

## Factors Influencing Quality of Life in Korean Adolescent with Idiopathic Scoliosis

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### 1. Background

Idiopathic scoliosis is one of the most common problems in adolescent, and the prevalence rate of adolescent scoliosis is continuously increasing in Korea [1]. It is not usually life-threatening disease but, it frequently affects many physical and psycho-social problems such as limited physical activities, muscular skeletal pain, low body image, less interest in life, depression, problems with interpersonal relationship and low health related quality of life [2].

Evaluating health related quality of life is growing interest in guiding policy decisions for resource allocation to health intervention in various populations. Most of the health related quality of life studies for children and adolescents have analyzed various disease conditions [3]. In adolescents with idiopathic scoliosis, quality of life has been continuously evaluated by sex, age or degree of spinal curvature. Otherwise, investigation of the influencing factors of quality of life has not been tried in Korean adolescents with idiopathic scoliosis.

In the present study, author aim to provide basic information of the degree of quality of life and to identify the influencing factors to quality of life in Korean adolescents with idiopathic scoliosis.

### 2. Aims

**2.1. To identify the degree of quality of life in adolescents with idiopathic scoliosis.**

**2.2. To identify the influencing factors to quality of life in adolescents with idiopathic scoliosis.**

### 3. Methods

#### 3.1. Setting and Sample

A total of 107 adolescents with idiopathic scoliosis from 10 to 19 years old were participated in this study. Participants were recruited from pediatric orthopedic physician's clinic in K and S tertiary hospitals located in Seoul, Korea. Adolescents and their parents were fully informed about the purpose, and consented participation in this study under the approval from the institutional review board in each hospital.

Data were collected from November, 2011 to November, 2012. Questionnaires were distributed to participants in out-patient clinic by author or research assistants while participants were waiting to see orthopedic physician. It takes 10 minutes for filling out the questionnaires by participants.

The appropriate number of sample size was 103 using G\*Power 3.1.9 program by a linear multiple regression with two tails, and at a 0.15 effect size, a 0.05 significance level, a power 0.80, and number of predictors 7. Therefore, 107 questionnaires were sufficient for data analysis.

#### 3.2. Measurements

The Pediatric Quality of Life Inventory™ 4.0 (PedsQL™ 4.0) developed by Varni (2001) consists of 23 items used to measure the degree of quality of life in adolescents [4]. The questionnaire items were rated on a five-point Likert scale from 0 (Not at all) to 4 (Extremely). After inverse transformation the score of each question, it scored as 0 = 0 point, 1 = 25 point, 2 = 50 point, 3 = 75 point, and 4 = 100 point. A higher mean score indicates a greater level of quality of life. Cronbach's alpha coefficient was 0.90.

The School Adjustment developed by Noh (1997) consists of 20 items used to measure the degree of school adjustment [5]. The questionnaire items were rated on a five-point Likert scale from 1 (Not at all) to 5 (Extremely). A higher mean score indicates a greater level of school adjustment. Cronbach's alpha coefficient was 0.89.

Furthermore, sex, age, type of personality, perceived health status, perceived relationship with parents and peers, and academic achievement were assessed as socio-demographic characteristics. Age at diagnosis, severity of scoliosis and types of treatment were assessed as illness-related characteristics.

#### 3.3. Data analysis

Statistical analyses were performed using PASW 20.0 version for Windows, and the two-tailed p-value < .05 were considered statistically significant. The socio-demographic and illness-related characteristics, school adjustment and

quality of life were presented as number, percentage, mean, and standard deviation. The differences in school adjustment and quality of life according to socio-demographic and illness-related characteristics were analyzed using t-test, one-way ANOVA, and Post hoc Scheffe test. Relations between study variables were analyzed by Pearson correlation coefficient. Lastly, influencing factors of quality of life in Korean adolescents with idiopathic scoliosis was analyzed using linear multiple regression.

#### 4. Results

In socio-demographic characteristics of participated adolescents with idiopathic scoliosis, male were 20 (18.7%) and female were 87 (81.3%). Mean age of participants was  $14.15 \pm 2.19$  years old. Total 68 (64.8%) adolescents perceived of their personality as outgoing tendency. More than 93.4% of participants perceived that their health status is above than moderate up to good. In illness-related characteristics, mean age at diagnosis of idiopathic scoliosis was  $12.48 \pm 1.82$  years old. Severity of scoliosis was 50 (46.7%) as mild, 45 (42.1%) as moderate and 12 (11.2%) as severe. Types of treatment was 70 (65.4%) receiving observation treatment only, 21 (19.6%) physical therapy only, 11 (10.3%) brace and physical therapy, 3 (2.8%) brace treatment only, and 2 (1.9%) brace, physical therapy and operation treatment.

Mean score of school adjustment was  $3.61 \pm 0.39$  (min to max = 1.85 ~ 4.00), and quality of life was  $87.90 \pm 10.65$  (min to max = 50.00 ~ 100.00). Mean score of quality of life was significantly different according to perceived personality, perceived health status, perceived relationship with parents and peers, perceived academic achievement, and types of treatment ( $p < .05$ ). Significantly positive relationships between school adjustment and quality of life were noted ( $r = .64, p < .001$ ). Quality of life in were explained by school adjust ( $\beta = .60$ ), observation treatment ( $\beta = .27$ ), and outgoing personality ( $\beta = .18$ ) in Korean adolescents with idiopathic scoliosis.

The results shown in Table 1.

[Table 1] Influencing Factors of Quality of Life in Korean Adolescent with Idiopathic Scoliosis (N=107)

Variables	B	S.E.	$\beta$	R <sup>2</sup> Change	Adjusted R <sup>2</sup>	t (p)	F (p)
(Constant)	23.89	7.64				2.97 (.004)	33.92 ( $<.001$ )
School adjustment	16.74	1.98	0.60	.409	.403	8.48 ( $<.001$ )	
Treatment (Observation)	5.99	1.58	0.27	.063	.461	3.79 ( $<.001$ )	
Perceived personality (Outgoing)	4.07	1.59	0.18	.032	.489	2.56 (.012)	

#### 5. Conclusions

Quality of life in adolescents with idiopathic scoliosis explained by school adjustment, observation treatment, and outgoing personality. It suggests that nursing interventions will be needed to enhance school adjustment of adolescents with idiopathic scoliosis for increasing adolescents' quality of life. And providing more concerns or attention by peers or teachers to adolescents with idiopathic scoliosis will be helpful to increase school adjustment of idiopathic scoliosis adolescents. Also, early detection of adolescent idiopathic scoliosis by school screening under school nurses' or physicians' notification is more important to increase quality of life, due to less chance to expose severe or various medical treatments beyond observational treatment only by early detection of the disease. Lastly, more caring of idiopathic scoliosis adolescents with introvert personality will be needed to express their feeling or emotion by having idiopathic scoliosis. Based on the findings, the study proposes the development of intervention program to improve quality of life in Korean adolescents with idiopathic scoliosis.

#### 6. References

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