

## Article

# Quality of life in mothers of children with oppositional defiant symptoms: a community sample

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## ABSTRACT

**Background** Children with oppositional defiant symptoms (ODS) are highly related to parental stress, especially in mothers. This study is the first to investigate the quality of life (QOL) of mothers of children with ODS in a community sample.

**Methods** Randomly selected mothers of children attending an elementary school were contacted, and 387 who completed the questionnaire participated in this study. The children's ODS status was determined by the maternal rating of the Chinese Swanson, Nolan, and Pelham rating scale, version IV. The mothers' QOL was estimated by maternal reports from the World Health Organization Quality of Life – BREF (WHOQOL-BREF) instrument. The relationship between the children's ODS status and maternal QOL was examined by analysis of covariance (ANCOVA) with the participants' sociodemographic factors as covariables.

**Results** Sixty-three children, mostly boys, met the screening criteria for ODS. The positive screening rate for ODS was 16.49%. The children's ODS status was a significant predictor for the maternal physical capacity, psychological well-being and environment domains of QOL. Mothers of children with ODS who rented a house were younger and had lower education levels and worse QOL in all domains.

**Conclusion** A high positive screening rate for ODS children in the elementary school and a relationship between poor maternal QOL and children's ODS were found in this study. Routine screening for ODS in children and mental health services for these children and their mothers are warranted.

**Keywords:** mother, oppositional defiant disorder, quality of life

## Introduction

Oppositional defiant symptoms (ODS) is one of the most common disorders among children in clinical populations. The prevalence of ODS ranges from 2.6% to 15.6% in community samples and from 28% to 65% in clinical samples. Boys show higher prevalence rates than girls before adolescence, but boys and girls show similar rates of ODS during adolescence.<sup>1</sup> The non-compliant and disruptive behaviours of children with ODS contribute to significant caregiver strain, such as disruption of family life, demands on time, financial strain, worry, guilt and embarrassment.<sup>2</sup>

Previous studies have indicated that children's mental problems can cause increased levels of parenting stress, marital problems, role dissatisfaction and more frequent alcohol use in their parents.<sup>3</sup> For example, attention deficit hyperactivity disorder (ADHD) in children is associated with a poor QOL in mothers.<sup>3</sup> As far as we know, although ODS has been reported in several papers to be related to parental stress and family dysfunction<sup>2,4,5</sup> there has been no study exploring the relationship between ODS in children and QOL in parents, especially in mothers. In traditional Asian countries, mothers play a major role in caring for children and bear a greater burden for the deviation of behavioural problems in children.<sup>6-10</sup> Therefore, the present study aims to investigate the impact of ODS in children on the QOL of mothers in Taiwan.

## Methods

### Participants

This study was conducted at an elementary school in Taichung City, Taiwan, from April to June 2009. Half of the classes at the school between grades 1 and 6 were randomly selected. A total of 634 questionnaires were sent to the parents; 581 caregivers responded and 398 agreed to participate. Questionnaires not filled out by mothers and those that had missing data on more than two items in the Chinese Swanson, Nolan, and Pelham rating scale version IV (SNAP-IV) or three in the WHOQOL-BREF assessment were excluded. Three hundred and eighty-two mothers who signed the informed consent letter and completed the questionnaires were enrolled in this study, with a return rate of 60.25%.

### Instruments

The instruments included the SNAP-IV and the WHOQOL-BREF.

#### *The Swanson, Nolan, and Pelham rating scale version IV (SNAP-IV)*

The original SNAP-IV (43 items) was shortened to 26 items for use in the assessment of the Multisite Multimodal Treatment Study for ADHD (MTA).<sup>11</sup> The 26-item SNAP-IV consists of the core symptoms of ADHD as defined by the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*, including nine items for inattention, nine items for hyperactivity/impulsivity and eight items for ODS.<sup>12</sup> The SNAP-IV has been found in Taiwan to have good psychometric properties, including test-retest reliability (intra-class correlation = 0.59–0.72) and internal consistency (alpha = 0.88–0.90), and can discriminate children with ADHD from a school-based sample, as well as identifying children with ADHD and oppositional defiant disorder from those with ADHD only.<sup>13,14</sup>

Each item is rated on a four-point rating scale (0 = 'not at all,' 1 = 'just a little,' 2 = 'quite a bit,' 3 = 'very much'). Maternal responses of 0 and 1 were seen as no symptom of the item, and 2 and 3 as the existence of the specific symptom. Based on the criteria for ODS screening in SNAP-IV,<sup>13,14</sup> children with a maternal rating of at least four symptoms in the ODS subscale were considered as the ODS group, and the others as the non-ODS group in this study.

#### *The World Health Organization Quality of Life – BREF (WHOQOL-BREF)*

The WHOQOL-BREF is a 26-item questionnaire used to measure respondents' subjective feelings on their QOL.<sup>15</sup> Two items of local importance have been added to the Taiwanese version of the WHOQOL-BREF, and it has been found to have good psychometric properties including reliability and validity.<sup>16,17</sup> The Taiwanese version of the WHOQOL-BREF is scored over four domains: physical capacity (seven items), psychological well-being (six items), social relationship (four items), and environment (nine items). All items are rated on a five-point scale with a higher score indicating a higher QOL. Domain scores are calculated by multiplying the mean of all facet scores included in each domain by a factor of four – accordingly, potential scores for each domain ranged from four to 20.

## Procedure

The Research Ethics Committee (IRB) of the Tsaotun Psychiatric Center approved this study prior to the start of the data collection. Half of the classes at the school between grades 1 and 6 were randomly selected, and a package of questionnaires along with an informed consent letter was taken home by the students. Mothers completed the questionnaires at home and they were returned to the teachers by the students.

## Data analysis

Independent sample *t* test and chi-square statistics were used to examine the differences between the ODS and non-ODS groups in continuous and categorical sociodemographic variables respectively. Analysis of covariance (ANCOVA) was employed to investigate the relationship between the domains of QOL and maternal rating of ODS status with the child's age, maternal age and education level, father's age and education level, family housing status and number of children in the family as covariables. Data analyses were performed using SPSS version 16.0 (SPSS Inc., Chicago, IL, USA). A probability cut-off level of 0.05 was used to determine statistical significance.

## Results

Among the 382 participants, 63 children with an average age of 10.03 years met the screening criteria for ODS and were included in the ODS group – average maternal age was 39.06 years. The positive screening rate for ODS in the elementary school was 16.49%. The non-ODS group was composed of 324 participants with an average age of 10.03 years, and average maternal age of 39.10 years. Over 90% of the fathers in both groups held full-time jobs, while 60% of the mothers worked full time. In the ODS group, 29.31% of the families rented a house, while 18.07% of the families in the non-ODS group rented a house. Most of the participants came from a two-parent family.

Male preponderance was observed in children with ODS, with a male to female ratio of 2.4:1 ( $X^2 = 10.217$ ,  $df = 1$ ,  $p = 0.002$ ). There were no other significant differences in sociodemographic variables between the ODS and non-ODS groups. The sociodemographic characteristics of the participants and results of between-group comparisons are presented in Table 1.

The parents' QOL scores were significantly poorer across all four domains in the ODS group by comparison with the non-ODS group. Group differences in maternal QOL are reported in Table 2.

Sociodemographic variables are significant risk factors contributing to QOL in mothers of children with special needs. Therefore, the relationship between maternal QOL and children's ODS status was explored with sociodemographic factors (i.e. child's age, maternal age and education level, father's age and education level, family housing status and numbers of children in the family) as covariables.

When a backward selection model procedure was used in the ANCOVA analyses, all QOL domains were significantly predicted by one or more sociodemographic or clinical characteristic. Specifically, the physical capacity and psychological well-being QOL domains were significantly predicted by the same variables, which were the child's ODS status, maternal age and maternal education level, as well as housing status of the family (Tables 3 and 4). The social relationship QOL domain was significantly predicted by maternal age and education level, as well as housing status of the family (Table 5). The environment QOL domain was significantly predicted by the child's ODS status, maternal age and education level and father's education level, as well as housing status of the family (Table 6).

## Discussion

To the best of our knowledge, this is the first report to discuss the relationship between ODS in children and QOL in mothers. The main findings of the present study were that ODS were more prominent in boys (positive screening rate of 16.49% in a community sample) and that ODS were associated with mothers' QOL across all domains except the social domain. Other consistent factors related to the mother's QOL in the four domains were maternal age, education level and the family's housing status. Mothers with a younger age, lower education level and who rented a house had a worse maternal QOL. The father's education level was the only factor related to maternal QOL in the environment domain. In summary, children with ODS and lower socioeconomic levels were associated with poor maternal QOL.

This study found a higher positive screening rate of ODS among community samples of parent reports.<sup>1</sup> Given that the prevalence of oppositional defiant disorder following DSM-IV diagnostic criteria in Taiwan is similar to the findings of a study done in UK,<sup>18,19</sup> the screening rate of ODS in this study might be inflated. One possible reason is the

**Table 1** Sociodemographic characteristics of the participants

Measure	ODS		Non-ODS		<i>t</i>	df	<i>p</i> <sup>§</sup>
	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)			
Age (father)	53	42.24 (5.44)	312	42.41 (4.63)	-0.243	363	0.808
Age (mother)	58	39.06 (4.56)	321	39.10 (4.30)	-0.074	380	0.941
Age (child)	57	10.03 (1.65)	321	10.03 (1.63)	-0.010	376	0.992
Number of children	58	1.98 (0.76)	324	2.09 (0.70)	1.061	380	0.290

  

Measure	<i>n</i>	%	<i>n</i>	%	$\chi^2$	df	<i>p</i> <sup>§</sup>
Full-time job (father, %)	53	90.57	313	91.69	0.074	1	0.790
Full-time job (mother, %)	58	60.34	319	64.58	0.381	1	0.554
Education (college or above, father, %)	53	56.60	317	44.48	2.685	1	0.105
Education (college or above, mother, %)	58	56.90	317	45.79	2.428	1	0.153
Rented house (%)	58	29.31	321	18.07	3.911	1	0.072
Two-parent family (%)	55	89.09	300	93.33	1.232	1	0.264

<sup>§</sup> *t* and  $X^2$  test for comparing the differences between the ODS and non-ODS groups

\*  $p < 0.01$

**Table 2** Comparison of maternal quality of life between the ODS and non-ODS groups

Measure	ODS		Non-ODS		<i>t</i>	df	<i>p</i>
	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)			
Quality of life							
Physical	58	14.48 (1.84)	324	15.33 (1.93)	3.112	380	0.002*
Psychological	58	11.47 (1.95)	324	12.91 (1.93)	5.209	380	0.000**
Social relationship	58	13.57 (2.57)	324	14.48 (2.20)	2.819	380	0.005*
Environment	58	13.22 (1.99)	324	14.42 (2.13)	4.007	380	0.000**

\*  $p < 0.01$ , \*\*  $p < 0.001$

low response rate (60%) in our study. The other two-fifths of parents who declined to participate may be more confident about their children's behaviours or their children may be more disciplined. This may have inflated the positive screening rate of ODS in our study.

This study found that ODS were more prominent in boys, which is consistent with a previous finding that boys have higher prevalence rates than girls before adolescence.<sup>1</sup> However, the gender differences in child ODS may be confounded by observer biases and gender-based expectations regarding the

**Table 3** Analysis of covariance for maternal quality of life: physical capacity domain with backward model selection

Source	Sum of squares	df	F	<i>p</i>
Corrected model	107.933	4	7.852	0.000*
Intercept	636.011	1	185.081	0.000*
Maternal rating of child's ODS status	14.613	1	4.252	0.040**
Age (mother)	17.878	1	5.203	0.023**
Rented housing	29.103	1	8.469	0.004***
Education (mother)	28.261	1	8.224	0.004***
Error	1123.697	327		
Total	79 241.796	332		
Corrected total	1231.630	331		

\*  $p < 0.001$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Note: The ANCOVA statistics were utilised to explore the relationship between the child's ODS status and maternal QOL in the physical domain with child's age, maternal age and education level, father's age and education level, family housing status and numbers of children in the family as covariables

**Table 4** Analysis of covariance for maternal quality of life: psychological well-being domain with backward model selection

Source	Sum of squares	df	F	<i>p</i>
Corrected model	123.607	4	8.628	0.000*
Intercept	392.754	1	109.661	0.000*
Maternal rating of child's ODS status	52.576	1	14.680	0.000*
Age (mother)	17.993	1	5.024	0.026**
Rented housing	15.436	1	4.310	0.039**
Education (mother)	21.124	1	5.898	0.016**
Error	1171.156	327		
Total	55 478.222	332		
Corrected total	1294.763	331		

\*  $p < 0.001$ , \*\*  $p < 0.05$

Note: The ANCOVA statistics were utilised to explore the relationship between the child's ODS status and maternal QOL in the psychological domain with child's age, maternal age and education level, father's age and education level, family housing status and numbers of children in the family as covariables

more conspicuous child behaviours as opposed to the less prominent ones.<sup>18</sup>

Although there have been no similar papers for direct comparison, previous studies have shown that ODS is related to poor family function. Greene and her colleagues revealed that families of ODS

youths with or without conduct disorder are characterised by significantly poorer cohesion and significantly higher conflict.<sup>4</sup> Another study reported that ODS are related to significant caregiver strain.<sup>2</sup> In Taiwan, mothers play a major role in parenting children and consequently face more direct stress

**Table 5** Analysis of covariance for maternal quality of life: social relationship domain with backward model selection

Source	Sum of squares	df	F	<i>p</i>
Corrected model	117.565	3	8.291	0.000***
Intercept	602.892	1	127.561	0.000*
Age (mother)	18.285	1	3.869	0.050**
Rented housing	46.842	1	9.911	0.002***
Education (mother)	33.968	1	7.187	0.008***
Error	1550.231	328		
Total	70 892.000	332		
Corrected total	1667.795	331		

\**p* < 0.001, \*\**p* < 0.05, \*\*\**p* < 0.01

Note: The ANCOVA statistics were utilised to explore the relationship between the child's ODS status and maternal QOL in the social relation domain with child's age, maternal age and education level, father's age and education level, family housing status and numbers of children in the family as covariables

**Table 6** Analysis of covariance for maternal quality of life: environment domain with backward model selection

Source	Sum of squares	df	F	<i>p</i>
Corrected model	267.416	5	14.666	0.000***
Intercept	594.041	1	162.901	0.000***
Maternal rating of ODD status	31.222	1	8.562	0.004**
Age (mother)	23.270	1	6.381	0.012*
Renting housing	97.843	1	26.831	0.000***
Education (father)	15.143	1	4.153	0.042*
Education (mother)	16.585	1	4.548	0.034*
Error	1188.803	326		
Total	70 327.901	332		
Corrected total	1456.218	331		

\**p* < 0.05, \*\**p* < 0.01, \*\*\**p* < 0.001

Note: The ANCOVA statistics were utilised to explore the relationship between child's ODD status and maternal QOL in the social relation domain with child's age, maternal age and education, father's age and education, family housing status and numbers of children in the family as covariables.

from ODS among children.<sup>6–10</sup> Nordahl and his colleagues suggested that mothers of children with ODS are characterised by more negative emotions.<sup>5</sup> ODS are reported to be more prevalent in children in low-income households.<sup>19</sup> In Taiwan, rented housing is an indicator for low-income households and

the present study showed that rented housing was associated with all dimensions of QOL among mothers of school-aged children. This study recruited mothers from one school in the third biggest city in Taiwan. Families living in urban areas tend to have limited

living space which explains why the housing status of the family accounts for maternal QOL.

In interpreting the findings of the present study, it is necessary to take into account certain limitations in the design. Because the participants of the present study came from mothers at a single school, the results may be prone to selection bias and generalisation of the findings may be limited. However, based on this pilot study of mothers of children attending a single school in Taiwan, it would be valuable to extend this study to a wider, representative sample.

The second limitation is the cross-sectional design which encompasses the problem of reverse causality, such as the relationship between ODS and mothers' QOL. Since the measurement of ODS was carried out by rating scales rather than interview diagnosis, the results referred to the effect of ODS rather than the diagnosis of ODS. Finally, not considering the high comorbidity of ODS with ADHD or conduct disorder was also a limitation. However, a previous study showed that even after controlling for other comorbidities, ODS still had a significant impact on family dysfunction.<sup>4</sup> For these reasons, further research which uses a prospective design with a sample drawn from multiple schools may be required.

Despite these limitations, the present findings are of interest in that they draw attention to the consistently poor influences of children's ODS and lower socioeconomic level on mothers' QOL. Based on our findings, we suggest that schools should provide routine screening for ODS and provide mental health services for these children and their mothers. A previous study of children with ADHD demonstrated that treatment with stimulants produced significant improvements in oppositional behaviour.<sup>11</sup> Other interventions such as problem solving skills<sup>20</sup> or parent training<sup>21</sup> have also been suggested for children with ODS.

## Conclusion

The present study found that mothers of children with ODS had poor QOL in the physical capacity, psychological well-being and environment domains. Families with a low socioeconomic status, such as those that rent a house and where the parents have a low educational level, are at risk of poor maternal QOL.

The findings reinforce the need to screen for ODS at school and to identify high risk mothers so as to provide essential support and intervention. We suggest that schools should provide routine screen-

ing for ODS and provide mental health services for these children and their mothers.

## ACKNOWLEDGEMENTS

This research was supported in part by grants to CHC from the Chung Shan Medical University Hospital (CSH-2009-B-004). The authors would like to thank the staff, teachers, parents and students at Taichung Municipal Shiwei Elementary School for their participation and assistance in the data collection for this study.

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#### CONFLICTS OF INTEREST

None.

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*Accepted June 2010*