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Mental health status of parents of young patients with high myopia

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Abstract

Objective: The study aim was to investigate the mental health status of parents of patients with high myopia using the Symptom Checklist-90 (SCL-90).

Methods: The parents of 160 young patients with high myopia (high myopia group) and 80 healthy children (control group) participated in the study. The SCL-90 was used to evaluate mental health status. The SCL-90 total score and scores on each factor were calculated and compared between the two groups.

Results: The total SCL-90 score, total mean score, positive score and scores on somatization, interpersonal sensitivity, depression, anxiety, hostility, psychosis, diet and sleep were significantly higher in fathers and mothers of patients with high myopia than in parents of control group children. There were statistically significant between-group differences in the above indices.

Conclusion: Parents of children with high myopia are more likely to develop mental health problems than parents of healthy children. This suggests that mental health interventions for parents should not be ignored in the treatment and control of high myopia patients.

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Introduction

The worldwide incidence of myopia is high.[1] Its incidence in Asia is as high as 70%–80%,[2–4] and high myopia (greater than −6.00 DS) accounts for approximately 38% of cases.[5–7] The global prevalence of myopia seriously affects the general quality of life and economic health of people and countries.[8–10] In addition to short-term disadvantages and inconveniences, myopia (especially high myopia) can increase the risk of serious diseases such as myopic macular degeneration, retinal detachment, glaucoma and cataract.[8] These factors are the leading cause of visual impairment and blindness in many countries.[11]

Paediatric chronic diseases have physical, psychological and socioeconomic effects not only on patients, but also on their families.[12,13] Psychological consequences such as depression, anxiety and stress are commonly experienced by family caregivers of children with chronic diseases.[13,14] As concerns about myopia increase or complications can increase the mental burden on the patient and his/her parents, we hypothesized that most parents of patients with high myopia may experience negative psychological effects. However, there have been no reports on the mental health of parents of patients with high myopia in China and other countries. The present study used the Symptom Checklist-90 (SCL-90) to assess the mental health status of parents of patients with high myopia. Parents of healthy children were included as a control group. The ultimate aim was to facilitate the development of integrated treatment measures, and lay the foundation for the next step in exploring the role of psychological interventions in the treatment or control of myopia.

Materials and methods

Subjects

Participants were parents of patients with high myopia treated at the Second People's Hospital of Yunnan Province and parents of healthy controls. The study obtained approval from the ethics committee of the Second People's Hospital of Yunnan Province.

Inclusion and exclusion criteria for parents of patients with high myopia

Patients with high myopia (greater than −6.00 DS) were children aged 4 to 12 years. All had been cared for by their fathers, mothers or both parents for more than 1 year. The parents of these children had no history of psychoticism and no other current psychosomatic disease. Parents participated voluntarily and provided written informed consent. The exclusion criteria were (1) parents of children with other serious heart, brain, kidney, hematopoietic and systemic diseases in addition to high myopia; (2) single parents; (3) parents who could not cooperate with the investigation owing to education level, intelligence or other reasons.

Criteria for parents of healthy children

Children without myopia or other vision problems aged 4 to 12 years were included

as healthy controls. Healthy children and their parents were examined to exclude any obvious physical or mental problems. The parents of these children had no other family members at home who needed care owing to other diseases. Parents participated voluntarily and provided written informed consent.

Evaluation method

The SCL-90 scale was used to evaluate mental health. The SCL-90 is widely used to measure mental health status.[15] The advantages of this scale include its assessment of a large number of symptoms on several symptom dimensions and its accurate depiction of subjective symptoms. The SCL-90 comprises 90 self-assessment items to evaluate factors of somatization, obsession–compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, anxiety, psychoticism, and diet and sleep. Each item is scored on a 5-point scale: no, very mild, moderate, heavy and severe. A score ≥ 2 points denotes presence of symptoms. In the present study, all parents were assessed using anonymous questionnaires, and all evaluation processes were completed by a technician skilled in using the SCL-90 evaluation method.

Statistical processing

The data analysis was carried out using SPSS 17.0 (SPSS Inc., Chicago, IL, USA). Measurement data were tested for normal distribution. Normally distributed data were analysed using the *t*-test; non-normally distributed data were analysed using the rank sum test. Frequency data were statistically presented as frequencies (constituent ratio) and analysed using the X^2 test. $P < 0.05$ was considered statistically significant.

Results

The parents of 160 patients with high myopia treated at the Second People's Hospital of Yunnan Province from July 2014 to September 2015 were enrolled in the study (high myopia group). Of these parents, 68 were fathers and 92 were mothers, and the average age was 42.2 ± 6.2 years. The parents of 80 healthy children (control group) were also enrolled. Of these, 35 were fathers and 45 were mothers, and the average age was 47.5 ± 4.8 years. There were no statistically significant differences in gender, age, family income level, and education years between these two groups. Therefore, the two groups were comparable (Table 1).

The total SCL-90 scores, total mean scores and positive mean scores in the high myopia group were significantly higher than those in the control group (all $P < 0.05$). A separate analysis of the scores of fathers and mothers in the high myopia group showed that total SCL-90 scores, total mean scores and positive mean scores in both subgroups were significantly higher than in the control group (all $P < 0.05$). We further evaluated the scores for each SCL-90 symptom dimension. Compared with the control group, the high myopia group showed significantly higher scores on the somatization, interpersonal sensitivity, depression, hostility, anxiety, psychoticism,

Table 1. Comparison of demographic data in the two groups.

Groups	Cases	Age (years)	Male (cases %)	Female (cases %)	Annual income (10,000/ per year)	Education years
High myopia group	160	42.2 ± 6.2	68 (42.5%)	92 (58.5%)	6.9 ± 3.2	15.45 ± 0.2
Control group	80	47.5 ± 4.8	35 (43.7%)	45 (57.3%)	6.8 ± 2.2	15.89 ± 0.6

Table 2. Comparison of SCL-90 symptom scores in the experimental and control groups.

	High myopia group (n = 160)	Father (n = 68)	Mother (n = 92)	Control group (n = 80)
Total SCL-90 score	1.53 ± 30.6*	1.48 ± 32.5*	1.60 ± 29.8*#	1.41 ± 0.02
Total mean score	1.6 ± 0.6*	1.5 ± 0.9*	1.7 ± 0.1*#	1.5 ± 0.7
Positive mean score	2.7 ± 0.6*	2.6 ± 0.5*	2.7 ± 0.8*#	2.6 ± 0.1
Somatization	1.35 ± 0.06*	1.32 ± 0.05*	1.36 ± 0.07*#	1.31 ± 0.08
Obsession–compulsion	1.63 ± 0.04	1.62 ± 0.05	1.65 ± 0.02	1.51 ± 0.08
Interpersonal sensitivity	1.73 ± 0.06*	1.68 ± 0.05*	1.75 ± 0.08*#	1.61 ± 0.02
Depression	1.86 ± 0.04*	1.80 ± 0.05*	1.89 ± 0.01*#	1.53 ± 0.06
Hostility	1.57 ± 0.07*	1.52 ± 0.05*	1.62 ± 0.03*#	1.53 ± 0.02
Phobic anxiety	1.47 ± 0.04	1.42 ± 0.05	1.49 ± 0.02	1.36 ± 0.08
Paranoid ideation	1.56 ± 0.02	1.52 ± 0.05	1.59 ± 0.01	1.48 ± 0.05
Anxiety	1.67 ± 0.06*	1.62 ± 0.07*	1.70 ± 0.02*#	1.41 ± 0.08
Psychoticism	1.33 ± 0.04*	1.32 ± 0.05*	1.35 ± 0.02*#	1.21 ± 0.08
Diet and sleep	1.36 ± 0.05*	1.32 ± 0.08*	1.39 ± 0.02*#	1.31 ± 0.08

Note: *indicates a significant difference ($P < 0.05$) between the high myopia and control groups. #indicates a significant difference ($P < 0.05$) between Father and Mother subgroups in the high myopia group. SCL-90: Symptom Checklist-90.

and diet and sleep dimensions (all $P < 0.05$). Moreover, both father and mother subgroups demonstrated significantly higher scores on the above symptoms than the control group (all $P < 0.05$), and mothers scored significantly higher on these symptoms than fathers in the high myopia group (all $P < 0.05$). However, there were no significant between-group differences in scores on obsession–compulsion, phobic anxiety and paranoid ideation between the high myopia group and the control group (Table 2).

Discussion

The global prevalence of high myopia seriously impacts quality of life. However, at present, the progress of myopia cannot be controlled and its occurrence cannot be prevented,[16] although it would be useful to observe myopia-related factors and attempt to intervene as much as possible. There is evidence that the environmental risk factors of myopia are related to socioeconomic status and lifestyle.[17] In the past decade, studies on the molecular biological mechanisms of myopia have confirmed that myopia is the result of genetic and environmental interactions.[18] Hence, there is an urgent need for all countries to take effective measures against myopia, and to develop and implement feasible strategies to control the occurrence and development of myopia, particularly juvenile myopia. Myopia, especially high myopia, can decrease quality of life (functionally, psychologically and economically).[19] The quality of life of patients with high myopia is significantly lower than that of patients without myopia, or those with mild or moderate myopia, and is even similar to the quality of life of patients with severe corneal disease.[19] Surveys have revealed that myopic patients do not have good mental health; they often experience serious psychological problems, particularly depression. The occurrence and progress of myopia are closely correlated with psychological status of patients.[20,21] For example, mental health issues directly affect the lifestyle and learning habits of myopic students.[22]

Medical research has highlighted the roles of psychological and social factors in disease occurrence, development, treatment

and rehabilitation. Psychological interventions can be effective in improving mental health levels, shortening the course of a disease, preventing the recurrence of a disease, improving the effect of drug treatment and surgery, and improving the quality of life of patients with chronic diseases.[23,24] Therefore, there is now a need to examine the effects of psychological interventions on the prevention and treatment of myopia.

There is an interaction between parental mental health and child mental health[25,26] that is characterized by both top-down intergenerational transfer effects and bottom-up retroaction.[27–30] The present study showed that the mental health of the parents of patients with high myopia was obviously affected. This mainly manifested in somatization, interpersonal sensitivity, depression, anxiety, hostility, psychoticism, diet and sleep. These findings are consistent with the results of previous studies conducted in Japan.[31] After a child is diagnosed with high myopia, parents experience great psychological stress, and the psychological burden can easily lead to anxiety, depression or fear. The present findings suggest that compared with parents of healthy children, mothers of children with high myopia are more likely to develop mental health problems. These psychological problems in turn affect the mental status of children and increase their own psychological burden, which may increase the degree of myopia. Therefore, it is very important to pay attention to the mental health of the parents of children with high myopia. The present findings also showed a difference in mental health between fathers and mothers. This may be linked to their role in childcare. Mothers generally take more responsibility for childcare, and are often more involved in children's problems. Therefore, mothers experience greater psychological stress than fathers.

To sum up, the present clinical investigation showed that the parents of children with high myopia have a greater mental burden than parents of healthy children, and that the psychological status of mothers is worse than that of fathers. In the prevention and treatment of children with high myopia, interventions to reduce psychological strain could be very useful in improving the mental status of parents, and could help them to develop more positive, optimistic and confident attitudes toward life.

Declaration of conflicting interest

The authors declare that there is no conflict of interest.

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