Int J Clin Exp Med 2016;9(5):8749-8754
www.ijcem.com /ISSN:1940-5901/IJCEM0017982

Original Article

Using the strengths and difficulties questionnaire to screen for child mental health in the twins and the only-child

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Received July 30, 2015; Accepted March 9, 2016; Epub May 15, 2016; Published May 30, 2016

Abstract: Background: The psychiatric disorders of children are common, but the sensitivity of screening measures to detect children with mental health problems is different in China. Meanwhile, the evaluation measure that could not screening impairment in social functioning and dimensions caused by the psychiatric disorder was lack of systemic assessments. In 1979, China began to carry out the family planning policy to effectively control the population. In 2008, there are more than 100 million families with only-child. We found that the present researches on the mental health were compared in a community sample of family with the only-child and with two or more children in China, but less research focused on the difference of the mental health between the twins and the only-child group. This study is to assess the difference of mental health between the twins group and the only-child group. Method: The mental health problems were compared in the four scales of SDQ in the sample of 6 to 16 years olds from the twins group and the only-child group. A sample of 443 children was evaluated using parents as informants. And 268 more than 11 years old children were evaluated using parents and themselves as informants. Results: In the parents report, the distribution of peer problems was significantly different between the two groups. In the self report, the distribution of all scales was no significantly different between the two groups. The difference of SDQ prediction between the two groups, in the twins group, the proportion of "probable" was 0.9% for anxiety-depressive disorder, the proportion of "probable" was 3.1% for conduct disorder and 1.3% for Hyperactivity disorder. At last, the proportion of probable was 5.3% for any disorder. In the only-child group, the proportion of "probable" was 1.9% for anxiety-depressive disorder. The proportion of "probable" was 3.4% for conduct disorder and "possible" was 13.5% for Hyperactivity disorder. At last, the proportion of probable was 5.3% for any disorder. There was no significant difference for the proportion of "probable" by the SDQ algorithm between the two groups. Conclusions: The distribution of individuals with the peer problems in the sample of the only-child group was more than that of the twins group, and there were significantly different between the two groups. We presume that the children and adolescents in the only-child group were easy to encounter with the peer relationship problems. The influence of children number to mental health of children and adolescents is a superficial factor, the most important factor is the parenting style and the quality of the home environment.

Keywords: Mental health, the only-child, the twins, strengths and difficulties questionnaire

Introduction

The 6-16 years is the important stage of developing the ability and consciousness of the individual. Thus, the prevalence rates of the emotional and behavioral problems are high in this stage. There is 3.4%-11.5% of children with depressive disorder [1]. Emotional and behavioral disorder is a common problem in children and adolescents. It is necessary to pay attention to the mental health problems of children and adolescents. The preventive policies are needed as early as possible to detect mental health problems of children. The effective mental health services for children must be based on learning of the etiological mechanism of the psychology. In psychiatric clinic samples, diagnostic predictions are based on the sensitivity screening instruments. But the sensitivity of the screening measures to detect children at

Table 1. General demographic data

Demographic variable	The twins group	The only-children group	Statistical value	*P*
	N = 232	N = 211		
Male	110	95	χ^2 = 0.254	0.614
Female	122	116		
Age (years)	10.7±2.9▲	10.8±2.5▲	t = -0.496	0.620

Note: ▲: M ± SD, M: Mean, SD: Standard Deviation.

mental health problems is different in different areas. Meanwhile, the evaluation measure that could not screening impairment in social functioning and dimensions caused by the psychiatric disorder was lack of systemic assessments; therefore the detection rate of most of the development of mental health problems was low. The diagnosis prediction for clinical samples based on the Strengths and Difficulties Questionnaire (SDQ) and Development and Well-Being Assessment (DAWBA) agree well with clinical diagnoses [2]. There is a special group in our country namely the only-child. In 1979, our country began to carry out the family planning policy to effectively control the population. In 2008, there are more than 100 million families with the only-child. A growing number of publications have raised awareness of the high prevalence of emotional and behavioral disorder in the only-child. We can conclude through the study about the only-child that, in the past 30 years, the difference of personality characteristics between the only-child and the children with the multiple brother or sister will gradually disappear [3]. However, other researches show that the rates of impulse-control disorder and hyper-activity disorder in the children with multiple brother or sister than the only-child group [4]. The psychological health development is influenced by the number of child, which has been a controversial problem. We found that the present research on the mental health was about the family with the only-child or two or more children in China. The twins is a special category of population. And there were less research about mental health development for them in our country. And their characteristics of the psychological health are different from those of the only-child and the general children with two or more brothers or sisters. Thus, this study adopts SDQ preliminarily to screen what the difference of mental health between the only-child and the twins is.

Method

Sample

The sample was obtained from all the children aged 6-to-16 who are residents in the urban area of Chongqing in China, according to the official data recorded by the Chongqing Education Government. The sample collection was carried out in two stages: First we included the twins who are brought up by the same family and study in the same school and without the colorblindness, mental illness and the physical disability. Secondly, we made a randomized selection of only-child group who was in the same school with the twins, but the classes were randomized. Because the establishment of the resource library for twins is in the first stage, we have collected the sample of twin was 116 pairs. Finally, the sample of the only-child group required was 211.

Measures

The SDQ was created by Robert Goodman at the Institute of Psychiatry in London. The SDQ in its different language version has been widely used in accessing children at potential risk in many countries, such as the United States, the Netherlands, Germany and Britain [5]. The Chinese version of SDQ proved to have good reliability and validity [6]. There are three versions of the Questionnaire, parent, teacher and self-report version. It consists of 25 core items, including emotional symptoms, behavioral problems, hyperactivity problems, peer relationship problems and pro-social behaviors and so on. The total difficulty score is generated by adding the scores from all the scales except the prosocial one. Computerized algorithms exist for predicting psychiatric disorder by bringing together information on symptoms and impact from SDQs completed by multiple informants [2]. The algorithm makes separate predictions for four groups of disorder, namely conduct disorders, hyperactivity-inattention disorder, emotional disorders and any psychiatric disorder. Each is predicted to be “unlikely”, “possible” or “probable”.

Assessment method

For the only-child group, the teachers were responsible for providing the parents with questionnaires and collecting the completed ques-

Table 2. The SDQ for all the scale for parents

	The twins group			The only-child group		
	1	2	3	1	2	3
Total difficulties	149 (69.6)	36 (16.8)	29 (13.6)	127 (62.3)	35 (17.2)	42 (20.6)
Emotional symptoms	167 (78)	21 (9.1)	26 (11.2)	148 (72.5)	20 (9.8)	36 (17.6)
Conduct problems	150 (70.1)	36 (16.8)	28 (13.1)	143 (70.1)	32 (15.7)	29 (14.2)
Hyperactivity problems	140 (65.4)	26 (12.1)	48 (22.4)	146 (71.6)	21 (10.3)	37 (18.1)
Peer problems	142 (66.4)	31 (14.5)	41 (19.2)	91 (44.6)	41 (20.1)	72 (35.3)
Prosocial behaviors	168 (78.5)	46 (21.5)	-	154 (75.5)	50 (24.5)	-

1 = Close to average, 2 = Slightly raised or low, 3 = Very high or low.

Table 3. The Mann-Whitney Rank Sum Test for two groups of all the scale of SDQ for parents

	The twins group	The only-child group		
	Mean Rank	Mean Rank	Z	P
Total difficulties	200.82	218.61	-1.795	0.073
Emotional symptoms	203.35	215.95	-1.415	0.157
Conduct problems	209.16	209.86	-0.073	0.941
Hyperactivity problems	215.88	202.81	-1.351	0.177
Peer problems	186.03	234.12	-4.543	0.000
Prosocial behaviors	206.43	212.73	-0.732	0.464

tionnaires. At the same time, for the twin group, we collected the twin from the same school or the same living department with the only child. Our colleagues are responsible for providing the questionnaires and collecting the completed questionnaires. The parent's questionnaire was filled in by both parents together, In cases where parents were separated, the parent who spent most time with the child was responsible for filling in the questionnaires.

Statistical method

All the data entry ACCESS database with the SDQ, data managing and analyses were carried out using SPSS16.0., the statistical description, and Mann-Whitney Rank Sum test.

Result

The age and gender for two groups

As shown in **Table 1**, there was no significant difference of age and gender between the two groups.

The descriptive statistics and Mann-Whitney rank sum test of all the scale for parents

The SDQ is divided into 5 scales. The total difficulty score is generated by adding the scores from all the scales except the prosocial one. The total difficulty scale is rated as being normal or close to average (0-13), borderline or slightly raised (14-16), and abnormal or very high (17-40). The Emotional symptoms scale is rated as being normal or close to average (0-3), borderline or slightly raised (4), and abnormal or very high (5-10). The conduct problems scale is rated as being normal or close to average (0-2), borderline or slightly raised (3) and abnormal or very high (4-10). The hyperactivity problem is rated as being normal or close to average (0-5), borderline or slightly raised (6), and abnormal or very high (7-10). The peer problem is rated as being normal or close to average (0-2), borderline or slightly raised (3), and abnormal or very high (4-10). The prosocial behavior is rated as being normal or close to average (6-10), borderline or slightly low (5), and abnormal or very low (0-4).

Table 2 presents data on the two groups. The proportion of "abnormal" was 11.2% for emotional symptoms of the twins group. The proportion of "abnormal" was 13.1% for conduct problems, 22.4% for Hyperactivity problems and 19.2% for peer problems. The prosocial problem was "borderline" in 21.5% of the twins group. And in the only-child group, the proportion of "abnormal" was 17.6% for emotional symptoms of the twins group. The proportion of "abnormal" was 14.2% for conduct problems, 18.1% for Hyperactivity problems and 35.3% for peer problems. The prosocial problem was "borderline" in 24.5% of the twins group. And there is 20.6% of individuals with the total difficulty problems in the sample.

As shown in **Table 3**, the distribution of peer problems was significantly different between

Table 4. The SDQ for all the scale for Self report

	The twins group			The only-child group		
	1	2	3	1	2	3
Total difficulties	75 (76.5)	18 (18.4)	5 (5.1)	118 (72)	35 (21.3)	11 (6.7)
Emotional symptoms	89 (90.8)	3 (3.1)	6 (6.1)	145 (88.4)	8(4.9)	11 (6.7)
Conduct problems	75 (76.5)	15 (15.3)	8 (8.2)	129 (78.7)	21 (12.8)	14 (8.5)
Hyperactivity problems	80 (81.6)	10 (10.2)	8 (8.2)	139 (84.8)	11 (6.7)	14 (8.5)
Peer problems	61 (62.2)	31 (31.6)	6 (6.1)	95 (57.9)	54 (32.9)	15 (9.1)
Prosocial behaviors	76 (77.6)	22 (22.4)	-	139 (84.8)	25 (15.2)	-

1 = Close to average, 2 = Slightly raised or low, 3 = Very high or low.

Table 5. The Mann-Whitney Rank sum test for two groups of all the scale of SDQ for self-report

	The twins group	The only-child group		
	Mean Rank	Mean Rank	Z	P
Total difficulties	127.63	133.81	-0.831	0.406
Emotional symptoms	129.61	132.63	-0.583	0.560
Conduct problems	133.03	130.59	-0.349	0.727
Hyperactivity problems	133.80	130.13	-0.589	0.556
Peer problems	127.24	134.05	-0.810	0.418
Prosocial behaviors	137.41	127.97	-1.468	0.142

Table 4 presents comparable data for the twins group and the only-child group. The proportion of "abnormal" was 6.1% for emotional symptoms of the twins group. The proportion of "abnormal" was 8.2% for conduct problems, 8.2% for Hyperactivity problems and 6.1% for peer problems. The prosocial problem was "borderline" in 22.4% of the twins group. And there were 5.1% of individuals with the total difficulty problems in the sample.

the two groups, but the distribution of other scales was no significantly different between the two groups.

The descriptive statistics of all the scale for self for self report

The symptoms scores in the self report are different from those of the parent's. The total difficulties scale is rated as being normal or close to average (0-15), borderline or slightly raised (16-19), and abnormal or very high (20-40). The Emotional symptoms scale is rated as being normal or close to average (0-5), borderline or slightly raised (6), and abnormal or very high (7-10). The conduct problems scale is rated as being normal or close to average (0-3), borderline or slightly raised (4) and abnormal or very high (5-10). The hyperactivity problem is rated as being normal or close to average (0-5), borderline or slightly raised (6), and abnormal or very high (7-10). The peer problems are rated as being normal or close to average (0-3), borderline or slightly raised (4-5), and abnormal or very high (6-10). The prosocial behavior is rated as being normal or close to average (6-10), borderline or slightly low (5), and abnormal or very low (0-4).

In the only-child group, the proportion of "abnormal" was 6.7% for emotional symptoms of the twins group. The proportion of "abnormal" was 8.5% for conduct problems, 8.5% for Hyperactivity problems and 9.1% for peer problems. The prosocial problem was "borderline" in 15.2% of the twins group. And there are 6.7% of individuals with the total difficulty problems in the sample.

As shown in **Table 5**, the distribution of all scales was no significantly different between the two groups.

The difference of SDQ prediction between the two groups

As shown in **Table 6**, in the twins group, the proportion of "probable" was 0.9% for anxiety-depressive disorder, the proportion of "probable" was 3.1% for conduct disorder and 1.3% for Hyperactivity disorder. At last, the proportion of probable was 5.3% for any disorder. In the only-child group, the proportion of "probable" was 1.9% for anxiety-depressive disorder. The proportion of "probable" was 3.4% for conduct disorder and "possible" was 13.5% for Hyperactivity disorder. At last, the proportion of

Table 6. The detecting diagnostic groupings through the parents and self reports SDQ predictions for the two groups

	The twins group (N = 228)			The only-child group (N = 207)			Z	P
	1	2	3	1	2	3		
Anxiety-depressive disorders	210 (92.1)	13 (5.7)	2 (0.9)	184 (88.9)	19 (9.2)	4 (1.9)	-1.452	0.146
Conduct-oppositional disorders	170 (74.6)	48 (21.1)	7 (3.1)	169 (81.6)	31 (15.0)	7 (3.4)	-1.272	0.203
Hyperactivity-inattention disorders	190 (83.3)	32 (14.0)	3 (1.3)	179 (86.5)	28 (13.5)	0 (0.0)	-0.781	0.435
Any psychiatric disorders	145 (63.6)	68 (29.8)	12 (5.3)	143 (69.1)	53 (25.6)	11 (5.3)	-0.854	0.393

1 = Unlikely, 2 = Possible, 3 = Probable.

probable was 5.3% for any disorder. There was no significant difference for the proportion of "probable" by the SDQ algorithm between the two groups.

Discussion

In 1979, China began to carry out the family planning policy. Thus, one-child family structure has become one of the major family structure in most of the cities in China. The particularity of one-child triggered research related to mental health development of the one-child. The one-child policy is not conducive to the development of mental health for child and adolescent in most study conclusion. American psychologist G. Stanley Hall was presented the point of view that "singletons was the sick" in 1907. The relevant research shows that the only-child was headstrong, self-centered. And they are unsuitable to the environment. Chinese researchers began to carry out a lot of research work on the only-child in 1980s. Most of the researches show that there was no significant difference between the only-child and the children with the multiple children in personality, behavior and emotional problems [7-10]. However, one study about the related factors of the incidence of Multiple Tic disease showed that the bad influence of the family education and personality in the only-child family were more than the family with the multiple children [11]. That whether the number of children was the factor that affects children's mental health development was a controversial topic, so most studies are concerned with the only-child and the families with multiple children. The mental health for twin is less concerned. Since the family with twin as another special family structure, there are different in the characteristics of psychological development process from the general children. Studies have shown that incidence of behavioral problems of twin is lower than the only-child and the children with two more brother or sister [12]. This research shows that distribution of individuals with the peer problems in the sample of the only-children group was more than that of the twins group, and there were significantly different between the two groups. The parents devoted much attention to the child in the only-child family, and due to the child grow in the specific environment where there were no brothers and sisters, there were no chance to establish a suitable environment for the development of social ability, we presume that the children and adolescents in the only-child group were easy to encounter with the peer relationship problems. The incidence rate for the children and adolescents of emotional and hyperactivity behavior in twins group is lower than that in the only child group. We think it may have the following reasons, firstly, the influence of birth order and attachment relationship. The child born with the other child who had the same age and similar appearance with him or her, so there almost never produce confrontation competition and even hate that caused by birth order is different between brothers and sisters. In addition, the parents of twins are easier to make the same reaction to all the children than that parents who have the two or more children, and the twins learned to share earlier, there will not be produce the conflicts caused by "unfair" feeling between the twins. Thus the aggressive behavior and anti social behavior that because of the fight between brother or sister get inappropriate intervention will be reduced [13]. Secondly, emotional support among the twins was better than the general siblings. Unlike the general family with multiple children, there was less competition between the twins, they are more likely to develop confidence in the safety of sibling, and it is good for forming the sub system in the family that can provide support within the

system for the twins. At the same time, there was no significant difference in the detection rate of the children with DSM-IV psychiatric disorders between the two groups. In conclusion, the influence of child number to mental health of children and adolescents is a superficial factor; the most important factor is the parenting style and the quality of the home environment. In order to ensure the growth of child mental health, we should pay more attention to the problem for socialization of the only-child. Thus, we think that the parents should develop the peer relationship with another child and to cultivate independence of child in the family education for the only-child.

Acknowledgements

We would like to thank Professor Li Tao and her team, for her support and assistance during the study.

Disclosure of conflict of interest

None.

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