

# Quality of life and health-promoting lifestyles for parents of children with intellectual and developmental disabilities

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The purpose of this study was to examine the relationship between a health-promoting lifestyle and quality of life in parents of children with intellectual and developmental disabilities. Participants were 254 South Korean parents of children with intellectual and developmental disabilities. We assessed participants using a quality of life scale and the Korean version of the Health-Promoting Lifestyle Profile-II (HPLP-II). The data were analysed using Pearson and Spearman rank correlation analysis, and linear regression was conducted using SPSS ver. 25.0. The results indicated statistically significant associations between health-promoting lifestyles and quality of life in parents of children with intellectual and developmental disabilities. Analysis showed that the HPLP-II sub-

factors of spiritual growth, health responsibility, exercise, nutrition, interpersonal relations, and stress management could significantly predict quality of life in parents of children with intellectual and developmental disabilities. Healthcare providers should help to improve the quality of life of parents of children with intellectual and developmental disabilities by facilitating health-promoting lifestyle behaviours through interventions designed to increase physical activity, nutrition, stress management, interpersonal relations, health responsibility, and spiritual growth.


**Keywords:** Developmental disabilities, Health promotion, Healthy lifestyle, Intellectual disability, Parents, Quality of life

## INTRODUCTION

Quality of Life (QoL) is a complex and multidimensional concept that can mean different things to different people. However, most authors agree that there are two types of QoL: objective and subjective. Objective QoL is measured via social factors, such as income, education level, and health, to quantify and reflect people's objective circumstances within a given cultural context. In contrast, subjective QoL is defined as an individual's perceived satisfaction with their life, measured via the individual's sense of security, including happiness, sense of stability, and intimacy (Diener and Suh, 1997). Felce and Perry (1995) defined QoL as general well-being that includes objective factors and subjective evaluation of physical, material, social, and emotional well-being, including personal development and purposeful activity. Verdugo et al. (2012) conceptualised QoL as consisting of personal devel-

opment, self-determination, interpersonal relations, participation, rights, emotional well-being, physical well-being, and material well-being. Assessment of QoL is founded on individuals' experiences, aspirations, wishes, and values, and it is determined by a set of individual psychophysiological characteristics and objective conditions under which one lives.

Barriers to QoL interfere with those factors. For instance, children with intellectual and developmental disabilities (IDD) require a high level of caregiving, due to complex limitations in activities of daily living as well as prolonged medical conditions (Wouters et al., 2020). They often have substantial limitations in self-care, receptive and expressive language, learning, mobility, self-direction, capacity for independent living, and economic self-sufficiency (Lee, 2013). Such children have restricted opportunities for socialization with their neighbors or other family members, due to emotional and behavioural problems and out-of-seat behaviour;

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such isolation can have negative effects, even on siblings. Recent studies reported that parents and families experience high stress levels and increased conflict when caring for children with IDD, and parents and families often also experience high levels of depression (Hamilton et al., 2015; Kazak and Marvin, 1984).

In most studies of children with IDD, parents are the primary caregivers and play a pivotal, and often stressful, role in managing their children's care and needs. Crnković et al. (2018) reported that parents of children with IDD experience more stress than parents with typical children (Crnković et al., 2018). Aside from the consequences of their personal stress, studies have confirmed that parents of children with IDD have more physical health problems, marital conflicts, and parenting problems, and greater degrees of depression, anxiety, emotional burden, and emotional instability than parents of children without IDD. Further, the younger the parents of children with IDD are, the more likely they are to experience high stress and low QoL. The caregiver burden related to children with IDD often leads to a decline in well-being, such physical illness or weakness, as well as loss of motivation, resulting in a decline in QoL.

For children with IDD, parents and families are often their most crucial sources of support and greatly influence their character and behaviour development. Parental mental health in particular affects children's mental health (Solomon and Draine, 1995); therefore, it is important to consider intervention factors that focus on improving parents' QoL. One strategy, the health-promoting lifestyle (HPL), should be considered for the mental and physical health of parents of children with IDD (Solomon and Draine, 1995).

Research has shown that QoL can be improved by HPL behaviours (Rakhshani et al., 2014). A healthy lifestyle is a way of life that provides, maintains, and improves a person's health and well-being (Baheiraei et al., 2011; Whitehead, 2004). The most important HPL factors include healthy eating, physical activity, stress management, interpersonal relations, spiritual growth, and health responsibility. Thus, to improve one's HPL, it is necessary to evaluate those behaviours. Prior to any intervention aimed at promoting healthy behaviours, decision-makers on health issues must make an initial assessment of current health conditions. This study is the first to focus on the relationship between QoL and HPL for parents of children with IDD in South Korea.

## MATERIALS AND METHODS

### Participants

A total of 254 parents of children with IDD living in the met-

ropolitan area of Incheon, South Korea, participated in this study. All potential participants received a comprehensive explanation of the proposed research. Approval for the experimental protocol was obtained from the Ethics Committee of Gachon University. They were recruited through questionnaires distributed and collected with the help of the Association for Parents of Children with Intellectual and Developmental Disabilities, a healthcare centre, and the Incheon Sports Association for the Disabled. Participants were limited to the parents of children who were diagnosed with an intellectual disability, autism spectrum disorder, Down syndrome, or developmental delays. Parents of children who were diagnosed with other types of developmental disabilities, such as learning disabilities or cerebral palsy, were excluded (Table 1).

### Procedure

The instrument used to measure QoL in this study was developed by Lee (2002) and comprises the following six subfactors, with 47 items in total: relationship with family (six items), rela-

**Table 1.** Demographic of participants (n=254)

Variable	Value
Parents sex	
Father	61 (24)
Mother	193 (76)
Parent's age (yr)	
Father	43.62 ± 10.4 (22–57)
Mother	45.95 ± 7.7 (34–68)
Children's age (yr)	
3–6	40 (15.7)
7–10	88 (34.6)
11–14	54 (21.3)
15–18	9 (19.3)
19–22	23 (9.1)
Children's gender	
Male	188 (74)
Female	66 (26)
Parent's education	
Under high school	99 (40)
Graduated college	64 (25)
Over graduated university	89 (35)
Income (KRW/mo)	
Under one million	18 (7)
One million to two million	28 (11)
Two million to three million	64 (25)
Over three million	144 (57)

Values are presented as number (%) or mean ± standard deviation (range). KRW, Korean won.

relationship with neighbors (four items), living standard (11 items), physical condition and function (nine items), emotional state (nine items), and self-esteem (eight items). Responses are rated on a 5-point scale, with scores ranging from 1, 'not at all,' to 5, 'always'; thus, the higher the score, the higher the QoL. As questions 26, 28, 30–35, 38–39, and 46 are negative, reverse scoring was used. According to Lee (2002), Cronbach  $\alpha$  was 0.89, and it was 0.87 in the present study.

The Health-Promoting Lifestyle Profile-II (HPLP-II) is an instrument first developed by Walker et al. (1987) and later translated into Korean and revised by Jeon et al. (2007). The researcher reduced the number of questions to verify the validity of composition. This measurement consists of a total of 26 questions across six subsections: spiritual growth (six items), health responsibility (three items), exercise (three items), nutrition (five items), interpersonal relations (five items), and stress management (four items). Responses are rated on a five-point scale, with scores ranging from 1, 'not at all,' to 5, 'always.' Total scores range from 26 points (lowest) to 130 points (highest). Higher scores indicate higher levels of HPL. Cronbach  $\alpha$  was 0.84 in a study by Jeon et al. (2007) and 0.87 in the present study.

### Data analysis

IBM SPSS Statistics ver. 25.0 (IBM Co., Armonk, NY, USA) was used for data analysis. Descriptive statistics were used according to the study's objectives, and Pearson and Spearman rank correlation analyses were performed to examine the relationships between HPL and QoL for parents of children with IDD. Linear regression was conducted for HPLP-II and QoL scores and their subfactors that showed significant correlations, in order to analyse their effects on HPLP-II scores and subfactors. The level of significance was set at  $P < 0.05$ .

## RESULTS

Characteristics of the participants are listed in Table 1. We found that neither parents' nor children's age or gender affected parents' QoL, while parents' education level and income did affect the outcome. Therefore, we used linear regression to analyse the relationship between QoL and HPL in parents of children with IDD, controlling for parents' education level and income.

There were correlations between QoL and HPL in parents of children with IDD ( $r = 0.562, P < 0.001$ ): spiritual growth ( $r = 0.238, P < 0.001$ ), health responsibility ( $r = 0.146, P < 0.05$ ), exercise ( $r = 0.317, P < 0.001$ ), nutrition ( $r = 0.486, P < 0.001$ ), interpersonal relations ( $r = 0.434, P < 0.001$ ), and stress management ( $r = 0.404, P < 0.001$ ) (Table 2). Further, linear regression analysis indicated that the QoL score was predicted to increase by 0.562 ( $P < 0.001$ ) when the HPLP-II score increased by 1 (coefficient of determination =  $R^2 = 0.313$ ); by 0.238 ( $P < 0.001$ ) when spiritual growth score increased by 1 ( $R^2 = 0.53$ ); by 0.146 ( $P < 0.001$ ) when health responsibility score increased by 1 ( $R^2 = 0.017$ ); by 0.317 ( $P < 0.001$ ) when exercise score increased by 1 ( $R^2 = 0.097$ ); by 0.486 ( $P < 0.001$ ) when nutrition score increased by 1 ( $R^2 = 0.233$ ); by 0.434 ( $P < 0.001$ ) when interpersonal relations score increased by 1 ( $R^2 = 0.185$ ); and by 0.404 ( $P < 0.001$ ) when stress management score increased by 1 ( $R^2 = 0.160$ ) (Table 3).

High correlations were shown between 'relationship with family for QoL subfactors and HPL ( $r = 0.308, P < 0.001$ ): health responsibility ( $r = 0.154, P < 0.05$ ), exercise ( $r = 0.182, P < 0.01$ ), nutrition ( $r = 0.274, P < 0.001$ ), interpersonal relations ( $r = 0.303, P < 0.001$ ), and stress management ( $r = 0.271, P < 0.001$ ) (Table 2). The score for relationship with family in QoL was predicted to increase by 0.308 ( $P < 0.001$ ) when the HPLP-II score increased by 1 ( $R^2 = 0.091$ ). The score for relationship with family in QoL was predicted to increase by 0.069 ( $P < 0.05$ ) when the health responsibility

**Table 2.** Correlation between quality of life and health-promoting lifestyle profile

	Quality of life (QoL)	QoL-sub relationship with family	QoL-sub relationship with neighbors	QoL-sub living standard	QoL-sub physical condition and function	QoL-sub emotional condition	QoL-sub self-esteem
Health-promoting lifestyle profile (HPLP)	0.562***	0.308***	0.432***	0.519***	0.458***	0.472***	0.460***
HPLP-sub spiritual growth	0.238***	0.000	0.096	0.202***	0.102	0.252***	0.343***
HPLP-sub health responsibility	0.146*	0.154*	0.144*	0.099	0.100	0.190**	0.029
HPLP-sub exercise	0.317***	0.182**	0.243***	0.332***	0.435***	0.224**	0.090
HPLP-sub nutrition	0.486***	0.274***	0.316***	0.474***	0.372***	0.409***	0.408***
HPLP-sub interpersonal relations	0.434***	0.303***	0.467***	0.354***	0.279***	0.358***	0.403***
HPLP-sub stress management	0.404***	0.271***	0.378***	0.413***	0.446***	0.210***	0.289***

\* $P < 0.05$ . \*\* $P < 0.01$ . \*\*\* $P < 0.001$ .

**Table 3.** Regression analysis of HPLP and parent's quality of life

	b	$\beta$	$R^2$	T	P
Health-promoting lifestyle profile (HPLP)	1.05	0.562	0.313	10.78	0.000***
HPLP-sub spiritual growth	1.26	0.238	0.530	3.88	0.000***
HPLP-sub health responsibility	1.23	0.146	0.017	2.33	0.002**
HPLP-sub exercise	2.32	0.317	0.097	5.30	0.000***
HPLP-sub nutrition	2.44	0.486	0.233	8.82	0.000***
HPLP-sub interpersonal relations	3.13	0.434	0.185	7.65	0.000***
HPLP-sub stress management	4.38	0.404	0.160	7.00	0.000***

\*\* $P < 0.01$ . \*\*\* $P < 0.001$ .

**Table 4.** Regression analysis of HPLP and parent's QoL-sub relationship with family

	b	$\beta$	$R^2$	T	P
Health-promoting lifestyle profile (HPLP)	0.075	0.308	0.091	5.13	0.000***
HPLP-sub spiritual growth	0.000	0.000	-0.004	0.007	0.994
HPLP-sub health responsibility	0.169	0.069	0.020	2.47	0.014*
HPLP-sub exercise	0.172	0.182	0.029	2.93	0.004**
HPLP-sub nutrition	0.179	0.274	0.072	4.52	0.000***
HPLP-sub interpersonal relations	0.284	0.303	0.088	5.04	0.000***
HPLP-sub stress management	0.381	0.271	0.070	4.46	0.000***

QoL, quality of life.

\* $P < 0.05$ . \*\* $P < 0.01$ . \*\*\* $P < 0.001$ .

score increased by 1 ( $R^2 = 0.020$ ). The score for relationship with family in QoL was predicted to increase by 0.182 ( $P < 0.01$ ) when the exercise score increased by 1 ( $R^2 = 0.029$ ). The score for relationship with family in QoL was predicted to increase by 0.274 ( $P < 0.001$ ) when the nutrition score increased by 1 ( $R^2 = 0.072$ ). The score for relationship with family in QoL was predicted to increase by 0.303 ( $P < 0.001$ ) when the interpersonal relations score increased by 1 ( $R^2 = 0.088$ ). The score for relationship with family in QoL was predicted to increase by 0.271 ( $P < 0.001$ ) when the stress management score increased by 1 ( $R^2 = 0.070$ ) (Table 4).

High correlations were found between 'relationship with neighbors of QoL' subfactors and HPL ( $r = 0.432$ ,  $P < 0.001$ ): health responsibility ( $r = 0.144$ ,  $P < 0.05$ ), exercise ( $r = 0.243$ ,  $P < 0.01$ ), nutrition ( $r = 0.316$ ,  $P < 0.001$ ), interpersonal relations ( $r = 0.467$ ,  $P < 0.001$ ), and stress management ( $r = 0.378$ ,  $P < 0.001$ ) (Table 2). The score for relationship with neighbors in QoL was predicted to increase by 0.433 ( $P < 0.001$ ) when the HPLP-II score increased by 1 ( $R^2 = 0.184$ ). The score for relationship with family in QoL was predicted to increase by 0.144 ( $P < 0.05$ ) when the health responsibility score increased by 1 ( $R^2 = 0.017$ ). The score for relationship with family in QoL was predicted to increase by 0.243 ( $P < 0.001$ ) when the exercise score increased by 1 ( $R^2 = 0.056$ ). The score for relationship with family in QoL was predicted to in-

crease by 0.316 ( $P < 0.001$ ) when the nutrition score increased by 1 ( $R^2 = 0.096$ ). The score for relationship with family in QoL was predicted to increase by 0.467 ( $P < 0.001$ ) when the interpersonal relations score increased by 1 ( $R^2 = 0.215$ ). The score for relationship with family in QoL was predicted to increase by 0.378 ( $P < 0.001$ ) when the stress management score increased by 1 ( $R^2 = 0.139$ ) (Table 5).

There were high correlations between 'living standard for QoL' subfactors and HPL ( $r = 0.519$ ,  $P < 0.001$ ): spiritual growth ( $r = 0.202$ ,  $P < 0.01$ ), exercise ( $r = 0.332$ ,  $P < 0.001$ ), nutrition ( $r = 0.474$ ,  $P < 0.001$ ), interpersonal relations ( $r = 0.354$ ,  $P < 0.001$ ), and stress management ( $r = 0.413$ ,  $P < 0.001$ ) (Table 2). The score for living standard in QoL was predicted to increase by 0.519 ( $P < 0.001$ ) when the HPLP-II score increased by 1 ( $R^2 = 0.267$ ). The score for living standard in QoL was predicted to increase by 0.202 ( $P < 0.001$ ) when the spiritual growth score increased by 1 ( $R^2 = 0.037$ ). The score for living standard in QoL was predicted to increase by 0.332 ( $P < 0.001$ ) when the exercise score increased by 1 ( $R^2 = 0.107$ ). The score for living standard in QoL was predicted to increase by 0.474 ( $P < 0.001$ ) when nutrition score increased by 1 ( $R^2 = 0.222$ ). The score for living standard in QoL was predicted to increase by 0.354 ( $P < 0.001$ ) when the interpersonal relations score increased by 1 ( $R^2 = 0.122$ ). The score for living standard in QoL was predict-

**Table 5.** Regression analysis of HPLP and parent's QoL-sub relationship with neighbors

	b	$\beta$	$R^2$	T	P
Health-promoting lifestyle profile (HPLP)	0.071	0.433	0.184	7.61	0.000***
HPLP-sub spiritual growth	0.044	0.096	0.005	0.536	0.126
HPLP-sub health responsibility	0.108	0.144	0.017	2.30	0.022*
HPLP-sub exercise	0.157	0.243	0.056	3.98	0.000***
HPLP-sub nutrition	0.140	0.316	0.096	5.28	0.000***
HPLP-sub interpersonal relations	0.298	0.467	0.215	8.39	0.000***
HPLP-sub stress management	0.362	0.378	0.139	6.47	0.000***

QoL, quality of life.

\* $P < 0.05$ . \*\*\* $P < 0.001$ .**Table 6.** Regression analysis of HPLP and parent's QoL-sub living standard

	b	$\beta$	$R^2$	T	P
Health-promoting lifestyle profile (HPLP)	0.256	0.519	0.267	9.64	0.000***
HPLP-sub spiritual growth	0.275	0.202	0.037	3.28	0.001***
HPLP-sub health responsibility	0.221	0.099	0.006	1.57	0.116
HPLP-sub exercise	0.640	0.332	0.107	5.58	0.000***
HPLP-sub nutrition	0.629	0.474	0.222	8.55	0.000***
HPLP-sub interpersonal relations	0.675	0.354	0.122	6.01	0.000***
HPLP-sub stress management	1.182	0.413	0.670	7.197	0.000***

QoL, quality of life.

\*\*\* $P < 0.001$ .**Table 7.** Regression analysis of HPLP and parent's QoL-sub physical condition and function

	b	$\beta$	$R^2$	T	P
Health-promoting lifestyle profile (HPLP)	0.182	0.458	0.206	8.17	0.000***
HPLP-sub spiritual growth	0.116	0.071	0.007	1.63	0.103
HPLP-sub health responsibility	0.187	0.117	0.006	1.60	0.111
HPLP-sub exercise	0.701	0.435	0.186	7.67	0.000***
HPLP-sub nutrition	0.412	0.372	0.135	6.36	0.000***
HPLP-sub interpersonal relations	0.443	0.279	0.074	4.60	0.000***
HPLP-sub stress management	1.060	0.446	0.195	7.90	0.000***

QoL, quality of life.

\*\*\* $P < 0.001$ .

ed to increase by 0.413 ( $P < 0.001$ ) when the stress management score increased by 1 ( $R^2 = 0.670$ ) (Table 6).

There were high correlations between 'physical condition and function of QoL' subfactors and HPLP ( $r = 0.458$ ,  $P < 0.001$ ): exercise ( $r = 0.435$ ,  $P < 0.001$ ), nutrition ( $r = 0.372$ ,  $P < 0.001$ ), interpersonal relations ( $r = 0.279$ ,  $P < 0.001$ ), and stress management ( $r = 0.446$ ,  $P < 0.001$ ) (Table 2). The score for physical condition and function in QoL was predicted to increase by 0.458 ( $P < 0.001$ ) when the HPLP-II score increased by 1 ( $R^2 = 0.206$ ). The score for physical condition and function in QoL was predicted to increase by 0.435 ( $P < 0.001$ ) when the exercise score increased by 1 ( $R^2 =$

0.186). The score for physical condition and function in QoL was predicted to increase by 0.372 ( $P < 0.001$ ) when the nutrition score increased by 1 ( $R^2 = 0.135$ ). The score for physical condition and function in QoL was predicted to increase by 0.279 ( $P < 0.001$ ) when the interpersonal relations score increased by 1 ( $R^2 = 0.074$ ). The score for physical condition and function in QoL was predicted to increase by 0.446 ( $P < 0.001$ ) when the stress management score increased by 1 ( $R^2 = 0.195$ ) (Table 7).

There were correlations between 'emotional condition in QoL' subfactors and HPLP ( $r = 0.472$ ,  $P < 0.001$ ): spiritual growth ( $r = 0.252$ ,  $P < 0.001$ ), health responsibility ( $r = 0.190$ ,  $P < 0.01$ ), exercise ( $r =$

**Table 8.** Regression analysis of HPLP and parent's QoL-sub emotional condition

	b	$\beta$	$R^2$	T	P
Health-promoting lifestyle profile (HPLP)	0.271	0.472	0.219	8.48	0.000***
HPLP-sub spiritual growth	0.399	0.252	0.060	4.13	0.000***
HPLP-sub health responsibility	0.496	0.190	0.032	3.37	0.002**
HPLP-sub exercise	0.503	0.138	0.046	3.64	0.000***
HPLP-sub nutrition	0.631	0.409	0.164	7.11	0.000***
HPLP-sub interpersonal relations	0.794	0.358	0.125	6.08	0.000***
HPLP-sub stress management	0.701	0.210	0.040	3.41	0.000***

QoL, quality of life.

\*\* $P < 0.01$ . \*\*\* $P < 0.001$ .**Table 9.** Regression analysis of HPLP and parent's QoL-sub self-esteem

	b	$\beta$	$R^2$	T	P
Health-promoting lifestyle profile (HPLP)	0.190	0.460	0.208	8.21	0.000**
HPLP-sub spiritual growth	0.391	0.343	0.114	5.80	0.000***
HPLP-sub health responsibility	0.054	0.029	-0.003	0.459	0.605
HPLP-sub exercise	0.146	0.090	0.020	1.44	0.151
HPLP-sub nutrition	0.453	0.408	0.163	7.08	0.000***
HPLP-sub interpersonal relations	0.643	0.403	0.159	6.09	0.000***
HPLP-sub stress management	0.692	0.287	0.080	4.79	0.000***

QoL, quality of life.

\*\* $P < 0.01$ . \*\*\* $P < 0.001$ .

0.224,  $P < 0.01$ ), nutrition ( $r = 0.409$ ,  $P < 0.001$ ), interpersonal relations ( $r = 0.358$ ,  $P < 0.001$ ), and stress management ( $r = 0.210$ ,  $P < 0.001$ ) (Table 2). Additionally, when analysed using linear regression, emotional condition in QoL was predicted to increase by 0.472 ( $P < 0.001$ ) when the HPLP-II score increased by 1 ( $R^2 = 0.219$ ). Emotional condition in QoL was predicted to increase by 0.252 ( $P < 0.001$ ) when the spiritual growth score increased by 1 ( $R^2 = 0.060$ ). Emotional condition in QoL was predicted to increase by 0.190 ( $P < 0.01$ ) when the health responsibility score increased by 1 ( $R^2 = 0.032$ ). Emotional condition in QoL was predicted to increase by 0.138 ( $P < 0.001$ ) when the exercise score increased by 1 ( $R^2 = 0.046$ ). Emotional condition in QoL was predicted to increase by 0.409 ( $P < 0.001$ ) when the nutrition score increased by 1 ( $R^2 = 0.164$ ). Emotional condition in QoL was predicted to increase by 0.358 ( $P < 0.001$ ) when the interpersonal relations score increased by 1 ( $R^2 = 0.125$ ). Emotional condition in QoL was predicted to increase by 0.210 ( $P < 0.001$ ) when the stress management score increased by 1 ( $R^2 = 0.040$ ) (Table 8).

There were correlations between 'self-esteem in QoL' subfactors and HPLP ( $r = 0.460$ ,  $P < 0.001$ ): spiritual growth ( $r = 0.343$ ,  $P < 0.001$ ), nutrition ( $r = 0.408$ ,  $P < 0.001$ ), interpersonal relations ( $r = 0.403$ ,  $P < 0.001$ ), and stress management ( $r = 0.289$ ,  $P < 0.001$ ) (Table 2).

Additionally, as analysed using linear regression, self-esteem in QoL was predicted to increase by 0.460 ( $P < 0.001$ ) when the HPLP-II score increased by 1 ( $R^2 = 0.208$ ). Self-esteem in QoL was predicted to increase by 0.343 ( $P < 0.001$ ) when the spiritual growth score increased by 1 ( $R^2 = 0.114$ ). Self-esteem in QoL was predicted to increase by 0.408 ( $P < 0.001$ ) when the nutrition score increased by 1 ( $R^2 = 0.163$ ). Self-esteem in QoL was predicted to increase by 0.403 ( $P < 0.001$ ) when the interpersonal relations score increased by 1 ( $R^2 = 0.159$ ). Self-esteem in QoL was predicted to increase by 0.287 ( $P < 0.001$ ) when the stress management score increased by 1 ( $R^2 = 0.080$ ) (Table 9).

## DISCUSSION

World Health Organization has emphasised the importance of health-promoting behaviour as a key strategy for maintaining good QoL. Health-promoting behaviour can be divided into six subcategories: nutrition, physical activity, stress management, health responsibility, interpersonal relations, and spiritual growth (Walker et al., 1987). HPLs include health-related practices conducted to maintain and enhance individual well-being, self-realization, satisfaction, and so on, important not only in preventing

disease development but also in improving a person's mental and physical health and well-being (Tanjani et al., 2016). Rakhshani et al. (2014) emphasised the importance of health-promoting behaviour to improve QoL, especially physical activity and stress management (Rakhshani et al., 2014). Further, a relationship has been shown between QoL and all six HPLP-II subfactors in the elderly. Additionally, Savoy and Penckofer (2015) identified that HPL behaviours mediated the relationship between depressive symptom and QoL in healthy women (Savoy and Penckofer, 2015).

In the present study of parents of children with IDD, HPL and QoL appeared to be related. Because the HPLP-II subfactors were strong predictors of QoL in the present study, they must be included in health intervention programs to improve QoL in parents of children with IDD. Because people with IDD often experience problems from restrictions imposed on them by society, QoL in parents of children with IDD is vital, as their physical and mental health greatly affects their children's mental health.

According to previous studies, the QoL of parents and caregivers of people with intellectual disabilities does not differ from that commonly found in the healthy population. In the general population, evaluations of personal well-being and QoL typically range between 60% to 80% of a given scale's maximum which, under the homeostatic model, is considered an average range. Thus, the impact of caring for a person with an intellectual disability on quality of family life demonstrates heterogeneous results. However, there are authors who posit that caring for a family member with a disability promotes unity and cohesion within the family, while other authors argue that providing such care significantly reduces families' QoL (Crnković et al., 2018; Mellor et al., 2010). Jeoung (2019) reported that the importance of health practice behaviour played an intermediary role for improving the QoL of parents with IDD.

To our knowledge, no previous studies report on health-promoting behaviour and lifestyle as an intervention for improving QoL of parents and caregivers of children with IDD in Korea. However, most researchers will agree that exercise, nutrition, and stress management improve QoL. Thus, as shown in the results of present study, implementation and reinforcement of health-promoting behaviours and lifestyles are crucial in improving the QoL of parents of children with IDD.

## CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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