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Self- and Parent-Rated Quality of Life of Adolescents with Subthreshold and Clinical Diagnostic Criteria for Oppositional Defiant Disorder and Conduct Disorder

PhD thesis outline

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1. INTRODUCTION

1.1. Conduct Disorder and Oppositional Defiant Disorder

Conduct disorder and oppositional defiant disorder can be found in the Conduct disorders (F91) chapter of the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD) published by the World Health Organization (WHO). This chapter summarizes the disorders which are characterized by persistent and repetitive aggressive behavior, deceitfulness, violation of social rules; these behaviors are not age-appropriate and more serious than ordinary mischief and pranks (WHO,1992). According to the preliminary version of 11th revision of the ICD, the aforementioned disorders will be included in the „6. Disruptive behaviour or dissocial disorders" chapter (ICD-11, w.y).

In the 5th edition of the Diagnostic and Statistical Manual (DSM-5) published by American Psychiatric Association (APA), Oppositional Defiant Disorder and conduct disorder are included in a new chapter on disruptive, impulse-control, and conduct disorders (APA, 2013). There is an innovation in the DSM-5, that limited prosocial emotions specifier can be applied in conduct disorder (APA, 2013). The abovementioned disorders could also be diagnosed in adulthood since the DSM-5 was introduced (APA, 2013).

1.2. Subthreshold disorders

Subthreshold conditions appear on the spectrum of a given psychiatric disorder;they are quantitatively milder, still qualitatively similar to full syndrome conditions (Shankman et al., 2008).

According to the literature, there are no universally accepted criteria of subthreshold disorders at any group of disorders (Balázs and Keresztény, 2014). Subthreshold conditions increase the risk of full-syndromes (Viinamäkiet al., 2013; Balázs and Keresztény, 2014; Halleret al., 2014), and their prevalence is higher compared to disorders listed in the classification systems (Olfson et al., 1996). Subthreshold disorders could serve as a bridge between categorical and dimensional approaches (Balázs et al., 2014, Dallos et al., 2014).

1.3. Quality of Life (QoL)

WHO defines Quality of Life as an individual's perception of their position in life in the context of the culture and value systems (WHO, 1995). When examining clinical populations, it is important to take into account that functionality and the presence or reduction of symptoms are

not in a linear relationship with changes in QoL, therefore symptom scales are not sufficient to assess the general condition of the patients (Jekkel and Magyar, 2007).

The source of information (parents or their children) seems to be a crucial issue in the diagnostic procedure in child psychiatry both in clinical practice and in research, as there is a discrepancy between children's self-report and caregivers' evaluations (Achenbach et al., 1987). This discrepancy often appears in the assessments of QoL too, there is a poor agreement between caregivers' ratings about their children and the childrens' self-ratings (Eiser and Morse, 2001, De Los Reyes and Kazdin, 2005).

Furthermore, differences in QoL evaluations can also be found depending on whether the problems are internalizing or externalizing: if children are affected by internalizing symptoms, the differences between caregiver and child evaluations are less pronounced than in case of externalizing symptoms (Seiffge-Krenke and Kollmar, 1998, Duhig et al.,, 2000, Duhig, Renk, Epstein and Phares, 2000, Kiss et al., 2008, Turi et al., 2011, 2013).

1.4. Relationship between Oppositional Defiant Disorder, Conduct Disorder and Quality of Life

During my doctoral research, we systematically reviewed researches on the relationship between Oppositional Defiant Disorder, Conduct Disorder and QoL (Szentiványi and Balázs, 2018). Our results published in English are presented below (Szentiványi and Balázs, 2018).

A systematic literature search was conducted on June 14th, 2015 on the following five computerised literature databases: Medline, PubMed, Science Direct, Scopus and Web of Science. We searched for the keywords "oppositional defiant disorder", "conduct disorder", and "quality of life" in English, German and Hungarian language.

The selected studies had data on the relationship between conduct/oppositional symptoms or diagnosis and QoL. We excluded the publications if they were review papers, or if they focused on the efficacy and effectiveness of treatments, or methodological issues. Finally, 15 publications were included in the systematic review after the screening process (Figure 1) (Szentiványi and Balázs, 2018).

The included papers were released between 2002 and 2014, to my knowledge there is no new publication in this topic. The studies were completed in 10 countries: Australia, Austria, Canada, Germany, Hungary, Netherlands, Norway, Puerto Rico, Sweden, and the United States of America (USA), most of them (6 publication) introduced results from Germany.

From the included studies, one had a follow-up design (Barneveld et al., 2014), one was a case-control study (Bussing et al., 2010) and one was retrospective (Goldstein et al., 2012); the other papers used a cross-sectional design.

Three studies were performed on adults, twelve papers focused on children, the participants of the included studies were 0-75 years old.

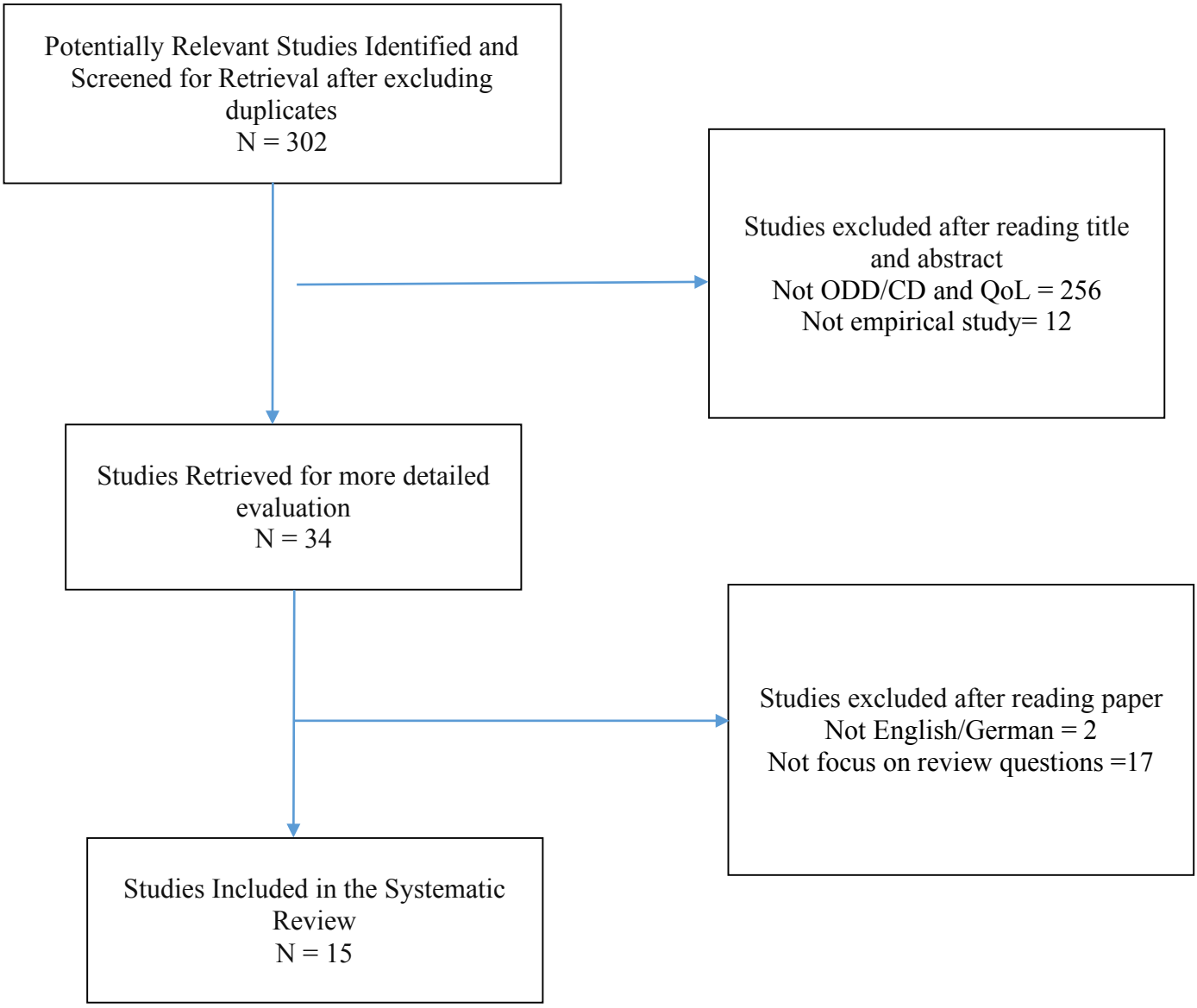

Figure 1: Quorum flow chart (Szentiványi and Balázs, 2018)

1.5 I present the results of the reviewed studies based on 5 questions:

1.5.1. What kind of assessments are used to measure the diagnoses/symptoms of Conduct Disorder/Oppositional Defiant Disorder?

To identify the diagnoses of Conduct Disorder and Oppositional Defiant Disorder and their symptoms, diagnostic interviews, self-report questionnaires and hospital records were used.

For an overview, the assessments measuring Conduct Disorder and Oppositional Defiant Disorder are collected in the Table 1.:

Table 1: List of measurement tools for the diagnoses of Conduct Disorder/Oppositional Defiant Disorder and their symptoms in the review

Diagnostic tools		
Publication	Measures	Abbreviation
Goldstein et al. 2012	Alcohol Use Disorder and Associated Disabilities Interview Schedule – DSM-IV	AUDADIS-IV
Dallos et al. 2014	Mini International Neuropsychiatric Interview Kid	MINI Kid
Lindstedt et al. 2012	Karolinska Scales of Personality	KSP
Symptom Scales		
Büttner et al., 2011, Schei et al., 2013, 2015, Steinhausen et al., 2006	Strength and Difficulties Questionnaire	SDQ
Barneveld et al., 2014	Child Behaviour Checklist	CBCL
Bussing et al., 2010	Vanderbilt ADHD Diagnostic Parent Rating Scale	VADPRS
Thurston et al. 2010	NLSCY Behaviour questionnaire	
Sawyer et al. 2002	Child/Adolescent Symptom Inventory 4	CSI-4

1.5.2. What kind of assessments are used to measure QoL?

QoL was measured with 10 different questionnaires and with in-depth interviews in one case. The measures are shown in the Table 2.

Table 2: QoL measurement tools in the review

Publication	Measures	Abbreviation
Büttner et al., 2011; Dallos et al., 2014 Schubert et al., 2003	Invertar zur Erfassung der Lebensqualität Kindern und Jugendlichen	ILK
Bussing et al., 2010; Klassen et al.,; 2004, Sawyer et al., 2002	Child Health Questionnaire	CHQ
Hampel andDesman, 2006	Kinder Lebensqualität Frangebogen	KINDL
Steinhausen et al., 2004	Child Health and Illness Profile	CHIP-CE
Goldstein et al., 2012	Short-Form 12-Item Health Survey, version 2	SF-12v2
Lindstedt et al., 2015	the Manchester Quality of life Scale	MANSA
Schei et al., 2013; Schei et al.,2015	Inventory of Life Quality in Children and Adolescents	ILC
Thurston et al.,2010	Psychosocial Quality of Life	PsychQL
Bussing et al.,2010	Youth Quality of Life	YQOL

1.5.3. What is the link between QoL and Oppositional Defiant Disorder and Conduct Disorder in children?

From the 15 included papers, five examined the QoL of patients' Oppositional Defiant Disorder and Conduct Disorder (Büttner et al., 2011, Chavez et al., 2012, Sawyer et al., Schubert et al., 2006, Thurston et al., 2010).

Büttner et al. (2011) examined children in the youth welfare system; they asked parents and their children to evaluate their QoL. Only the children's ratings indicated that conduct problems are associated with a lower QoL (Büttner et al., 2011).

In oppositional defiant disorder or conduct disorder, all four quantitative researches found lower QoL either according to parents' or children's ratings or both. The qualitative study revealed that children with ADHD covered 36 themes, children with oppositional defiant disorder and conduct disorder covered 32 themes, and children with MDD/GAD 19 themes. The 10 most frequent themes of children with oppositional defiant disorder / conduct disorder were: School performance, Conduct problems, Sports, Family, Socialization, Anger/Aggression, Obedience/Discipline, Family Conflicts, Defiance Control, Legal Problems, and Violence (Chavez et al., 2012).

1.5.4. Do psychiatric disorders with comorbid oppositional defiant disorder and conduct disorder impair the QoL more than psychiatric disorders without oppositional defiant disorder and conduct disorder comorbidity?

Seven of the 15 papers dealt with the question whether psychiatric disorders with comorbid conduct disorder / oppositional defiant disorder impair QoL more than psychiatric disorders without conduct disorder / oppositional defiant disorder comorbidity (Bussing et al., 2010, Dallos et al., 2014, Hampel et al., 2006, Klassen et al., 2004, Schei et al., 2013, Schei et al., 2015, Steinhausen et al., 2006).

The seven studies which measured the relationship of QoL and disorders with comorbid oppositional defiant disorder and conduct disorder focused on attention deficit hyperactivity disorder (ADHD). The researchers found that the presence of oppositional defiant disorder increased the odds of reduced QoL (Bussing et al., 2010, Dallos et al., 2014, Klassen et al., 2004, Schei et al., 2013; Schei et al., 2015, Steinhausen et al., 2006). Dallos et al. (2014) published results from a Hungarian study. The research group found that the parents of children with ADHD reported a significantly worse QoL of their children than the children did, both when ADHD was comorbid with oppositional defiant

disorder and conduct disorder and when ADHD was present without comorbidity (Dallos et al., 2014).

Only one study, Hampel et al. (2006) found no differences in the parent's ratings about their children's QoL in children with ADHD with and without comorbid conduct disorder/oppositional defiant disorder.

1.5.5. Does childhood oppositional defiant disorder and conduct disorder decrease QoL in adulthood too?

From the 15 papers, three focused on adults, who reported their own QoL (Barneveld et al., 2014, Goldstein et al., 2012, Lindestedt et al., 2015). All three studies agreed that conduct disorder and oppositional defiant disorder affect the QoL negatively in the long-term, but the level of impairment could not be accurately defined.

Despite the high prevalence of oppositional defiant disorder and conduct disorder among children and adolescents, we found only 15 papers in English, German and Hungarian which examined the impact of these disorders on QoL. Moreover, as the tables above shows, a lot of measuring tools are in use. Because of the colourful palette of measurements for QoL, oppositional defiant disorder and conduct disorder and their symptoms, it was difficult to compare the results of the studies. We found no study which examined the relationship of oppositional defiant disorder or conduct disorder and QoL with a dimensional approach, thus there is no information whether increased number of symptoms correlates with a lower QoL.

Based on retrospective studies, our review showed that the presence of conduct disorder symptoms in childhood can lead to a lower QoL in adulthood, which supports the DSM-5's lifespan approach and highlights the importance of using specifiers.

2. OBJECTIVES OF THE STUDY/HYPOTHESES

1. In the first section of my doctoral dissertation, my aim was to explore the extent to which the children's and caregivers' reports overlap in a clinical population that shows externalizing symptoms, furthermore, if there are any differences in the concurrence of evaluations depending on wheter it is given by the mother, the father or another caregiver.

- Caregivers rate the QoL of adolescents diagnosed with conduct disorder lower than the adolescents themselves.

- The caregivers' ratings on the children's QoL differ according to whether the evaluator was the mother, father or another caregiver.

2. Later I focused on conduct disorder and compared the evaluations of QoL of female and male adolescents diagnosed with conduct disorder to the evaluations of their parents or caregivers.

- The QoL of girls diagnosed with conduct disorder is lower than the QoL of boys diagnosed with conduct disorder.
- Caregivers raising girls evaluate QoL of their children lower than the caregivers raising boys.

3. Furthermore, I found it important to examine whether the oppositional defiant disorder comorbid with conduct disorder results in lower level of QoL of the adolescents or their parents than the conduct disorder in itself.

- The QoL of adolescents is lower if besides conduct disorder they are diagnosed with comorbid oppositional defiant disorder.
- The caregivers' evaluation of QoL of their children is lower if the adolescent is diagnosed with oppositional defiant disorder besides conduct disorder.

4. In the last section of my doctoral dissertation, I compared the following groups: the evaluations concerning QoL of adolescents diagnosed with conduct disorder and oppositional defiant disorder and their caregivers' evaluations, the evaluations concerning QoL of adolescents with a subthreshold conduct disorder or oppositional defiant disorder and their caregivers evaluations, ratings of QoL of adolescents who does not fulfil the symptoms of conduct disorder or oppositional defiant disorder and their caregivers' ratings.

- The QoL is lower of adolescents who are affected by conduct disorder, than adolescents who are not.

- The evaluations of caregivers and parents are lower if their child is affected by conduct disorder, than the evaluation of caregivers and parents whose child is not affected by conduct disorder.

- oppositional defiant disorder results in lower level of QoL of adolescents according to self-reports than subthreshold oppositional defiant disorder.

- The parents and caregivers evaluate the adolescents' QoL lower when their child is diagnosed with oppositional defiant disorder than in case of subthreshold oppositional defiant disorder.

- conduct disorder results in lower level of QoL of adolescents according to self-reports than subthreshold conduct disorder.

- The parents and caregivers evaluate the adolescents' QoL lower diagnosed with conduct disorder than in case of a subthreshold conduct disorder.

- QoL in case of adolescents affected by subthreshold oppositional defiant disorder is lower than in case of adolescents not affected by the disorder.

- The QoL of adolescents affected by subthreshold oppositional defiant disorder according to parents and caregivers is lower than in case of adolescents not affected by the disorder.

- QoL in case of adolescents affected by subthreshold conduct disorder is lower than in case of adolescents not affected by the disorder.

- The QoL of adolescents affected by subthreshold conduct disorder according to parents and caregivers is lower than in case of adolescents not affected by the disorder.

3. METHODS

3.1. Procedure, ethics

The study was approved by the Ethical Committee of the Medical Research Council, Hungary (ETT-TUKEB, number of the permission: ETT-TUKEB- 5071-2/2014/EKU (101/2014) and was supported by OTKA K108336 grant. The data collection was between July 2014 and June 2017. The data collection had two steps, first from clinical setting in the Vadaskert Child Psychiatric Hospital and Outpatient Clinic, Budapest, Hungary and then non-clinical setting in state schools in Budapest.

The participation in the study was voluntary, the parents of each adolescent and the adolescents included in this study were informed of the nature of this study and provided written informed consent.

During the recruitment of the clinical group, 221 families were asked to participate in our research, 204 parents and children agreed to participate, so the consent rate was 92.30%. In the control group, we contacted 498 parent-child pairs, of whom 197 agreed to participate, so the consent rate was 39.55%.

3.2.Participants

Adolescents over 13 and under 18 years old and their parents were included. From clinical settings, adolescents with externalizing symptoms in their history were recruited. Exclusion criteria included autism spectrum disorder, psychosis and mental retardation in the medical history. We excluded adolescents from non-clinical group if they made us aware of their present psychological/psychiatric treatment.

3.3.Measurements

3.3.1. Demographic questionnaire

Our research group compiled the demographic questionnaire, which included anamnestic data (gender, age, family status, number of siblings, child custody, perinatal data, etc.) and information about the socio-economic status of the family.

3.3.2. Mini International Neuropsychiatric Interview (M.I.N.I.)

Psychopathology — that is, psychiatric disorders according to the classification systems and subthreshold conditions — were assessed with the modified version of the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-Kid; (Sheehan et al.,., 1998), which was developed by Balázs et al. (2004) to Hungarian. The interrater and test-retest reliability was good (Balázs et al., 2004). Besides, it takes 45 minutes to complete the MINI kid, which is relatively fast. The MINI Kid can be used to assess adolescents below 18 years (Balázs et al., 2004). During my doctoral study, we were working with adolescents older than 13 years, thus – in line with the instructions for MINI Kid- they were interviewed without their parents.

3..3.3. Quality of life questionnaire (Inventar zur Erfassung der Lebensqualität bei Kindern und Jugendlichen - ILK)

QoL was evaluated with the Hungarian version of the "Inventar zur Erfassung der Lebensqualität Kindern und Jugendlichen" (ILK; Measure of Quality of Life for Children and Adolescents; Mattejat et al., 1998). This self-report questionnaire is not emphasize the symptoms, and can be used between 6-18 years. The questionnaire assesses general QoL in six different domains: school, family, peer relations, being alone, somatic health and mental state (Kiss et al., 2007). There is a version for clinical populations, which measures problems caused by disorder or medical check-ups and treatments (Kiss et al., 2007).

The psychometric properties of the Hungarian version were measured and found acceptable by Kiss et al. (2007). The reliabilities of the self-rated and parent-report versions of the questionnaire in the present sample were good to very good ($\alpha = 0.772$ and 0.874, respectively).

3.4.Statistics

Data were analyzed using IBM SPSS Statistics 22 (íBM, 2013). Results with $p<0.05$ were considered as statistically significant in every case. The items of the ILK questionnaire were inverted, and their values were commuted between 0-100, with score 0 indicating the worst and 100 indicating the best QoL. To compare the parents' and their children's QoL ratings, I used F-factor analysis (Principal Component Analysis and direct oblimin rotation) and t-tests for data analysis. In adolescents with conduct disorder diagnosis, variables were ordinal and showed non-normal distribution in all cases (Kolmogorov-Smirnov test, $p<0.05$), and variance homogeneity (Levene test, $p>0.05$), so we used the Mann-Whitney test to compare gender differences and the QoL of adolescents with comorbid oppositional defiant disorder and without comorbid oppositional defiant disorder. The general QoL variable was the exception, because this variable showed normal distribution, so we could use t-tests to test the hypothesis.

Five groups were made to examine the differences between parent-child dyads: adolescents with conduct disorder; adolescents with oppositional defiant disorder; adolescents with subthreshold conduct disorder; adolescents with subthreshold oppositional defiant disorder; and adolescents without diagnosis of conduct disorder, oppositional defiant disorder or subthreshold forms of these two disorders. Inclusion in either of the subthreshold groups was indicated if the adolescent reported the required number of symptoms for the disorders according to the DSM-IV in the MINI Kid, but gave a "No" answer to the filter questions. Differences between diagnostic groups were examined by analysis of variance (ANOVA).

4. RESULTS

4.1. Sample

A total of 393 adolescents (51.7% boys and 49.3% girls) were included. The mean age of the adolescents was 14.89 year (SD=1.28). Altogether 346 (88%) answered both the MINI-Kid and the ILK. The parent version of the ILK was completed by 260 parents.

According to the MINI-Kid, 28 (8.1%; 42.8% boys and 57.2% girls) adolescents had conduct disorder and 39 (11.3%; 46.1% boys and 53.9% girls) adolescents had subthreshold conduct disorder. Furthermore 54 (15.6%, 49.2% boys and 51.8% girls) adolescents had oppositonal defiant disorder and 89 (25.7%; 48.3% boys and 51.7% girls) adolescents had subthreshold oppositonal defiant disorder according to MINI Kid.

4.2. Comparison of the ratings given by the adolescents and their parents/caregivers in clinical settings.

We examined the data of 140 parents and adolescent pairs. In the clinical setting 240 adolescents were included but only in case of 140 adolescents were ILK questionnaires completed both by the adolescents and their caregivers.

The person completing the questionnaire was the mother in 62 cases, the father in 32 cases and "other" in 20 cases, furthermore in case of 26 questionnaires it is not known if the respondent was a mother, father or another caregiver.

Examining the ILK questionnaires completed by the adolescents we have found that 79 boys and 60 girls have completed the questionnaires. The mean age was 14.47 (SD=1.38). In one case the respondent did not give information about his/her gender and age.

Examining the evaluations of caregivers of ILK questionnaires, the statements' "the burden caused by the treatments" and "family" communality were under 0.40, therefore these statements were excluded from factor analysis.

Based on the evaluations of caregivers, three factors were revealed:

- The name 'QoL related to the disorder' was given to the first factor.
- The name 'peer relations' was given to the second factor.
- The third factor includes 'the quality of school life'.

The statements included in the different factors and the values of communality are shown in the tables 4a and 4b. In case of the evaluations of caregivers we have found 3 factors, which accounts for the 68% of the variance, the factor quality of life related to the disorder stands for 38%, the factor peer relations stands for 16% and the factor quality of school life stands for 14%. Table 3 shows the cummality of ILK itmes.

Table 3.: Values of communality – caregivers (Szentiványi et al. 2017; Psychiatria Hungarcia, page 334)

	Communality
general QoL	0.774
school life	0.701
physical health	0.694
psychological state	0.689
time spent alone	0.669
peer relations	0.667
the burden caused by the disorder	0.594

Based on the above-mentioned factors three new indicators were made. These indicators were calibrated between 1 and 100, as the original ones.

- The factor *quality of life related to the disorder* shows high correlation to the total score of the ILK questionnaire ($r=0.81$ $p<.0001$). The indicator made from this factor shows how the caregiver values the disease awareness of their child ($M=65$, $SD=1.7$).
- In case of 30% of the caregivers, we have found average ratings ($M=42$ $SD=1.5$). Similarly, the ratings are above 50 scores on the factor *peer relations* in case of the 30% of the caregivers.
- The score of QoL is above 50 in case of 14% of the evaluators, and the caregivers gave lower ratings ($M=35$ $SD=1.5$) considering *the factor of time spent in school*.

In case of caregivers: there is significant correlation between the following indicators: quality of life related to the disorder and peer relations ($r=0.34$ $p<.001$). There is a significant negative correlation between peer relations and time spent in school ($r=-.18$ $p=.003$). In case of adolescents: there is a moderately strong correlation between QoL related to the disorder and quality of life according to the mean of the self-reports ($r=0.81$ $p<.0001$).

Based on one-way ANOVA there is a significant difference between the evaluators (F=2.85, p=.06). Between mothers and fathers p=.38, and p=.48, between fathers and other caregivers. Table 4.b shows the factor structure of the ratings given by the caregivers in ILK.

Table 4.a: The factor structure of the ratings given by the caregivers in ILK (Szentiványi et al., 2017; Psychiatria Hungarica page 335)

	1. factor QoL related to the disorder'	2. factor peer relations	3. factor the quality of school life
general QoL	0.841		
psychological state	0.825		
the burden caused by the disorder	0.807		
peer relations		0.806	
Time spent alone		0.799	
physical health			0.721
school life			-0.682

In case of adolescents due to low communality scores the following statements do not fit into the emerging factor structure: 'school', 'family', 'peer relations'. Therefore, we got two factors:

- The first factor is named general well-being.
- The second factor is named independence in disorder.

Tables 4.a and 4.b show the communality scores and the emerging factor structure that can also be found in Psychiatria Hungarica (Szentiványi et al., 2017, p.335).

Table 4.b: Values of communality- children

	Communality
General QoL	0.745
Psychological state	0.670
Treatments	0.628
Burden caused by the disorder	0.591
Physical health	0.527
Time spent alone	0.520

Table 5.: The factor structure of the ratings given by the children in ILK (Szentiványi et al., 2017; Psychiatria Hungarica page 335)

	general well-being	independence in disorder
General QoL	0.862	
Psychological state	0.818	
Burden caused by the disorder	0.724	
Physical health	0.703	
Burden caused by the treatments		-0.737
Time spent alone		0.673

Examining the ratings of the adolescents, we have found two factors that stand for the 61% of the variance: general well-being stands for 43% and independence in disorder for 18%. Based

on the self-reports of the adolescents, two new indicators were made and calibrated between 1 and 100, as the original ones.

What do the two factors stand for?

- In case of *general QoL*, 49% of the adolescents rated QoL higher than 50 scores. One adolescent rated his/her QoL to 100 scores, while four adolescents chose the worst option, 0 score. The mean of *general well-being* is 46±1.9.
- In case of *independence in disorder*, 69% of the adolescents rated QoL higher than 50 scores. One adolescent rated his/her QoL to 100 scores, and there were three evaluators who gave 0 score. The mean of *independence in disorder* is 52 ±1.6.

Comparing the answers of adolescents and caregivers, caregivers evaluated the QoL of their children on the average 49.56 (SD=14.30) scores, while the mean of the evaluations given by the adolescents was 38.82 (SD=16.24). The ratings of caregivers are significantly higher ($t=7.61$, $df=139$, $p<.0001$). There is a significant correlation between the self-evaluation of the adolescents and the summary of ILK evaluation of the caregivers ($r=.41$, $p< .0001$), showing moderate effect size.

Examining the correlation between the evaluations of the adolescents and the caregivers we get the following results:

- In case of mother and child dyads there is a significant correlation ($r=.41$ $N=62$, $p=.01$).
- In case of father and child dyads there is a tendency level ($r=.33$ $N=32$, $p=.061$) correlation.

Both in case of mothers and fathers examining the QoL of their children the effect size is moderate.

4.3. Second study

Secondary, I examined the QoL of adolescents diagnosed with conduct disorder from the perspective of gender differences.

Comparing the QoL of the girls and boys diagnosed with conduct disorder, we have got the following results:

- Girls evaluate their family relations ($U(23)=11.54$; $Z=-2.66$; $p<.01$; $r>0.5$), and general QoL ($U(23)=16.01$; $Z=-2.34$; $p<.05$; $0.3<r< .51$) significantly lower than boys.

- Girls report worse physical health on a tendency level than boys ($U(23)=23.51$; $Z=-1.80$; $p<.13$; $.3<r<.52$).
- According to the cumulated quality of life indicator, girls have worse QoL than boys in their self-reports ($t(21)=-2.665$; $p<.05$; $d>0.8$).

We have examined the evaluations of caregivers, to see if there is any difference in the ratings of QoL based on whether the child they report about is a boy or a girl.

- According to the caregivers' opinion, on a tendency level girls are more burdened by conduct disorder, than boys ($U(20)=18.51$; $Z=-1.87$; $p=.062$; $.3<r< .5$).
- According to the caregivers' evaluations, the examinations/treatments came along with lower QoL in case of girls ($U(19)=17.02$; $Z=-1.86$; $p=.063$; $.3<r<0.5$).
- In case of the other variables there were no significant or tendency level differences between genders neither in case of the adolescents' self-report nor in case of the caregivers' evaluations.

4.4. Third study

Does comorbid oppositional defiant disorder **affect the ratings of QoL given by the adolescents or caregivers?**

Based on the evaluations of adolescents:

- Time spent alone: according to their self-reports, adolescents diagnosed with conduct disorder and comorbid oppositional defiant disorder could keep themselves busy less when being alone, than their peers with conduct disorder who are not diagnosed with comorbid oppositional defiant disorder ($U(23)=33.51$; $Z=-2.26$; $p<.05$; $.3<r<.5$).
- School requirements: on a tendency level, adolescents diagnosed with conduct disorder and comorbid oppositional defiant disorder rated their QoL in school lower than adolescents without comorbid oppositional defiant disorder ($U(23)=40.01$; $Z=-1.85$; $p=.065$; $.3<r< .5$).

Based on the evaluations of the caregivers:

- Psychological state: on a tendency level, caregivers of adolescents diagnosed with conduct disorder and comorbid oppositional defiant disorder rated their child's psychological state worse ($U(21)=33.03$; $Z=-1.74$; $p=0.082$; $0.3<r< .5$).

- Treatments and examinations: on a tendency level, according to caregivers of adolescents diagnosed with conduct disorder and comorbid oppositional defiant disorder, treatments and assessments came along with lower QoL, compared to adolescents without comorbid oppositional defiant disorder (U(19)=25.52; Z=-1.65; p<.1; .3<r< .5).

In case of the other fields of QoL there were no significant or tendency level differences between adolescents diagnosed with or without comorbid oppositional defiant disorder, neither in case of the adolescents' self-report nor in case of the caregivers' evaluations.

4.5.. Forth study: Substhreshold oppositional defiant disorder and conduct disorder

Adolescents self reported QoL:

- Adolescents with conduct disorder (M=55.95 SD=14.89) reported a QoL significantly lower (F(2.344)=10.564, p<.001) than adolescents without conduct disorder (M=69.75 SD=16.05).
- Adolescents with subthreshold conduct disorder (M=63.17, SD=18.51) reported a QoL significantly lower (F(2.344)=10.564 p<0.001) than adolescents without conduct disorder (M=69.75 SD=16.05).
- No differences were found in the ILK scores between adolescents with conduct disorder and subthreshold conduct disorder in the self reports.
- Adolescents with oppositional defiant disorder (M=56.31, SD=16.14) reported a QoL significantly lower (F(2.344)=10.56, p<.001) than adolescents without oppositional defiant disorder (M=72.28, SD=14.51).
- Adolescents with subthreshold oppositional defiant disorder (M=57.64, SD=17.93) reported a QoL significantly lower (F(2344)=35.271, p<.001) than adolescents without subthreshold oppositional defiant disorder (M=72.28, SD=14.51).
- No differences were found in the ILK scores between adolescents with oppositional defiant disorder and subthreshold oppositional defiant disorder groups according to self reports.

Parents‘ report about adolescents‘ QoL:

- Parents of adolescents with conduct disorder assessed the QoL of their children (M=46.28 SD=13.87) as being significantly lower (F(2.258) = 15.820, p<.001) than the parents of adolescents without conduct disorder (M=66.35, SD=20.27).
- Parent ratings of the QoL of their children with subthreshold conduct disorder showed the same result: parents of adolescents with subthreshold conduct disorder assessed the QoL of their children (M=52.34 SD=17.26) as being significantly lower (F(2.258) = 15.820, p<.001) than parents of adolescents without conduct disorder (Mnodiagparent=66.35 SD=20.27).
- No differences were found in the ILK scores between adolescents with conduct disorder and subthreshold conduct disorder in the parent reports.
- The parent ratings of the QoL of their children with oppositional defiant disorder showed the same result: parents of adolescents with oppositional defiant disorder assessed the QoL of their children (M=54.01; SD=15.12) as being significantly lower (F(2.258) = 35.271, p<.001) than parents of adolescents without oppositional defiant disorder (M=66.35 SD=20.27).
- Parents of adolescents with subthreshold oppositional defiant disorder assessed the QoL of their children (M=54.04 SD=15.38) as being significantly lower (F(2.258) = 22.639, p<.001) than parents of adolescents without subthreshold oppositional defiant disorder (M=66.35 SD=20.27).
- No differences were found in the ILK scores between adolescents with oppositional defiant disorder and subthreshold oppositional defiant disorder groups according to parents’ reports.

4. DISCUSSION

4.1. First study – Parent-child evaluations

Examining the evaluations of QoL given by the adolescents or the caregivers it can be stated that different statements of ILK questionnaire form a factor structure.

Considering the factor QoL related to the disorder, more than half of the caregivers rated this factor better than the average, while only nearly half of the adolescents rated it better than the

average. According to earlier studies, children detect more symptoms themselves (Seiffge-Krenke and Kollmar, 1998).

Interpreting the factors based on the statements of ILK questionnaire in total, we may conclude that treatments decreasing the difficulties of QoL related to the disorder correlate with higher ratings on QoL.

It has been proved that among externalising disorders, in case of children diagnosed with ADHD, treatments resulted in improvement of QoL (Danckaerts et al., 2009). The clinical implication of these findings is that adolescents were not burdened by the treatments, but treatments result in improvement of QoL.

Although according to the self-reports of adolescents, school is not part of the emerging factor structure, examining the evaluations of the caregivers, the factor including school and physical well-being correlates with the lowest QoL. According to some studies, there is a moderate concordance between parents and children concerning the ratings of QoL in school (Varni et al., 2007), however, current results confirm that the part of QoL concerning school results in lower concordance between parents and children evaluations (Waters et al., 2003). The current results also confirm the assumption based on the literature (Theunissen et al., 1998; Waters et al., 2003), that adolescents rate their QoL significantly lower than their caregivers. Using the ILK questionnaire, Kiss et al. (2007) compared the ratings of QoL given by Hungarian children diagnosed with depression and given by their caregivers. Mothers raising children diagnosed with depression rated their children's QoL lower than the children themselves. In my study I confirmed the Hungarian results, that mothers' ratings are significantly worse than their childrens' ratings on QoL (Kiss et al., 2007).

4.2. Second study: Gender differences in QoL ratings

Reviewing the literature, there is only a small number of studies focusing on the QoL of adolescents with conduct disorder and/or oppositional defiant disorder (Szentiványi and Balázs, 2018).

To my knowledge there is no study focusing on the gender differences in QoL evaluations of adolescents with conduct disorder and oppositonal defiant disorder.

Our results showing that in case of adolescents diagnosed with conduct disorder, girls and their caregivers gave poorer evaluations about the child's physical health on a tendency level, and significantly worse ratings regarding family relationships and general and cumulative QoL than

boys; confirm priorresults , examining ADHD in externalising diagnoses (Dallos et al., 2014; Jozefiak et al., 2010).

It should be highlighted, that the parent-child agreement was particular in girls too, the girls did not feet their QoL satisfying in other domains, and the caregivers gave report about some domains which they can not observe directly (Agnihotri et al., 2010; Kiss et al., 2009). This phenomenon could cause that the problematic domains are differrent in the parent-child ratings.

4.3. Third study: Comorbid oppositional defiant disorder

The presented findings fit into the conclusions of studies about effect of comorbid disorders on QoL (Mendlowicz and Stein, 2000); adolescents with conduct disorder and comorbid oppositional defiant disorder had significantly worse quality of life in the domain of time spent alone and rated their QoL in school lower on a tendency level.

The caregivers of adolescents diagnosed with conduct disorder and comorbid oppositional defiant disorder rated their child's psychological state worse on a tendency level.

On a tendency level, caregivers of adolescents diagnosed with conduct disorder and comorbid oppositional defiant disorder reported psychological state related QoL being lowe and treatments and examinations more burdening compared to adolescents without comorbid oppositional defiant disorder.

The lower QoL of the school domain can be caused by the clinical picture of oppositional defiant disorder, in which adolescents often lose temper, often argues with adults or people in authority, actively defies or refuses to comply with adults' requests or rules (APA, 2013). From this behavior the caregiver gets immediate negative feedback. The caregiver's lower QoL rating about the psychological state of their children could be related to the fact that oppositional defiant disorder - alsoas a comorbid disorder - is- correlated with significantly more affective symptoms in children (Munkvolt et al., 2011).

4.4. Forth study: Substhreshold oppositional defiant disorder and conduct disorder

After reviewing the literature I found no paper, which examines the QoL of adolescents with conduct disorder, oppositional defiant disorder and their subthreshold forms in one study. In this study, a subthreshold diagnosis was indicated if the adolescents reported the prescribed number of symptoms in the MINI-Kid, but did not report that their symptoms negatively

affected themselves or their external environment. Our decision is based on that as adolescents tend to underestimate the long-term consequences and severity of their behaviour, thus may experience less distress, than their parents. In line with this, adolescents can give an objective report about the presence or absence of given symptoms, but may might fail to estimate their effect on their funcionality.. De Los Reyes et al. (2015) suggests that clinicians and researchers should ask for information about behavioural units relatively easy to observe. Our research group previously published a paper on the QoL of children with substreshold ADHD, which is also an externalising disorder (Dallos et al., 2004). We found that in childten with ADHD, comorbid oppositional defiant disorder and conduct disorder contributes to lower QoL according to both self and parent ratings.

4.5. Practical relevance of the presented results:

- The results of my doctoral thesis highlights, that it is important to involve as many cargivers as possible in the clinical assesment and treatment, and researchers should also collect data from as many caregivers as possible.
- The results indicate that adolescents are important sources of informantion about their own conduct problems, even if they underestimate the conseqvences of their behavior.
- Substhreshold conditions require professional care and attention.

4.6. Limitations

- Due to the cross-sectional study design, conclusions about causality can not be drawn.
- Although mental retardation was an excluding criterion, the information about it was based on the medical history.
- Limitation to the generalization of these results is that comorbidies were only examined between conduct disorder and oppositional defiant disorder.
- Parental psychopathology was not measured; however the present and past mental disorders might affect the parent's rating.
- We did not register what relationship those adults had with the adolescents who completed the questionnaire as "other caregiver".It was not the subject of our study ifthe adolescents from the clinical group were freshly diagnosed or had long medical history, and the type and duration of treatment they had received.

- Missing data was frequent. This is partly due to the fact that adolescents in the clinical group often quit examinations sooner than we would have completed data collection with them. Participants in the non-clinical group were contacted in school, thus due to other tasks they did not always appear at the time of data collection, and the parents often did not complete or return the questionnaires.

5. **NEW RESULTS OF MY DOCTORIAL DISSERTATION:**

1. There is significant correlation between subthreshold conduct disorder and oppositional defiant disorder and lower QoL. Regarding their affect on QoL, there is no significant difference between conduct disorder and oppositonal defiant disorder and their substreshold forms.
2. Discrepancies in parent-child QoL evaulations can partly be explained by the emerging factor structure of the ILK items;the parents and their children take the different QoL domains with different relevance into account.
3. To my knowledge, the presented study is the first to reveal that not only oppositional defiant disorder and conduct disorder, but subthreshold conduct disorder and oppositonal defiant disorder correlates with lower QoL. This result is presented both in self reports and parent reports. These results provide valuable information for designing prevenetion programs, and call the attention of professionals that QoL ratings should be considered when planning therapeutic interventions (Keenan és mtsai., 2010).

AKMOWLEDGEMENTS

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