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# General health, sense of coherence and coping styles in parents participating in Workshops for Parents of Hyperactive Children

Agnieszka Pisula[1], Anita Bryńska[1], Stanisław Wójtowicz[2], Tomasz Srebnicki[1], Tomasz Wolańczyk[1]

[1] Medical University of Warsaw, Department of Child and Adolescent Psychiatry
[2] Medical University of Warsaw, Department of Psychology and Medical Communication

**Summary**

**Aim.** The assessment of changes in the general health, sense of coherence and stress coping styles in parents of children and adolescents with ADHD, participating in 12-week Workshops for Parents of Hyperactive Children.

**Material.** The experimental group included 186 mothers and 139 fathers (parents of 199 children); the reference group included 23 mothers and 19 fathers (parents of 24 children), attending 1–2 standard medical visits within a 12-week period (treatment as usual).

**Method.** Parents from both groups were assessed twice using (1) *the General Health Questionnaire* (GHQ), (2) *the Life Orientation Questionnaire* (SOC-29), and (3) *the Coping Inventory for Stressful Situations* (CISS).

**Results.** (1) The experimental group showed a significant improvement in the severity of somatic symptoms and anxiety/insomnia in mothers and the general well-being of mothers and fathers. We observed the influence of workshops on manageability and reduction of the emotion-oriented coping in mothers; (2) the participation in the workshops was associated with a statistically significant effect (mostly moderate) in relation to general health of mothers, while TAU was mostly associated with a low or insignificant effect.

**Conclusions.** The assessed form of interventions improves the functioning of parents of children with ADHD.

**Key words**: ADHD, the functioning of parents, workshops for parents

## Introduction

A comprehensive approach to the treatment of a child with ADHD (attention deficit/hyperactivity disorder) requires the use of interventions aimed at parents and teachers [1], as symptoms of ADHD significantly impede not only the functioning of

the child, but also its environment. Parents of ADHD children are a group exposed to the presence of various mental health problems. For instance, mothers of children with ADHD experience more depressive symptoms compared to mothers of healthy children [2], high level of emotional tension and stress, and more problems in partner relations [3]. Alcohol abuse, conflict relations with the mother of the child and the child itself are more frequent in fathers of ADHD children. [3]. Moreover, mothers and fathers of ADHD children report lack of satisfaction from fulfilling roles and parenthood, as well as a smaller sense of influence compared to parents of healthy children [4].

It seems that the knowledge about the specifics of the functioning of parents of children with ADHD, as well as modifying factors is extremely important. The results of meta-analysis of 26 studies made by Barlow and Cohen [5] showed that the participation in parenting workshops resulted in better psychosocial functioning of parents, especially with regard to self-esteem, depressive symptoms and marital conflicts. A considerable improvement was also noted in self-competence and parental satisfaction [6–8].

## Aims of the study

The aim of the study was the evaluation of change in general health, sense of coherence and coping styles in parents of children and adolescents with ADHD who completed Workshops for Parents of Hyperactive Children [9].

## Material

The study included 209 mothers and 158 fathers ($n$ = 367 in total) of 223 children and adolescents diagnosed with ADHD by child and adolescent psychiatrists in accordance with DSM-IV-TR criteria [10]. The only exclusion criteria was the presence of any severe psychiatric comorbidity (e.g., major depression, schizophrenia, autism spectrum disorder). All parents who came to the outpatient clinic with children presenting symptoms of ADHD over the period of 2002–2014 were invited to participate in the workshops. The proceedings were in line with European Guidelines and the NICE recommendations (National Institute for Health and Care Excellence) [1] concerning complex treatment of ADHD. The total of 199 parents of children and adolescents agreed to participate in workshops (the experimental group with intervention – Int. Group). Patients whose parents declined to participate in workshops continued their treatment in the outpatient clinic on a regular basis. At the time of the workshops, they were scheduled with 1–2 standard psychiatric visits in which a psychiatrist evaluated the current mental state of the patient, asked about current problems and offered psychoeducation-based interventions (the reference group; treatment as usual – TAU.Group).

Int.Group consisted of 186 mothers 139 fathers. Mean age of mothers was 38.9 ($SD$ = +/-6.6) and mean age of fathers was 41.1 ($SD$ = +/-7.5). The majority of mothers had higher education (46.2%) or secondary education (40.9%) – together with

vocational post-secondary education (0.5%) and post-secondary education (3.2%) it accounted for 90.8% of respondents. 8.1% of mothers had vocational education and 0.5% – primary education. The educational structure of fathers was as follows: higher education (34.5%) or secondary education (42.4%) together with post-secondary education (1.4%) and postgraduate education (0.7%) accounted for 76.9% of respondents. 17.3% had vocational education and 2.2% of fathers did not provide data about their educational status. The mean age of Int.Group children was 10.1 (*SD* = +/-2.4). Boys constituted 88.9% (*n* = 177) of the group, and girls – 11.1% (*n* = 22).

TAU.Group included 23 mothers and 19 fathers. Mean age of mothers was 39.7 (*SD* = +/-5.5) and mean age of father was 41.2 (*SD* = +/-5.0). The majority of mothers (66.7%) had higher education or secondary education (12.5%). 8.2% of others had vocational education and primary education. The majority of fathers (61.1%) had higher education or vocational education (27.7%). 5.5% of fathers had primary education and secondary education (5.5%). The mean age of TAU.Group children was 10.0 (*SD* = +/- .8). Boys constituted 79.2% (*n* = 19) of the group, and girls – 20.8% (*n* = 5).

## Methods

### Study tools

1. *General Health Questionnaire* (GHQ-28) [11] in Polish version, with good psychometric properties (high internal consistency and satisfactory absolute stability; validity confirmed by intergroup comparisons and factor analyzes) [12], as a measure of current mental health. The questionnaire comprises four 7-item scales: A – Somatic complaints, B – Anxiety/insomnia, C – Disorders of functioning, D – Symptoms of depression. The respondent is asked to choose one out of four possible options for each item (‘less than usual’, ‘ no more than usual’, ‘rather more than usual’, ‘much more than usual’) which are coded using bi modal methods: 0-0-1-1. The total score of maximum 28 points is referred to sten norms. The cut-off score of 5/6 sten was based on the results of studies which tested criterion validity. The cut-off score identifies respondents with psychiatric disorders.
2. *Sense of Coherence Questionnaire* (SOC-29) [13] in Polish version, with satisfying psychometric properties (very high internal consistency) [14], for the assessment of the sense of coherence. It contains 29 items referring to three subscales: (1) comprehensibility (11 items), (2) manageability (10 items), and (3) meaningfulness (8 items). The response alternatives are a semantic scale of 1 point to 7 points. The questionnaire yields a summed score (with a range from 29 to 203) which forms the sense of coherence score defined as low (51–100 pts), average (101–152 pts) and high (higher than 152 pts). The score within the range of 120–130 pts is observed in healthy individuals while the results close to maximum score (200 pts) are regarded as unauthenticated [15].
3. *Coping Inventory for Stressful Situations* (CISS) [16] in Polish version, with good psychometric properties (high internal consistency and satisfactory abso-

lute stability, demonstrated factor validity) [17], measures types of coping style. The tool consists of 48 items regarding coping behaviors in stressful situations. The respondent is asked to mark the frequency of actions taken on 5-point scale (1 to 5). The results explore three kinds of coping styles: (1) task-oriented coping, (2) emotion-oriented coping, (3) avoidance-oriented coping, with two forms: distraction and social. Each of the scales consists of 16 items (the subscales distraction – and social-oriented coping count 8 and 5 items respectively), for which the score is in the range of 16–80 points. The comparison of the results of subscales yields the dominant coping style (the result obtained on one of the scales is higher than the results on the other two scales).

## Procedure and outline of the study

After informing about the goals and the outline of the research and obtaining the participants' consent for the study, parents from the Int.Group were asked to complete the set of questionnaires in the first workshop session: (1) *the General Health Questionnaire* (GHQ), (2) *the Sense of Coherence Questionnaire* (SOC-29) and (3) *the Coping Inventory for Stressful Situations* (CISS). The re-assessment was done at the closing session of each workshop cycle. The TAU.Group was assessed with the same methods during the first visit and reassessed after 12 weeks.

The Workshops for Parents of Hyperactive Children program [9], addressed for parental group work (couples or one parent), combines elements of psychoeducation with the practice of behavioral and cognitive techniques. The main goals are as follows: (1) the increase of parental knowledge about ADHD, training in giving instructions effectively and adapting the requirements to the child's abilities; (2) the introduction of changes in parenting system by the principles of behavioral therapy, analysis of behaviors according to ABC model (*Antecedents-Behavior-Consequence*) and instrumental conditioning mechanisms, training in ignoring minor undesired behaviors, rule setting, praising of desired behaviors, consistent response to undesired behaviors; (3) training in methods improving the parent–child relationship, including noticing the child's proper behavior and competence, spending time together; (4) training in the so-called anger outburst coping strategies; (5) training in automatic thoughts analysis and parental stress reduction methods, the acceptance of needs, free time planning; (6) discussion of effective methods of cooperation with school.

The twelve-week workshops were based on the manual, which included a detailed description of the structure, agenda and exercises of each 2 hour, weekly session, as well as materials for parents. Each workshop group counted up to 15 participants-couples, mothers or fathers. The content was transferred orally, in the form of multimedia presentations or written down on a blackboard. Active teaching methods (discussion, role playing, skills training) were used. The instructors were 11 people (6 psychologists and 5 doctors). Two instructors: therapist and co-therapist, were randomly assigned to each group. To be the principal instructor (therapist) a person had to complete the

10-hour training and have workshop experience (had to finish in at least three cycles of workshops). To be the co-therapist a person had to complete the 10-hour training and at least one workshop cycle as an observer. The instructors were allowed to contact the supervisor at any time.

### Statistical methods

Chi-square test and Student's *t*-test were used for nominal variables. Due to small sample size and the fact that the prerequisites about the normality of distribution and variance homogeneity were unmet, we decided to use Wilcoxon signed-rank test. Student's *t*-test was used for linked variables. Mann-Whitney test was used to test for group equivalence. The results with *p*-values of $p < 0.05$, $p < 0.01$ or $p < 0.001$ were considered as significant. The effect size (ES) was assessed. Cohen' *d* was used to test the effect size for parametric variables while the effect size for parametric variables (using the difference in means) was calculated with the following equation: $R=Z/\sqrt{N}$. The results were then interpreted according to Cohen's classification: 0.0–0.1 insignificant, 0.1–0.3 small, 0.3–0.5 moderate, 0.5–1.0 large [18].

## Results

Int.Group parents participated in the total of 32 workshop cycles. 63% of participants were mothers, 15% – couples, while 15% attended in rotation (i.e., only the mother appeared on part of the meetings, and father on the others). Due to the fact that some questionnaires were returned incomplete, the groups are not equinumerous.

### The General Health Questionnaire: assessment 1 and assessment 2

After comparing the total scores to norms [19], it was indicated that Int.Group parents scored a sten of 5 (average score) at assessment 1, and a sten of 4 (low score) at assessment 2. We observed significant changes in the GHQ total score of Int.Group mothers and fathers and in 'Somatic complaints', 'Anxiety/insomnia', and 'Disorders of functioning' scales in Int.Group mothers (Table 1). In Int.Group fathers, the differences noticed in 'Somatic complaints' and 'Anxiety/insomnia' scales did not reach statistical significance.

The GHQ total sten score of TAU.Group mothers at assessment 1 was 5 and remained at this level (although with a tendency to decrease). TAU.Group fathers obtained average scores in both assessments (sten 6 and sten 5). No statistical differences were observed in TAU.Group parents between assessment 1 and assessment 2 in the GHQ total score, however, a significant change was observed in 'Symptoms of depression' subscale in TAU.Group mothers (Table 1).

Table 1. **General health measured by the GHQ – assessment of mothers and fathers in the experimental group with intervention and the reference group treated as usual**

| GHQ | Mothers | | | | Fathers | | |
|---|---|---|---|---|---|---|---|
| Int.Group | Assessment | N | Median (SD) | p | N | Median (SD) | p |
| Total score | 1 | 114 | 23.0 (13.7) | | 59 | 18.4 (8.8) | |
| | 2 | 114 | 17.5 (10.7) | <0.001 | 59 | 15.2 (8.2) | 0.009 |
| Somatic complaints | 1 | 114 | 6.2 (3.7) | | 59 | 4.2 (2.7) | |
| | 2 | 114 | 4.4 (3.3) | <0.001 | 59 | 3.6 (2.6) | 0.169 |
| Anxiety/insomnia | 1 | 113 | 6.8 (4.1) | | 59 | 5.1 (3.1) | |
| | 2 | 113 | 5.3 (3.8) | 0.003 | 59 | 4.6 (3.2) | 0.178 |
| Disorders of functioning | 1 | 107 | 7.7 (2.3) | | 58 | 7.5 (2.0) | |
| | 2 | 107 | 6.4 (3.0) | 0.001 | 58 | 7.1 (2.2) | 0.254 |
| Symptoms of depression | 1 | 107 | 2.8 (3.6) | | 58 | 1.5 (2.9) | |
| | 2 | 107 | 2.0 (2.9) | 0.123 | 58 | 1.7 (2.6) | 0.260 |
| TAU.Group | Assessment | N | Median (SD) | p | N | Median (SD) | p |
| Total score | 1 | 21 | 23.0 (13.7) | | 15 | 18.4 (8.8) | |
| | 2 | 21 | 17.5 (10.7) | <0.001 | 15 | 15.2 (8.2) | 0.009 |
| Somatic complaints | 1 | 21 | 6.9 (3.4) | | 15 | 4.7 (2.7) | |
| | 2 | 21 | 5.6 (3.7) | 0.073 | 15 | 3.8 (3.0) | 0.257 |
| Anxiety/insomnia | 1 | 21 | 7.1 (4.0) | | 15 | 5.6 (3.0) | |
| | 2 | 21 | 7.2 (4.1) | 0.932 | 15 | 5.5 (2.9) | 0.750 |
| Disorders of functioning | 1 | 21 | 8.6 (3.0) | | 15 | 8.1 (1.8) | |
| | 2 | 21 | 8.1 (2.6) | 0.279 | 15 | 7.7 (2.4) | 0.389 |
| Symptoms of depression | 1 | 21 | 2.4 (2.8) | | 15 | 1.3 (2.2) | |
| | 2 | 21 | 1.8 (3.1) | 0.012 | 15 | 1.5 (2.2) | 0.720 |

The Sense of Coherence Questionnaire (SOC-29): assessment 1 and assessment 2

Low average score was observed in Int.Group mothers in both assessments. Although we noted an increase in the sense of coherence, the change was not significant. At assessment 2 we found a significant change in 'Manageability' subscale in Int.Group mothers. Int.Group fathers obtained average scores in both assessments. The observed decrease in assessment 2 was insignificant. Significant change was found in 'Meaningfulness' subscale (Table 2).

No significant changes between assessments were noted in total score (low average scores in both assessments) and the SOC-29 susbcales in TAU.Group mothers. TAU. Group fathers reported significant decrease in the SOC-29 global score and 'Man-

ageability' and 'Meaningfulness' subscales (Table 2). TAU.Group fathers obtained an average total score at assessment 1 and low average at assessment 2.

Table 2. **The sense of coherence measured by the SOC-29 – assessment of mothers and fathers in the experimental group with intervention and reference group treated as usual**

| SOC-29 | Mothers | | | | Fathers | | |
|---|---|---|---|---|---|---|---|
| Int.Group | Assessment | N | Median (SD) | p | N | Median (SD) | p |
| Comprehensibility | 1 | 81 | 48.0 (9.0) | 0.364 | 47 | 48.1 (8.4) | 0.628 |
| | 2 | 81 | 48.6 (8.5) | | 47 | 48.8 (11.2) | |
| Manageability | 1 | 81 | 39.5 (10.6) | 0.025 | 47 | 51.7 (7.7) | 0.750 |
| | 2 | 81 | 41.7 (7.0) | | 47 | 51.5 (7.5) | |
| Meaningfulness | 1 | 81 | 44.8 (9.2) | 0.590 | 47 | 44.0 (6.6) | 0.003 |
| | 2 | 81 | 45.3 (7.5) | | 47 | 42.1 (6.2) | |
| Total score | 1 | 81 | 132.3 (23.0) | 0.052 | 47 | 143.8 (19.9) | 0.485 |
| | 2 | 81 | 135.6 (19.3) | | 47 | 142.4 (20.8) | |
| TAU.Group | Assessment | N | Median (SD) | p | N | Median (SD) | p |
| Comprehensibility | 1 | 20 | 46.9 (10.5) | 0.920 | 15 | 46.5 (6.7) | 0.182 |
| | 2 | 20 | 47.3 (10.6) | | 15 | 42.7 (6.1) | |
| Manageability | 1 | 20 | 41.7 (8.6) | 0.936 | 15 | 50.7 (7.5) | <0.001 |
| | 2 | 20 | 42.0 (8.8) | | 15 | 40.5 (3.4) | |
| Meaningfulness | 1 | 20 | 43.8 (9.2) | 0.619 | 15 | 41.4 (6.8) | <0.001 |
| | 2 | 20 | 42.5 (8.6) | | 15 | 29.5 (3.1) | |
| Total score | 1 | 20 | 132.4 (25.2) | 0.939 | 15 | 138.7 (19.0) | 0.001 |
| | 2 | 20 | 131.7 (24.8) | | 15 | 112.7 (7.5) | |

The Coping Inventory for Stressful Situations: assessment 1 and assessment 2

At assessment 1, Int.Group mothers obtained the highest task-oriented coping score compared to Int.Group fathers and TAU.Group mothers and fathers. We did not observe any significant change regarding this score at assessment 2. On the other hand, Int.Group mothers reported statistically significant decrease in emotion-oriented coping score at assessment 2. The decrease observed in emotion-oriented coping score in Int.Group fathers was insignificant (Table 3). We noted significant changes between assessments in TAU.Group mothers, i.e., a decrease in distraction-oriented avoidance coping strategies and an increase in social-oriented avoidance coping (Table 3).

Table 3. **Coping styles measured by the CISS – assessment of mothers and fathers in the experimental group with intervention and reference group treated as usual**

| CISS | Mothers | | | | Fathers | | |
|---|---|---|---|---|---|---|---|
| Int.Group | Assessment | N | Median (SD) | p | N | Median (SD) | p |
| Task-oriented | 1 | 94 | 59.8 (7.7) | 0.623 | 48 | 58.1 (7.3) | 0.703 |
| | 2 | 94 | 60.2 (6.8) | | 48 | 57.8 (7.0) | |
| Emotion-oriented | 1 | 94 | 44.1 (10.7) | 0.010 | 47 | 38.6 (8.4) | 0.118 |
| | 2 | 94 | 41.6 (10.7) | | 47 | 37.2 (8.6) | |
| Avoidance-oriented | 1 | 94 | 37.1 (7.6) | 0.933 | 48 | 37.0 (7.6) | 0.261 |
| | 2 | 94 | 37.2 (7.3) | | 48 | 36.1 (7.0) | |
| Distraction-oriented avoidance | 1 | 94 | 15.4 (4.5) | 0.904 | 48 | 16.0 (4.8) | 0.487 |
| | 2 | 94 | 15.4 (4.5) | | 48 | 15.6 (4.1) | |
| Social-oriented avoidance | 1 | 94 | 15.2 (3.9) | 0.898 | 48 | 14.1 (3.1) | 0.554 |
| | 2 | 94 | 15.2 (3.9) | | 48 | 13.9 (2.9) | |
| TAU.Group | Assessment | N | Median (SD) | p | N | Median (SD) | p |
| Task-oriented | 1 | 20 | 57.5 (6.5) | 0.881 | 15 | 54.6 (9.6) | 0.180 |
| | 2 | 20 | 57.2 (9.5) | | 15 | 56.9 (9.0) | |
| Emotion-oriented | 1 | 20 | 43.8 (10.0) | 0.112 | 15 | 37.3 (8.9) | 0.641 |
| | 2 | 20 | 42.3 (10.7) | | 15 | 38.3 (9.8) | |
| Avoidance-oriented | 1 | 20 | 38.4 (8.6) | 0.684 | 15 | 34.5 (6.5) | 0.143 |
| | 2 | 20 | 37.8 (8.3) | | 15 | 36.5 (8.0) | |
| Distraction-oriented avoidance | 1 | 20 | 17.2 (6.4) | 0.098 | 15 | 15.4 (4.4) | 0.301 |
| | 2 | 20 | 15.3 (5.4) | | 15 | 16.5 (4.2) | |
| Social-oriented avoidance | 1 | 20 | 14.7 (4.0) | 0.020 | 15 | 13.1 (3.8) | 0.432 |
| | 2 | 20 | 15.7 (4.1) | | 15 | 13.7 (3.7) | |

## The evaluation of treatment impact

The assessment of the treatment impact was performed for the GHQ in relation to the variables for which we observed statistically significant changes. According to mothers, the participation in the intervention brought in statistically significant effect (most often moderate one) in terms of mothers' general health. Treatment as usual was related to small or insignificant effects (Table 4).

Table 4.**The treatment impact of intervention or 'as usual' meetings in relation to the general health of mothers measured by the GHQ**

| Assessment type | Factor | D | r | Effect size according to Cohen |
|---|---|---|---|---|
| GHQ Int.group mothers | A: Somatic complaints | 0.49 | 0.25* | Moderate |
| | B: Anxiety/insomnia | 0.31 | 0.19* | Moderate |
| | C: Disorders of functioning | 0.43 | 0.23* | Moderate |
| | D: Symptoms of depression | 0.22 | 0.10* | Small |
| GHQ TAU.Group mothers | A: Somatic complaints | 0.36 | -0.27* | Moderate |
| | B: Anxiety/insomnia | -0.02 | -0.01* | Insignificant |
| | C: Disorders of functioning | 0.17 | -0.16* | Insignificant |
| | D: Symptoms of depression | 0.21 | -0.39* | Small |

*$p < 0.05$

## Discussion

We decided to evaluate the variables regarding the psychosocial functioning of parents, studied by other authors [20–22]. We did not assess parental attitudes, upbringing methods, the level of parental knowledge about ADHD, and the presence of psychopathological symptoms in parents. The choice of tools was dictated by the availability of standardized questionnaires in Polish. Similar applications of the SOC-29, GHQ and CISS can be found in other studies [21].

We observed a significant improvement in general health total score of parents from the experimental group. Moreover, in the case of mothers, we observed a significant improvement in somatic complaints, anxiety/insomnia and disorders of functioning. Patterson et al. [21] reported changes in the GHQ Disorders of functioning subscale and Symptoms of depression subscale in the group of parents who completed parental skills training. Possibly, relatively low score on Symptoms of depression subscale and no change in intensity of symptoms between assessments in our study is the effect of multiple somatic complaints reported by parents, which could accompany depression. The improvement measured using the GHQ may be an indirect reflection of the decrease of parental stress. These observations correspond with the results of meta-analyzes of studies assessing the stress level of parents participating in parental workshops and their perception of behaviors of children with ADHD [20, 22].

The general level of understanding of the world and the surrounding reality (so-called sense of coherence) did not differ in mothers from both assessed groups before the introduction of intervention. The completion of workshops by mothers from the experimental group resulted in significant change in manageability (defined as subjective perception of resources (in oneself and in the environment) needed to overcome various problems). Most probably, the change was the result of the nature of interventions which accentuated the training of new parental skills effective in working

with ADHD children, as well as using methods strengthening new skills (discussion of homework, analysis of interventions, strengthening of parents and their adaptive behaviors). We did not, however, observe any change in comprehensibility (i.e., the cognitive perception of externality as coherent and understandable) and manageability (i.e., the conviction that it is worth engaging one's own power in redefined and set goals) subscales among parents from the experimental group. Interestingly, in the group of fathers we observed a significant decrease in comprehensibility subscale. In the light of Antonovsky's definition [13], where the sense of sensibility reflects the readiness to commit oneself to something and involvement in action, and thus it is related to a certain extent to the level of individual motivation, the results seem difficult to interpret.

Among mothers from the experimental group, the very high starting score in the most adaptive task-oriented coping style remained unchanged after workshop completion. On the other hand, definitely less adaptive emotion-oriented coping score was significantly lower at assessment 2. We conclude that the observation is the reflection of improved general functioning of mothers. The change in stress coping style is considered to be an important indicator, e.g., of the decrease of depressive symptoms [23]. Mothers, provided with specific upbringing methods for effective coping with undesired and stress-generating children's behaviors, feel definitely more efficient, they can act effectively, achieve successes, and at the same time focus less on the experienced difficulties

McKee et al. [24] emphasized the relationship between maladaptive stress coping strategies in mothers, permissiveness, over reactivity and more repressive parenting styles. Having regard to these observations, the decrease in emotion-oriented coping can indirectly indicate the positive change in upbringing methods. Moreover, McKee et al. [24] argue that parental workshops are effective irrespective of stress coping styles of mothers. Most likely, mothers with maladaptive coping styles acquire knowledge about alternative ways of coping. In the case of mothers who present adaptive coping as well as those seeking social support, workshops provide consistent reinforcement of existing problem-solving method. Perhaps task-oriented coping observed in the experimental group at baseline can explain the lack of change in social-oriented coping in mothers. The observation is in line with the results of meta-analysis made by Barlow and Coren [5], where such an effect of parental training was also not confirmed.

In the case of mothers from the reference group, a significant change was demonstrated in decrease in distraction-oriented avoidance coping and increase in social-oriented avoidance coping. It is worth reminding that at baseline this group was characterized by more maladaptive coping with stress, which could have influenced the decline to participate in workshops. Nonetheless, the introduction of a treatment intervention (also other than workshop) could result in the normalization of different aspects of functioning of mothers of ADHD children.

We observed insignificant decrease in emotion-oriented coping among fathers from the experimental group. Despite the lack of statistical significance, the observation is important as the relationship exists between stress coping styles of fathers,

methods of upbringing and the perception of child's problems [24]. The findings on the influence of workshops on coping styles of fathers and their parenting strategies are inconclusive. One consistent finding is that both fathers and children benefit from that form of intervention, whether they participate with or without mothers [25–27]. Fabiano et al. [28] found that fathers who participated in behavioral parent training in combination with leisure-based joint child–father activities reduced negative communication, used more praising and reported a decrease in the intensity of (still noticeable) undesired behaviors. According to Chronis et al. [29], the long-term improvement in the functioning of children with ADHD depends upon the acquisition of positive and effective upbringing methods.

In the light of the results, the question remains whether and how the change in the well-being and functioning of parents participating in workshops may affect the severity of ADHD symptoms in children. Based on the existing data we conclude that the participation in workshops leads to a change in the behavior of parents and increments parental influence [6, 30, 31]. Lundahl et al. [32] and Skowron and Reinemann [33] stated that behavioral interventions change parental attitudes and functioning in the first place. On the other hand, Serketich and Dumas [34] proved that these interventions had more impact on child's behavior then the behavior, self-esteem and mood of parents. Irrespective of this, the findings of the meta-analysis of 32 randomized studies [6] showed a considerable effect of workshops on the increase in the number of positive upbringing methods, the reduction of negative interventions and an increase in perceiving oneself as a parent, as well as the reduction in the intensity of symptoms of ADHD and conduct disorder, and the improvement of social skills and school grades in children.

## Limitations of the study

A relatively large group of parents was recruited for the study, although the small size of the reference group as well as the groups of fathers participating in the study constitute its limitations. Low questionnaire completion rate (60% at assessment 1 and 45% at assessment 2) could be the result of the need to complete questionnaires, which could have caused concern and mistrust in parents. Another limitation was the lack of randomization which places our study in the domain of observational, ecological studies. There was also no control and analysis of the reasons for resignation from participation in the workshop, which may affect the results. Due to the lack of the family functioning data and its socio-economic status, the possibility of assessing the impact of confounding variables is limited. However, it is also possible that the application of assessment tools that more clearly focus on ways of coping with the child's behavior and assess the level of parental stress would be more accurate for assessing changes in the functioning and attitudes of parents participating in workshops. Unfortunately, at the time of planning our study no Polish versions of scales evaluating parental stress, parental competences or the level of coherence in the family were available.

## Conclusions

The program presented in the current study resulted in moderate reduction of the somatic symptoms, anxiety/insomnia and well-being in mothers of children with ADHD. The participation in workshops also resulted in the increase of manageability and the reduction of emotion-oriented stress coping style in mothers, as well as the improvement in well-being of fathers. This form of intervention can be assumed to be effective as regards, at least short – term, improvement in the functioning of parents of ADHD children.

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Address: Tomasz Srebnicki
Medical University of Warsaw
Department of Child and Adolescent Psychiatry
02-091 Warszawa, Żwirki i Wigury Street 63
e-mail: srebnicki@wp.pl