Pressure on Parents of Hearing-impaired Children During Speech Rehabilitation——Taking Zhejiang Province as an Example

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Abstract: Purpose To explore the present situation and influencing factors of the stress of accompanying children with hearing impairment in speech rehabilitation. Method A questionnaire survey was conducted among hearing-impaired families, and the data were analyzed using SPSS 25.0. Results Through PPS sampling analysis, it was found that the mean and median of the total pressure of families with hearing impaired children in Zhejiang Province were higher when they participated in the children's verbal and health accompaniment, and the influence factors of speech rehabilitation contributed the most to the pressure. After dimensionality reduction factor, stress value =0.496* personal situation factor +3.477. Conclusions In Zhejiang Province, families of hearing-impaired children have high pressure when they participate in the children's rehabilitation process. Language rehabilitation itself, personal situation and family burden will be the focus to improve the current situation.

Keywords: Hearing-impaired families; Pressure value; Influencing factor; Speech rehabilitation

As the country with the largest number of hearing-impaired children in the world, China has more than 4.6 million hearing-impaired children aged 0-14. For children, hearing impairment has a seriously impact on their language expression and psychological development [1]. Despite the continuous improvement and improvement of rehabilitation technology, there are still great differences in the rehabilitation effect of hearing-impaired children[2]. In the process of rehabilitation, language training is very important for which greatly influenced by the degree of parental participation. Therefore, this study intends to conduct a questionnaire survey and analysis of parents of hearing-impaired children to understand in detail the current situation and influencing factors of family accompanying pressure in speech rehabilitation, in order to provide some enlightenment for family rehabilitation work.

1. Data and methods

1.1 Questionnaire and sampling design

Based on previous research, semi-structured interviews were conducted with 30 subjects (6 persons in charge of special schools, women's federations, disabled persons' federations, 20 parents of hearing-impaired children, and 4 otolaryngologists). The interview content and data obtained will be used as the basis for questionnaire design. The sampling method determined by the questionnaire is PPS sampling. Since the source of statistical data is the families of hearing-impaired children who visited the Otolaryngology Department of w Hospital from June to September 2023, Zhejiang Province is divided into prefecture-level cities as one tier, and the number of questionnaires of hearing-impaired children families in each region is determined according to the proportion of permanent residents in each tier. On the basis of strict adherence to the principle of randomness, the inclusion criteria of the questionnaire were determined: children with pure tone audiometry had a hearing threshold of 4kHz≥85dB(HL) and a hearing aid threshold of 2kHz≥60dB(HL), moderate hearing loss, poor effect after wearing hearing AIDS, no contraindications after medical examination, normal structure of bilateral cochlea and internal auditory canal, and no retrocochlear lesions. Mental and intellectual behavior development is normal, the child's parents have a correct understanding of cochlear implant; Recipients have received at least one year or more of rehabilitation training in designated institutions, and cooperated with the completion of follow-up evaluation and data collection of the project. Exclusion criteria: For families with hearing-impaired children who failed to complete all data collection

due to other diseases, the questionnaire filling time was less than 1min, and the answers to the scale questions remained basically unchanged or continued to show extreme values, inconsistent answers or obvious errors.

1.2 Data analysis method

The obtained survey data were analyzed by SPSS 25.0. The collected basic information was analyzed descriptively, and the collected pressure values of families with hearing-impaired children were analyzed descriptively and concatenated. Descriptive analysis, variance analysis, factor analysis and regression analysis were carried out for the influencing factors in different dimensions.

2. Result

2.1 Results of questionnaire survey and reliability and validity test

In this survey, 124 questionnaires were actually obtained, and 109 effective questionnaires were finally recovered, with an effective recovery rate of 87.90%. After PPS sampling, a total of 104 questionnaires were selected. Reliability test: Stress scale items about family dimensions and their influencing factors in the questionnaire were analyzed. Cronbach coefficient of stress scale items about family dimensions and their influencing factors was close to 0.8, indicating a good reliability test performance. Validity test: The content validity is evaluated by the method of logical analysis. Through consulting professional instructors and referring to expert opinions, it is judged that the items basically meet the measurement purpose and requirements, so the scale is effective; Factor analysis method was used to evaluate the structural validity, KMO and Bartlett tests were used, and the KMO value was 0.683, the questionnaire had a good structural design and the items had structural validity.

2.2 The basic characteristics and stress status of the surveyed families

In order to study the differences between different gender, age and educational level and the value of accompanying pressure in language rehabilitation of hearing-impaired children in families, the analysis method was adopted to obtain the basic characteristics of the hearing-impaired families investigated (Figure 1).
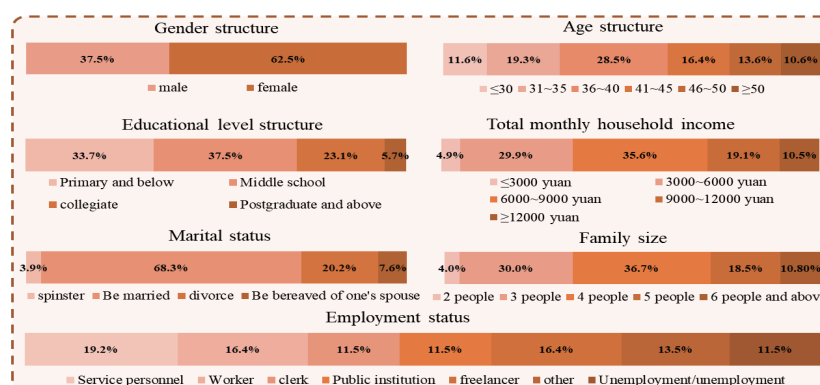

Figure 1：Percentile chart of family characteristics

The parents who mainly participated in the family companion of the hearing impaired children's speech rehabilitation had the most stress value of 4, accounting for 48.1% of the total; The second is the parents whose stress value is 5, accounting for 30.8% of the total; The lowest number of people had stress values of 1 and 2. The mean value of the overall pressure was 4.03, and the median was 4, indicating that families with hearing-impaired children in Zhejiang Province had greater pressure when they participated in their children's language and health companionship. The skewness coefficient of the pressure value is -1.166, and the sample distribution pattern is left skewness. Analysis of variance and Kendall's test were performed on the obtained results, and the results showed that the gender of the parents who accompanied them in rehabilitation (Sig. =0.042<0.05, Sig. of Kendall's test=0.02298<0.05, employment status (Sig.=7.16e-5<0.05) has a significant relationship with stress value. There was no significant relationship between age, education level, family monthly income, family marital status, family size and the total pressure of accompanying language rehabilitation (all Sig. > 0.05).

2.3 Influencing factor

The lower quartile, median, upper quartile, and mean of the pressure of accompanying parents involved in the language rehabilitation of hearing-impaired children and the mean of the pressure of each dimension were calculated. It can be concluded that the pressure from the language rehabilitation itself (mean=3.5) is significantly higher than that of other dimensions. Social support

(mean=3.2), family environment (mean=3.2), personal situation (mean=3.1), and child situation (mean=3.2) are secondary to language rehabilitation itself. The mean pressure of interpersonal relationship (mean=2.9) was lower than that of other dimensions. In order to eliminate the interference of subjective classification, this report intends to use factor analysis to reclassify the influencing factors. According to the factor analysis results of SPSS, the 20 factors were considered to be reduced into 7 factors, and Spearman correlation analysis was carried out between them and the stress value (after normality test, none of the 7 factors met the normal state). The results showed that factor 4 (personal situation factor) and factor 5 (family burden factor) were significantly correlated with stress (Table 1).

			Stress	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor7
Spearman Rho	Stress	correlation coefficient	1.000	.035	.022	.176	.393**	.224*	.038	.046
		Sig. (Twin Tails)	—	.724	.823	.074	.000	.022	.700	640
		N	104	104	104	104	104	104	104	104
	Factor 4	correlation coefficient	.393**	.305**	.151	.272**	1.000	.178	.195*	.236**
		Sig. (Twin Tails)	.000	.002	.127	.005	—	.071	.047	.016
		N	104	104	104	104	104	104	104	104
	Factor 5	correlation coefficient	.224*	.288**	-.098	.237**	.178	.1.000	.167	.144
		Sig. (Twin Tails)	.022	.003	.320	.016	.071	—	.090	.146
		N	104	104	104	104	104	104	104	104

Note: ①**. At level 0.01 (two-tailed), the correlation was significant.
②*. At 0.05 level (two-tailed), the correlation was significant.

Table 1：Spearman Correlation Analysis

The factor 1234567 was taken as the independent variable and the pressure value as the dependent variable, and the multiple linear regression analysis was carried out. The D-W value was between 1.5 and 2.5, so it could be considered that there was no intrinsic correlation; The Sig. of F tests <0.05, indicating that the regression equation was valid and at least one factor was correlated. The VIF value of each factor is less than 5, so it can be considered that there is no collinearity. The Sig. of the F test < 0.05, indicating that there is a significant linear relationship between factor four and pressure value, and the B value is 0.496. That is, under the conditions of this study, when other factors remain unchanged, the pressure value can be considered as =0.496* factor 4 +3.477. According to the Spearman correlation analysis, there is also a positive correlation between factor 5 and the pressure value, but it is not necessarily linear.

3. Discuss

Speech rehabilitation itself is the focus of improving the accompanying stress, and personal situation factors and family burden factors are also the focus of building a microsystem of speech rehabilitation for hearing-impaired children in families. The hearing-impaired family is a whole, and members should maintain good communication, constantly adjust the internal division of labor, and jointly deal with difficult problems. The government, institutions, communities and other social forces should also strengthen ties, provide better measures and welfare for hearing-impaired families, and reduce the burden on hearing-impaired families as much as possible.

References:

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Note: Since the article was completed by Hu Fangyi, Wang Jie and Lu Tuochen, he is the first author; Chang Yahuan is the corresponding author.