fusion of two clear, homogeneous clusters into an inconveniently heterogeneous cluster. For the interpretation of the clusters, they were compared in the clustering variables. One-way ANOVAs showed that the effect of grouping was very significant (p < .001) on each variable for boys and girls. Some differences between the sexes existed in the coverage of the clusters.

*Table 3. Cluster means in the clustering variables*

| Clusters | Sex | N | Aggression (CBCL) | Aggression (TRF) | Aggression (Peers) | Negative status | School achievement |
|---|---|---|---|---|---|---|---|
| 1 | M | 42 | -.42 | -.59 | -.40 | -.51 | -1.10 |
| 1 | F | 58 | -.89 | -.36 | -.13 | -.27 | .43 |
| 2 | M | 41 | -.19 | .11 | -.02 | .90 | -.41 |
| 4 | F | 36 | -.56 | -.24 | -.20 | -.12 | -1.26 |
| 3 | M | 3 | -.72 | 3.07 | 3.42 | 2.71 | -2.78 |
| 8 | F | 69 | .36 | -.45 | -.25 | -.36 | .66 |
| 5 | M | 18 | .12 | .28 | 1.42 | .48 | -.99 |
| 9 | F | 32 | 1.49 | -.04 | -.19 | -.24 | -.75 |
| 11 | M | 32 | 1.31 | -.45 | -.48 | -.63 | .67 |
| 37 | F | 4 | .39 | 1.76 | 2.65 | .17 | .40 |
| 12 | M | 102 | -.49 | -.42 | -.44 | -.48 | .69 |
| 50 | F | 12 | -.46 | 1.63 | -.11 | -.20 | .72 |
| 37 | M | 7 | 1.60 | 2.22 | .74 | 2.01 | -.29 |
| 60 | F | 15 | -.26 | .09 | .06 | 1.73 | -.04 |
| 44 | M | 17 | .59 | 1.77 | .30 | -.04 | .47 |
| 108 | F | 3 | -.08 | 3.35 | 1.65 | 5.68 | -.02 |

In this final cluster solution there was one cluster of boys who, according to the indicators used here, had no adjustment problems (low aggression as rated by parents, teachers and peers, low negative status, good school achievement), and that was **Cluster 12**. This cluster was the largest cluster in the analysis and included 101 boys, or 37.1% of the boys sample. **Cluster 1** included boys with two problems: quite high negative status among peers and low school achievement, when scores on aggression from three informants were low. This cluster included 42 boys, or 15.4% of the sample. **Cluster 2** included 41 boy, or 15.1% of the sample, and **Cluster 5** included 18 boys, or 6.6%, or of the sample, with middle adjustment problems: close to mean of the boys sample on ratings on aggression, negative status and school achievement. **Cluster 3** included 3 boys, or 1% of the sample, highly aggressive in school (as rated by peers and teachers), but not-aggressive at home. Their negative status is quite high, school achievement is very low. **Cluster 11** consists from 32 boys, or 11.8% of the sample, highly aggressive at home, but not aggressive, not rejected at school, with good school achievement. **Cluster 37** included 7 boys, or 2.6%, highly aggressive in home and school settings, as rated by all informants, with high negative status, but good in school performance. **Cluster 44** consists form 17 boys, or 6.3% of the sample, who are rated as quite high aggressive at home and at school, but have low negative status and good school achievement. In sum, there are no boys, who are highly rated on all the indicators of extrinsic maladjustment. Some different configurations

could be traced. There is a quite big cluster of boys (11) where only one indicator (high aggressiveness at home) show their maladjustment. And there are only a few boys (1% of the subsample) who are highly rated on all the indicators of maladjustment, except their aggressiveness at home.

In this final cluster solution there was one cluster of girls, who, according to the indicators used here, had no adjustment problems (low aggression as rated by parents, teachers and peers, low negative status, good school achievement), and that was **Cluster 1**. This cluster was one of the largest clusters in the analysis and included 58 girls, or 24.4% of the girls sample. **Cluster 4** was very similar to cluster 1, only school achievement score was low. This cluster consists from 36 girls, or 15.1% of girls sample. **Cluster 8** included 69 girls, or 29% of the sample, quite aggressive at home (as rated by parents), but non-aggressive, non-rejected at school, and good in school performance. This cluster was the largest cluster in the analysis.

**Cluster 9** consists from 32 girls, or 13.4% of the sample, very aggressive at home (as rated by parents), mean-aggressive at school, as rated by teachers, with quite low school achievement. **Cluster 37** consists from 4 girls, or 1.7% of the sample, quite aggressive at home, very aggressive at school (as rated by teachers and peers), with high negative status, but surprisingly good in school achievement. **Cluster 50** consists from 32 girls, or 13.4% of the sample, quite aggressive as rated by teachers, but middle-aggressive as rated by parents and peers, with very good school achievement. **Cluster 60** consists from 15 girls, or 6.3% of the sample, actively rejected by
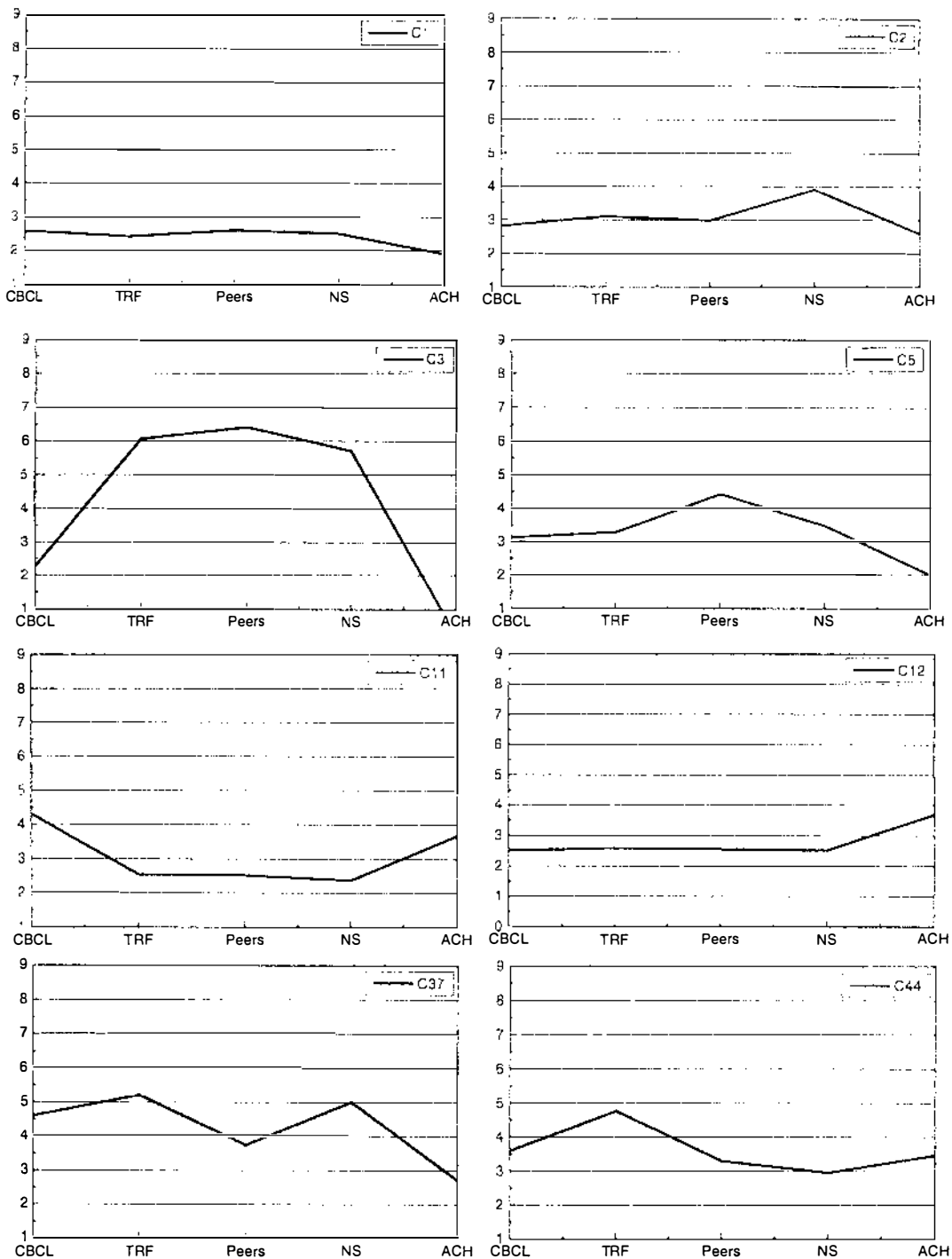
*Fig. 1 Profiles of cluster means for the five related variables for boys at ages 7–12 (z-transformed scores plus 3), N = 261 and explained error sum of squares = 65,4 percent. (CBCL, TRF, peer- parents, teachers and peers ratings on child aggression, respectively, Ns – negative status, Ach – achievement score)*

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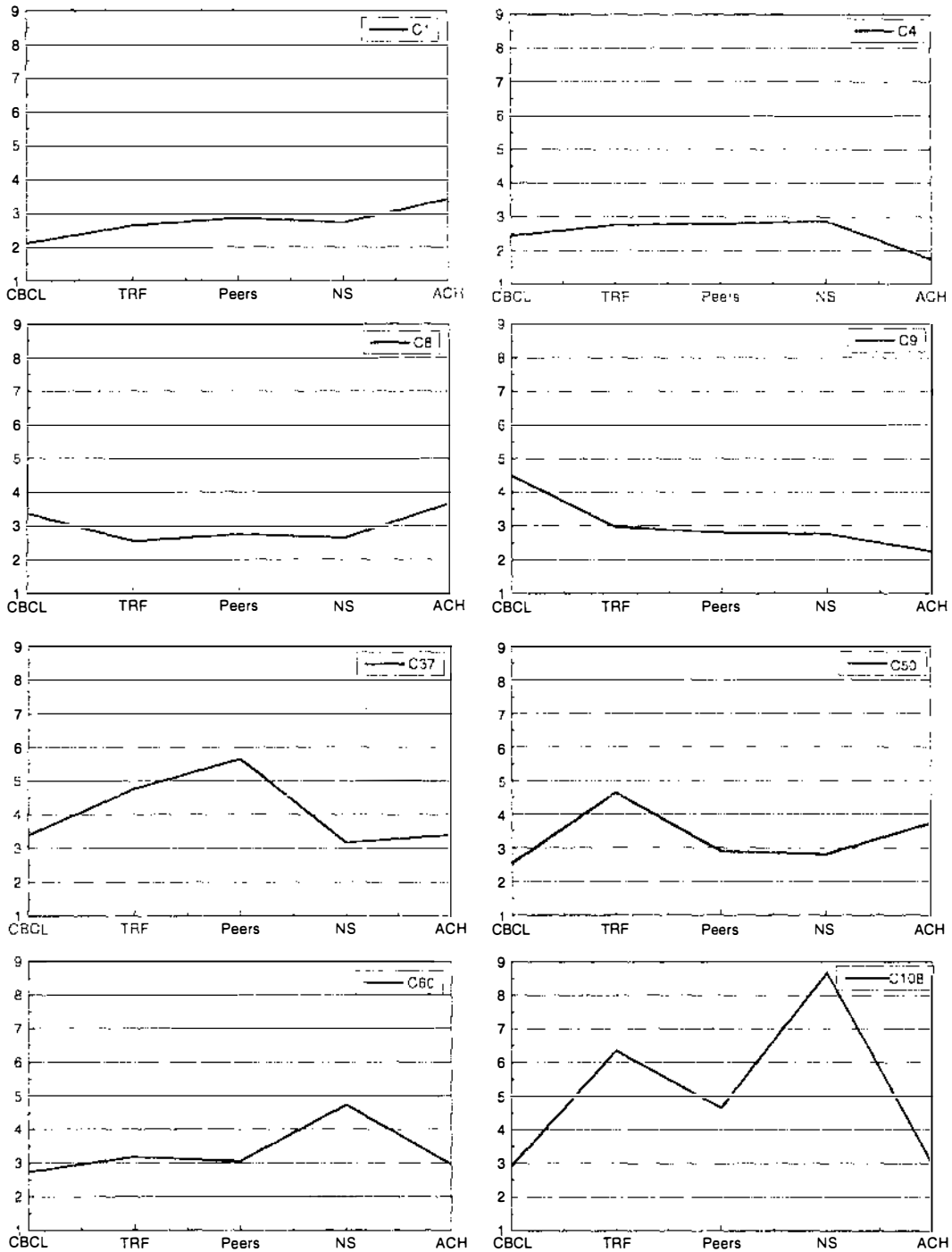
Fig. 2. Profiles of cluster means for the five related variables for girls at ages 7–12 (z-transformed scores plus 3), N = 229 and explained error sum of squares = 68,9 percent. (CBCL, TRF, peer- parents, teachers and peers ratings on child aggression, respectively, Ns – negative status, Ach – achievement score)

peers (negative status is very high), but middle aggressive at home and at school, quite good in school achievement. And **Cluster 108** consists from 3 girls, or 3.8% of the sample, quite aggressive at home, very aggressive at school, and extraordinary rejected by peers, but quite good in school achievement.

To summarize, there are more girls than boys with extrinsic maladjustment problems. Their ratings on all the indicators is almost of the same level. The results show, that aggressiveness and poor school achievement are not necessary components of extrinsic maladjustment. As we can see, there are girls, who are very good in school performance, but they are quite aggressive at home or at school (as reported by teachers).

Above, the boys and girls in the clusters have been characterized by the centroids. It should be noted that these centroids refer to the mean values of indicators for the clusters and that there is, of course, some variation around the most of these means.

## Conclusions

Eight different individual patterns were found to characterize the boys' and girls' adjustment problems. In this final cluster solution there was one largest cluster (12) of boys who, according to the indicators used here, had no adjustment problems (low aggression as rated by parents, teachers and peers, low negative status, good school achievement). In one of the largest cluster (1) the girls had no adjustment problems also. This pattern of reported well-adjustment in all five dimensions studied was identified as a significant type, supporting the interpretation that good adjustment has a tendency to be generalized over different adjustment areas.

The boys in one big (1) single-problem cluster were rated on adjustment problems on a mild form. Together with the no-problem cluster boys, these on the whole well-adjusted boys comprised 52.4% of the sample. In four clusters (2, 5, 11, 44) boys were rated on one or two adjustment problems of a quite serious form. These boys with extrinsic maladjustment pattern comprised 39.8% of the sample. One small cluster (37) consisted of boys with three problem dimensions. One small cluster (3) consisted from very badly adjusted boys, with high ratings on aggression, on negative status and with very low school achievement. These boys in two small clusters (3.8% of the sample) could be considered as having extraordinary low adjustment.

The girls in two big single-problem clusters (4, 8) often were rated on adjustment problems of a mild form. It may be within the range of "normal development" to have some single indicator of a problem. Together with the no-problem cluster girls, these on the whole well-adjusted girls comprised 68% of the sample. In four clusters (9, 37, 50, 60) girls were rated on one or two adjustment problems of a quite serious form. These on the whole quite bad-adjusted girls comprised 26.4% of the sample. Three girls in the smallest cluster (108) could be considered as very badly adjusted, they tended to have problems in several areas: they were rated as highly aggressive in different settings, they also are rejected by peers and quite low in school achievement.

As already stated, large groups of boys and girls could be considered as no having serious adjustment problems. Groups of boys and girls with middle adjustment problems were smaller. The results point to a group of children with

middle problems in different dimensions. And finally, small groups of boys and girls with extreme extrinsic maladjustment pattern in middle childhood were revealed. Aggressive behavior in different settings as rated by different informants-parents, teachers and peers, together with high negative status and low school achievement could be treated as related to each other and constituting a pattern of extrinsic maladjustment.

In future, we are going to continue longitudinal study. Individual-based information can help in answering prognostic questions whether a child is likely to outgrow problem behavior or instead become worse over time.

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## ADAPTACIJOS PROBLEMOS JAUNESNIAJAME MOKYKLINIAME AMŽIUJE

Rita Žukauskienė, Roma Šimulionienė

Santrauka

Šiame straipsnyje analizuojamos adaptacijos problemos, pasireiškiančios jaunesniajame amžiuje. Tyrimas remiasi holistiniu Bergmano, Magnussono (1983) požiūriu į asmenybės raidą ir šių autorių pateikta išorinių ir vidinių adaptacijos problemų taksonomija. Šiame tyrime apsiribojama tik kai kurių išorinės deza-

daptacijos problemų (bendraamžių atstūmimo, nepažangumo ir agresyvaus elgesio skirtingomis aplinkybėmis) analize. Pateikti 7–12 metų vaikų (N = 695), dalyvavusių ilgalaikiame tyrime, pradėtame 1996–1997 m., duomenys. Duomenys apie vaikų agresyvų elgesį buvo renkami apklausiant bendraamžius, pačius vaikus, taip pat mokytojus (TRF/11–18) ir tėvus (CBCL/4–18) (Achenbach, 1991). Negatyvus statusas tarp bendraamžių nustatytas sociometriniu tyrimu, o vaikų pažangumas skaičiuojamas pagal matematikos ir lietuvių kalbos vidurkį. Koreliacinė ir dispersinė duomenų analizė parodė, jog agresyvus elgesys koreliuoja su bendraamžių atstūmimu ir nepažangumu, pasireiškia nuo vaiko lyties ir amžiaus priklausantys agresyvaus elgesio ir atstūmimo bei nepažangumo sąveikos ypatumai. Naudojant Wardo (1963) hierarchinės klasterinės analizės metodą, buvo išskirti tipiški adaptacijos problemų atvejai, leidžiantys atlikti individualią problemų analizę. Paaiškėjo, kad didelėms berniukų ir mergaičių grupėms nėra būdingos adaptacijos problemos pagal pasirinktus dezadaptacijos rodiklius, bet taip pat išsiskyrė nedidelės berniukų ir mergaičių grupės, kurioms būdingos viena arba kelios adaptacijos problemos.