

Examination of Predictive Factors Healthy Lifestyle Behaviours and Compare Coping Styles with Stress of Adolescents with and without Hearing Loss: A Comparative Study

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ABSTRACT

Objective: Examination of predictive factors healthy lifestyle behaviours and compare coping styles with stress of adolescents with and without Hearing Loss (HL).

Methods: A comparative cross-sectional design was employed. The participants comprise high school students with (n= 272) and without (n= 272) HL. Participants completed questionnaires on coping styles with stress and Adolescent Lifestyle Profile Scale 2 (ALP-R2). Descriptive statistics, chi-square, t-test, and multiple linear regression analysis were used to analyze the responses given to the above instruments.

Results: Adolescents without HL (116.46±16.89) had significantly higher scores on the lifestyle profile scale than another group (113.68±16.12) (p<.000). The difference in coping styles (pray, hobbies and exercise etc.) with stress of two group was determined (p<.000). According to multiple linear regression analysis, independent variables explained 27% of the change in adolescent lifestyle profile in adolescents with HL (R²=.273). BMI (β=-.258), economic status (β=-.439), and mother education level (β=-.146) were significant predictors affecting lifestyle profile in adolescents with HL. Also, independent variables explained 17% of the change in adolescent lifestyle profile in adolescents without HL (R²=.170). BMI (β=-.327) and economic status (β=-.233) were significant predictors in adolescents without HL.

Conclusion: Lifestyle profiles of adolescents with HL are lower than those without HL. Adolescents with HL are more vulnerable in terms of a lifestyle behaviours and coping style with stress. By using these findings, nurses can make school-based interventions on positive life perspective, stress management to increase lifestyle profiles.

Keywords: Adolescent, hearing loss, healthy lifestyle, stress and coping, stress management

1. INTRODUCTION

Healthy lifestyles are defined as behavioral patterns that help prevention and promotion people's health and well-being (1). Especially, the adolescent period is considered an important period in which positive behaviors are acquired for health promotion (2). For a healthy life, it is important to implement lifestyle behaviors that health prevention and promotion during adolescence.^{1,3,4}. Because adolescents comprise most of the demographical distribution of the population and that these individuals are the adults of the future, significant priority must be given to the healthy growth and development of this group (2,4). It is easier to promote health responsibility in childhood and adolescence. Healthy lifestyle behaviors should be made daily life habits in the adolescent years (5).

Although adolescence is generally healthy periods in one's life, some important health and social problems may begin to evolve or reach a peak at this time. Examples include nutrition and weight conditions, obesity, inadequate physical activity, depression etc. (6). These problems affecting the lifestyle profiles of adolescents are more common in adolescents with HL (7). Adolescents with HL may face many difficulties when using healthcare services. For example, they may need support with communication (such as lip-reading or sign language) while receiving healthcare (7). In addition, adolescents with HL are at risk of reduced access to healthcare, social withdrawal, and lowered self-esteem due to difficulties in communicating with others. For this reason, negatively affects the nutrition, physical activity, stress management behaviors and quality of life of adolescents

with HL (7,8). Studies have found that adolescents with HL have more sedentary behavior and less physical activity than adolescents without HL (9,10).

In addition, adolescents with HL face many stresses in their daily life (7). The reason for this stress was determined as social interaction (with peers), classroom environment, and academic difficulties. Among adolescents, various coping styles have been found to be effective at perceived stress levels (11). For this reason, it is also important to determine stress management, interpersonal relationships, and positive life expectancy, which determine the healthy lifestyle behaviours in adolescents with hearing loss.

Even though there many studies describing the healthy lifestyle behaviors of adolescents (1,3,12,13) the healthy lifestyle behavior profile of adolescents with HL is not clear. The aim of the study is examination of predictive factors healthy lifestyle behaviours and compare coping styles with stress of adolescents with and without HL.

2. METHODS

2.1. Study Design and Setting

This study is of comparative cross-sectional research design. The study was carried out at four high schools for students with and without HL between 2018-2019 academic year in Istanbul, Turkey (N= 644). Two of the schools had students with HL enrolled but the other two schools were made up of adolescents without HL. The schools for the HL and the other schools were situated in similar areas and had similar socio-economic backgrounds.

2.2. Participants

The “convenience sampling” method was used in the sample selection of the study. The research aimed to reach the whole of the population. Adolescents with and without HL who met the sample criteria were included. The inclusion criteria of adolescents with HL were no intellectual disability, parental consent, and knowing sign language. The inclusion criteria of adolescents without HL were no intellectual disability and parental consent. Exclusion criteria were the presence of an intellectual or other disability (vision etc.). During the academic year, 170 adolescents were recruited from the first, 102 from the second school (schools that had adolescents with HL) for the study. A total of 272 adolescents were recruited from the third and fourth schools (schools with adolescents who could hear). The response rate of the study was 84.47%.

2.3. Measures

Sociodemographic questionnaire

The authors created this questionnaire based on their survey of the literature. This form contains basic descriptive

questions such as age, gender, parental education, and health insurance.

Hearing loss form

The form that was applied to adolescents with HL contained two questions on the degree and classification of the HL. School nurses evaluate students’ degree of hearing and speech level during their examinations before enrollment at school. In doing this, they make use of the Omaha Classification System to identify the hearing and speech difficulties defined in the physiological domain and the specific symptoms and findings related to each issue. An appropriate nursing diagnosis is made based on this system. The degrees of HL, speech levels were taken from these records.

Coping styles with stress form

The authors created this questionnaire based on their survey of the literature (14,15). This form contains basic descriptive questions such as pray, hobbies, exercise, breathe deeply and have a shower.

Adolescent Lifestyle Profile Scale 2 (ALP-R2)

This scale was developed in 2006 by Hendricks, Murdaugh and Pender to measure adolescent health-promoting behavior (16). The scale was revised in 2009 (ALP-R2). The scale was adapted into Turkish by İlhan (17). ALP-R2 is a 4-point (1=never to 4=always) Likert-type of scale composed of 44 items and 7 sub-scales. The subscales are health responsibility, physical activity, nutrition, positive life perspective, interpersonal relations, stress management, spiritual health. The minimum possible score on the scale is 44; the maximum is 176. The total Cronbach’s α coefficient was .88. The CFA results showed that the structure of the model/scale has an acceptable goodness of fit. The study, this scale the total Cronbach’s α coefficient was .87. Positive health promotion behaviors increase as the score on the scale rises.

2.4. Procedures

The questionnaires for hearing adolescents were distributed to them during class time. The purpose of the study was explained to the adolescents and their consent was obtained. The students filled out the forms under the supervision of the researchers. The instruments for the adolescents with HL were adapted into sign language after consultation with a sign language specialist. The following processes were used; a) First, in order to adapt the ALP-R2 into sign language (translation and back translation), we enlisted the help of an expert in sign language; b) then, individual interviews were held in the form of a pilot study with a team of experts, teachers from the school, the researchers, and 6 students in the effort to make an evaluation of the translated questions; c) afterwards, modifications were made based on the feedback from the discussions; d) we then assessed the pilot study initiated with 6 students. There were words in the pilot study that the students could not understand. Again, a consultation was held with specialist

in sign language to determine whether the items on the questionnaire were comprehensible and appropriate for the level of the adolescents with HL. The data of this study were collected face to face by the researchers in the classroom environment. The necessary explanations were given to adolescents with HL in sign language by researchers who have a sign language certificate. Then, consent was obtained from those who wanted to participate in the study. Questionnaire were presented to the participants. During the completion of the questionnaires, a researcher was assigned for each adolescent with HL. The researchers made explanations in sign language for questions. As a result, both a questionnaire and sign language were used to collect data.

2.5. Statistical Analysis

The data were analyzed using the Statistical Package for Social Sciences, Version 22.0. Descriptive statistics were used to determine the scores of the adolescents on the ALP-R2 and sociodemographic characteristics etc. The normal distribution of the data in this study was examined with the Kolmogorov Smirnov test and the data showed a normal distribution ($p > 0.05$). The socio-demographic difference between the adolescents with and without HL were examined using the chi-square test. T-test was used to explore the differences between the adolescents with and without HL ALP-R2 scale and subscale scores. The chi-square test was used to determine the difference between coping styles with stress of adolescents with and without HL. Multiple linear regression analysis was performed to determine the predictors affecting the lifestyle profile of adolescents with and without HL. $P < 0.05$ was considered statistically significant.

2.6. Ethical Considerations

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of Marmara University Health Sciences Institute (19.11.2018/No: 219). Permission was obtained from the Provincial Directorate of National Education for the work to be carried out in the high schools. The informed consent of the volunteer participating adolescents and their parents was obtained.

3. RESULTS

Of the adolescents in the study with HL, 55.9% were male while the female of 53.3% of those with hearing. Among the adolescents with HL, 84.9% had a BMI of 18.5-24.9 kg/m², while the BMI of 88.9% of those with hearing was 18.5-24.9 kg/m² (Table 1).

The classification of HL and speech levels of adolescents with HL is shown in Table 2. 36.8% of adolescent's difficulty hearing normal sounds of talking, even with a device. 49.6% of adolescents had inability to talk due to not understanding (Table 2).

The ALP-R2 scale mean score for adolescents with HL was 113.68±16.12 and 116.46±16.89 for the adolescents who could hear ($p < .000$). The mean scores of the adolescents with HL on the subscales were, from highest to lowest, nutrition (20.28±3.28), positive life perception (16.0±3.52), interpersonal relations (15.53±3.22), stress management (15.53±2.81), spiritual health (16.20±3.37), physical activity (15.25±3.61), and health responsibility (14.89±3.69). The mean scores of the adolescents without HL on the subscales were, from highest to lowest, nutrition (19.54±3.53), stress management (17.84±2.70), interpersonal relations (17.77±4.02), positive life perception (17.0±3.4), spiritual health (15.32±3.07), physical activity (14.54±3.7), and health responsibility (14.45±3.45). The adolescents with HL had lower scores on these subscales except for spiritual health (Table 3).

There was a statistically significant difference between the two groups in terms of the methods they used to cope with stress ($p < .000$) (Table 4).

The difference between the participants' coping or not, and their lifestyle profiles and sub-dimensions were examined. Accordingly, the ALP-R2 score of those who prayed as a coping method in adolescents with HL was significantly higher than those who did not ($p < .05$). Among adolescents without HL, ALP-R2 scores of those who exercised as a coping style were significantly higher than those who did not ($p < .05$) (Table 5).

According to the multiple linear regression analysis results, when the significance level corresponding to the F value is examined, it is seen that the established models are statistically significant ($F = 12.326$; $p < .001$, $F = 8.903$; $p < .001$).

According to multiple linear regression analysis, independent variables explained 27% of the change in adolescent lifestyle profile in adolescents with HL ($R^2 = .273$). Multiple linear regression analysis indicated that BMI, economic status, and mother education level were significant predictors affecting lifestyle profile in adolescents with HL ($t = -4.865$, $p < .001$; $t = 2.561$, $p < .05$; $t = -7.793$, $p < .001$). One unit increase in the BMI variable causes a decrease of %0.258 on the lifestyle profile ($\beta = -.258$). One unit increase in the mother education level variable provides an increase of %0.146 on the lifestyle profile ($\beta = .146$). In addition, one unit decrease in the economic status variable causes a decrease of %0.439 on the lifestyle profile ($\beta = -.439$). Also, independent variables explained 17% of the change in adolescent lifestyle profile in adolescents without HL ($R^2 = .170$). BMI and economic status were significant predictors affecting lifestyle profile in adolescents without HL ($t = -5.683$, $p < .001$; $t = -3.840$, $p < .001$). One unit increase in the BMI variable causes a decrease of %0.327 on the lifestyle profile ($\beta = -.327$). In addition, one unit decrease in the economic status causes a decrease of %0.233 on the lifestyle profile ($\beta = -.233$) (Table 6).

Table 1. Sociodemographic characteristics of adolescents (n= 544)

Demographic Characteristics		Adolescents with hearing loss (n= 272)		Adolescents without hearing loss (n= 272)		Statistic
		Mean	SD	Mean	SD	
Age		17.11	1.33	16.18	0.98	
		n	%	n	%	χ^2 ; p
Gender	Female	120	44.1	145	53.3	4.59; 0.03
	Male	152	55.9	127	46.7	
BMI	18.5-24.9 kg/m ² : Nonoverweight	231	84.9	242	88.9	1.96; 0.16
	25 and above: Overweight	41	15.1	30	11.1	
Number of siblings	Single child	14	5.1	18	6.6	38.50; 0.00
	1 sibling	46	16.9	100	36.8	
	2 siblings	78	28.7	81	29.8	
Father education level	More than 2 siblings	134	49.3	73	26.8	115.27;0.00
	Illiterate	18	6.6	23	8.5	
	Primary school	141	51.8	41	15.1	
	Middle School	61	22.4	50	18.4	
Mother education level	High school	39	14.3	86	31.6	95.23;0.00
	University	13	4.8	72	26.5	
	Illiterate	43	15.8	23	8.5	
	Primary school	142	52.2	72	26.5	
Social insurance	Middle School	57	21	46	16.9	2.95; 0.02
	High school	22	8.1	74	27.2	
Level of economic	University	8	2.9	57	21.0	6.73; 0.81
	Yes	253	93	262	96.3	
	No	19	7	10	3.7	
Level of economic	Bad	52	19.1	32	11.8	6.73; 0.81
	Middle	89	32.7	89	32.7	
	Good	102	37.5	123	45.2	
	Pretty good	29	10.7	28	10.3	

SD: Standard Deviation

Table 2. Characteristics of hearing and hearing levels of adolescents with hearing loss (n= 272)

Characteristics	n	%	
Hearing loss classifications	Difficulty hearing normal sounds of talking, even with a device.	100	36.8
	Difficulty hearing with a device only in crowded environments	17	6.3
	Difficulty hearing loud sounds even with a device	8	2.9
	No hearing/No response	81	29.8
	I have no problem with hearing with a device	66	24.3
Speech level classification	Inability to talk	69	25.4
	Inability to talk due to not understanding	135	49.6
	Talking with inappropriate sentence structures	68	25.0

Table 3. Distribution of adolescents' adolescent lifestyle profile scale mean scores (n= 544)

	Adolescents with hearing loss (n = 272)	Adolescents without hearing loss (n = 272)	Statistic
	Mean (SD)	Mean (SD)	t; p
Health responsibility (min=7; max=26)	14.89±3.69	14.45±3.45	1.41; 0.158
Physical activity (min=6; max=24)	15.25±3.61	14.54±3.72	2.26; 0.024*
Nutrition (min=11; max=28)	20.28±3.28	19.54±3.53	2.52; 0.012*
Positive life perspective (min=8; max=24)	16.00±3.52	17.00±3.43	3.49; 0.001**
Interpersonal relations (min=7; max=24)	15.53±3.22	17.77±4.02	8.42; 0.000***
Stress management (min=9; max=24)	15.53±2.81	17.84±2.70	9.78; 0.000***
Spiritual health (min=7; max=24)	16.20±3.37	15.32±3.07	3.17; 0.002**
ALP-R2 total (min=68; max=167)	113.68±16.12	116.46±16.89	3.52; 0.000***

SD: Standard Deviation

*p<.05 **p<.01 ***p<.001

Table 4. Comparison of coping styles with stress between two group of adolescents

Coping Styles		Adolescents with hearing loss (n = 272)		Adolescents without hearing loss (n= 272)		Statistic
		n	%	n	%	χ^2 ; p
Pray	Yes	136	50.0	74	27.2	29.81; .000*
	No	136	50.0	198	72.4	
Hobbies	Yes	50	18.4	136	50.0	60.42; .000*
	No	222	81.6	136	50.0	
Exercise	Yes	29	10.7	68	25.0	19.08; .000*
	No	243	89.3	204	75.0	
Breathe Deeply	Yes	33	12.1	66	24.3	13.44; .000*
	No	239	87.9	206	75.7	
Have a shower	Yes	37	13.6	82	30.1	21.78; .000*
	No	235	86.4	190	69.9	

*p<.001

Table 5. Difference in lifestyle profile between adolescents who do and do not do coping strategies (n= 544)

Coping style	Health responsibility		Physical activity		Nutrition		Positive life perspective		Interpersonal relations		Stress management		Spiritual health		ALP-R2 total	
	Mean (SD)	t;p	Mean (SD)	t;p	Mean (SD)	t;p	Mean (SD)	t;p	Mean (SD)	t;p	Mean (SD)	t;p	Mean (SD)	t;p	Mean (SD)	t;p
Pray (1)	15.74±		15.49±		20.65±		16.11±		15.37±		15.30±		16.04±		114.72±	
	3.79	3.88	3.44	1.07	3.35		3.60	.73;.46	3.06	1.86	2.80	1.36	3.07	3.96	15.81	2.40;.01*
No	14.04±	;.00**	15.02±	;.284	19.91±		15.80±		14.91±	;.23	15.76±	;.17	14.60±	;.00**	110.05±	
	3.40		3.77		3.18		3.45		3.37		2.80		2.91		16.15	
Pray (2)	14.59±		14.32±		18.94±		16.94±		17.70±		17.56±		16.57±		116.60	
	3.35	.39	3.81	.59	3.37		3.47	.16;.86	3.34	.18	2.68	1.04	3.35	.97	±	.45;.64
No	14.40±	;.69	14.62±	;.55	19.76±		17.02±		17.80±	;.85	17.95±	;.29	16.08±	;.33	117.66±	
	3.49		3.69		3.57		3.42		4.25		2.71		3.38		16.85	
Hobbies (1)	14.68±		15.88±		20.28±		15.68±		14.98±		15.80±		14.82±		112.12±	
	3.29	.45	3.57	.98	3.30		3.76	.61;.53	3.16	.39	2.79	.74	2.86	1.28	17.17	.13;.89
No	14.94±	;.65	15.11±	;.17	20.28±	;.00;.99	16.02±		15.18±	;.69	15.47±	;.45	15.43±	;.20	112.45±	
	3.78		3.61		3.28		3.48		3.24		2.81		3.12		15.91	
Hobbies (2)	14.71±		14.78±		19.56±		17.30±		18.13±		18.18±		16.23±		118.93±	
	3.45	1.21	3.84	1.07	3.54		3.51	1.46;.14	4.41	1.49	2.78	2.05	3.48	.16	17.11	1.52;.12
No	14.20±	;.22	14.30±	;.28	19.52±	;.10;.91	16.69±		17.41±	;.13	17.51±	;.05	16.16±	;.87	115.82±	
	3.45		3.60		3.53		3.33		4.77		2.59		.27		16.58	
Exercise (1)	15.24±		16.55±		20.62±		16.82±		15.41±		17.00±		14.93±		116.58±	
	4.20	.53	3.71	2.05	2.92		3.88	1.40;.16	3.20	.47	2.37	3.01	2.56	.72	17.10	1.48;.13
No	14.85±	;.59	15.10±	;.04*	20.24±	;.58;.55	15.85±		15.11±	;.63	15.35±	;.00**	15.37±	;.46	111.89±	
	3.63		3.58		3.32		3.47		3.19		2.81		3.13		15.96	
Exercise (2)	15.51±		15.92±		20.89±		17.36±		17.60±		18.23±		16.97±		122.51±	
	3.35	2.94	3.72	3.60	3.65	3.73	3.48	1.01;.31	2.92	.40	2.75	1.36	3.44	2.18	17.11	2.93;.00**
No	14.10±	;.03*	14.08±	;.00**	19.09±	;.00**	16.88±		17.83±	;.68	17.72±	;.17	15.94±	;.03*	115.66±	
	3.42		3.62		3.38		3.41		4.33		2.68		3.31		16.29	
Breathe Deeply(1)	13.87±		14.69±		19.24±		16.81±		14.63±		15.12±		15.15±		109.54±	
	3.14	1.68	3.19	.94	3.42		2.90	1.49;.13	3.46	.96	3.12	.89	3.35	.34	14.28	1.08;.28
No	15.03±	;.92	15.33±	;.34	20.42±		15.84±		15.21±	;.33	15.59±	;.37	15.34±	;.73	112.78±	
	3.74		3.66		3.24		3.59		3.19		2.76		3.04		16.35	
Breathe Deeply(2)	14.25±		14.24±		19.33±		16.65±		17.83±		17.98±		15.62±		115.92±	
	3.23	.54	3.69	.75	3.18		3.51	.95;.33	3.05	.13	2.93	.46	3.13	1.61	16.08	.80;.42
No	14.52±	;.58	14.64±	;.45	19.61±	;.55;.57	17.11±		17.75±	;.89	17.80±	;.64	16.38±	;.10	117.84±	
	3.53		3.74		3.64		3.40		4.29		2.63		3.43		17.15	
Have a shower(1)	14.02±		14.97±		20.13±		16.21±		15.75±		15.56±		14.94±		111.62±	
	2.55	1.53	3.11	.51	3.29		3.57	.47;.63	3.62	1.24	3.17	.80	3.08	.80	13.29	.31;.75
No	15.02±	;.12	15.30±	;.60	20.30±	29;.76	15.91±		15.04±	;.21	15.52±	;.93	15.38±	;.42	112.51±	
	3.83		3.69		3.28		3.52		3.15		2.75		3.08		16.54	
Have a shower(2)	14.65±		14.39±		19.75±		17.09±		18.09±		18.13±		16.49±		118.62±	
	3.70	.60	4.01	.42	3.57		3.49	.29;.76	3.05	.86	2.61	1.13	3.44	.92	17.77	.79;.42
No	14.37±	;.54	14.60±	;.66	19.45±	;.63;.52	16.96±		17.63±	;.38	17.72±	;.25	16.07±	;.35	116.84±	
	3.35		3.60		3.51		3.41		4.36		2.74		3.34		16.52	

1= Adolescents with hearing loss 2= Adolescents without hearing loss

*p<.05 **p<.001

Table 6. Predictors affecting the lifestyle profile of adolescents with and without hearing loss (n= 544)

Adolescents with hearing loss	β	t	p	F	Model (p)	R2	Durbin Watson
Constant	-	18.896	.000**	12.326	.000**	.273	1.573
Gender	-.073	-1.395	.164				
BMI	-.258	-4.865	.000**				
Number of siblings	-.083	-1.509	.132				
Father education level	-.060	-1.041	.299				
Mother education level	.146	2.561	.011*				
Social insurance	.056	1.079	.282				
Economic status	-.439	-7.793	.000**				
Hearing loss classifications	.069	1.302	.194				
Speech level classification	-.001	-.020	.984				
Adolescents without hearing loss	β	t	p	F	Model (p)	R2	Durbin Watson
Constant	-	19.994	.000*	8.903	.000**	.170	1.487
Gender	-.010	-.183	.855				
BMI	-.327	-5.683	.000**				
Number of siblings	.013	.231	.818				
Father education level	-.001	-.012	.991				
Mother education level	.012	.199	.843				
Social insurance	-.110	-1.939	.054				
Economic status	-.233	-3.840	.000**				

Note: Multiple linear regression analysis is regression coefficient, β is standardized regression coefficient, R2 is proportion of variation in dependent variable explained by regression model, p is level of statistical significance.

* $p < .05$ ** $p < .001$

4. DISCUSSION

The need to enhance healthy lifestyle behaviors in adolescents to prevent health behavior-related chronic conditions and damaging health outcomes in the long term has become a national imperative.

It was seen in the comparison of the two groups that there were no differences in physical activity and nutrition scores. It may be said therefore that HL did not have an impact on these dimensions. In both groups, the adolescents exhibited the highest score in the nutrition, the lowest in the health responsibility subscales. In studies, where the ALP-R2 were applied to high school students, it was reported that the participants recorded the highest score in the interpersonal relations subscale, and the lowest score in the health responsibility dimension (3,18). The inadequacy adolescents showed in taking on health responsibility in both studies was in keeping with the behavior of the adolescents in our study. In other words, in both groups, the participants showed a weakness in assuming responsibility for their own health, and their health education behavior and tendency to seek help when needed was inadequate. This might be explained by the over-confidence of youth, a tendency that is in essence risky behavior.

Although the physical activity and nutrition subscale scores were slightly higher among the adolescents with HL, the difference was not statistically significant ($p > .005$). These findings suggest that adolescent with HL engage in the same level of activity as their peers. Similarly, it was also promising to observe that there was no difference between the groups in the participants' selection and planning of meals. The similarity in the BMI values of the two groups supports this finding.

The adolescents with HL in our study exhibited lower mean scores than their peers in the subscales of positive life perspective, interpersonal relations, stress management, but a higher mean score in the spiritual health dimension. A difference could be seen between the two groups. The positive life perspective subscale assesses the degree of an individual's positive outlook on life, encompassing aspects of hope or hopelessness. The interpersonal relations subscale determines an individual's communication with family and friends and assesses the level of continuity achieved. Stress management assesses the level at which an individual recognizes sources of stress, stress control mechanisms and coping levels. Spiritual health assesses an individual's beliefs, morals, and values (3,18).

The finding that the adolescents with HL had a more negative approach to life, were weaker in interpersonal relations and

less skilled in stress management indicates that this is a matter that must be underlined. One of the main techniques adolescents with HL use to cope with stress is prayer. Using active coping methods such as working with a hobby, spending time to rest and relax, doing exercises, performing breathing exercises, or showering was less common. The HL may be responsible for this. It might also be that the adolescents' hesitation in working with a hobby, doing exercises and assuming other lifestyle habits may be affecting their ability to take on a positive life perspective, engage in fruitful interpersonal relations and practice stress management. HL may be irreversible but methods and behaviors of coping with stress may be changed and improved at any time.

On top of the stress, they experience by being in the period of adolescence just like their peers, adolescents with HL may also feel the effects of stress factors specific to their disability (19,20). Study findings suggest that adolescents with HL not only feel the effects of stress in terms of daily stressors but are also prone to issues brought about by HL, their experiences with social interactions, the classroom setting and academic difficulties (20). More importantly, these individuals are usually introverted. They tend to cope through withdrawal, it is believed, because of their perceived high level of stress (20,21). Studies concur that the method of turning inward is a nonfunctional coping technique that contributes nothing to solving problems in the long run.²⁰ Our results have confirmed this. Adolescents with HL tend to use the technique of prayer more than turning to active coping behaviors such as working with a hobby, doing exercises, taking a shower, or doing breathing exercises to cope with stress. The results of studies demonstrate that schools, teachers, and health professionals need to effectively support adolescents with HL in their struggle to cope with the stress of daily living (20).

Adolescents with HL usually have a limited capability for speech (22). Of the adolescents with HL participating in this research, 25.4% exhibited an inability to talk, 25% talked using inappropriate sentence structures, and 12.9% used unintelligible sentences or sounds in their speech. Adolescents with HL who use speech as a means of communication are more likely to miss or misunderstand what is being taught in the learning setting and may benefit less from the knowledge imparted compared to their peers who can hear (23,24). It is for this reason also that interaction and relations between peers may be difficult for young people who are adolescents with HL. The barriers to communication may have a negative effect on the interaction of adolescents with HL (24,25). Adolescents with HL generally have a higher rate of experiencing issues in their social contacts and relations with peers compared to their hearing counterparts. They are also confronted with difficulties in participating in social activities, they have trouble with self-acceptance, and are challenged by having to defend themselves and cope with issues of perceived stigmatization (26). It has also been reported that these individuals find it difficult to find leisure time activities for themselves and suffer from problems they experience in their participation in social activities. Adolescents with HL cannot participate like their peers in

activities such as listening to music or events that depend on vocal commands. HL can diminish the capacity to participate in leisure time activities. Data have shown that the degree of HL and coping style are associated with the level of stress perceived by adolescents with HL (27). All this knowledge reported in the literature is consistent with the findings of our own study.

Social withdrawal and low self-esteem are the primary sources of stress in adolescents with HL (7). The health responsibility and spiritual health subscale scores of adolescents with HL who prefer to pray as a state of coping with stress were significantly higher. In a research conducted with children with HL, it was determined that praying has a positive contribution to spiritual health in children who grow up culturally and religiously based on faith (28). In our study, it is thought that the adolescents chose to pray as a coping style because they live in a region with Muslim beliefs.

Stress management is positively affected if adolescents with HL prefer exercise as their coping style. When the literature is examined, it has been determined that exercising increases stress management in adolescents with HL (29,30). The reason for this is that because of physical activity, adolescents experience the pleasure of accomplishing something and the feeling of relaxation and feeling happy (7,21,30). Also, while the life profile level of exercisers is significantly higher in disabled adolescents without HL, there is no difference in disabled adolescents with HL. When the reason is discussed, it is thought that exercise has a positive effect on health responsibility, physical activity, nutrition, and spiritual health.

When the predictors affecting the lifestyle profile in adolescents are examined, BMI, mother education level and economic status are effective in adolescents with HL, while BMI and economic status are effective in the other group. Increase in BMI of adolescents negatively affects their lifestyle profile (1,10). The reason for this can be attributed to the high consumption of fast food and sedentary behavior of adolescents in Turkish society (31,32).

The decline in economic level of adolescents negatively affects the lifestyle profile. This finding is supported by the literature (1,3,33). However, the decline in economic status affects the lifestyle profile of those without HL %0.233 times, while it affects %0.439 times for those with HL. When the reason of this situation is discussed, the opportunities of poor adolescents with HL, such as access to healthy nutrition and health services, are affected more negatively (15,20). For this reason, adolescents with HL have more disadvantages and their lifestyle profiles are lower.

In our study, while the increase of mother education level in adolescents with HL affects the lifestyle profile positively, it does not have any effect in those without HL. When the reason for this is discussed, the intense stress experienced by adolescents with HL pushes them to seek social support (30). Adolescents with HL frequently seek social support from the family, especially the mother (14,20,29). To provide adequate and correct support to adolescents with HL, it is important

that the mother education level is high (29). When previous studies were examined, it was found that high mother education level of adolescents with HL influences positive health behaviors and stress management in adolescents (30,34).

Strengths and Limitations

The strength of this study is that it was conducted with a difficult-to-study group with HL. Also, it is the first study in the literature to measure the lifestyle behaviors of this group. A limitation is that the research was carried out in only four schools.

5. CONCLUSION

Significant differences were found in this study comparing adolescents with and without hearing loss. The lifestyle profile of adolescents with HL is lower to that of hearing adolescents. Thus, when considered from a general perspective, adolescents with HL have much more of a need to improve their healthy lifestyle behaviors. There are differences between the two groups in the subscales of positive life perspective, interpersonal relations, stress management and spiritual health. Outside of spiritual health, the mean scores of the adolescents with HL were lower. In both groups, the adolescents exhibited the lowest score in the health responsibility subscale. There is a difference in coping styles with stress (pray, hobbies and exercise etc.) of two group. In adolescents with HL, those who prayed as a coping style had higher lifestyle profiles than those who did not. While BMI, mother education level and economic status affected the lifestyle profiles of adolescents with HL, only BMI and economic status affected those without HL. Adolescents with HL are less capable of effective stress management and suffer therefore from a relatively higher level of stress.

Adolescents with HL are more vulnerable in terms of healthy lifestyle behaviours and coping style with stress. Nurses can make school-based interventions on positive life perspective, interpersonal relations, stress management, spiritual health, nutrition, physical activity, and health responsibility to increase lifestyle profiles in adolescents. Accessible psychological support resources, guidance and psychological counseling services should be provided to all schools with groups with special needs such as hearing loss. In addition, it is thought that increasing mother support and strengthening the communication with the mother on this special group will positively affect the lifestyle profiles. In accordance with the philosophy of mental health and psychiatric nursing, it can be suggested to examine the healthy lifestyle behaviours, stress management, coping styles and family support in more detail on vulnerable groups (adolescents with hearing, vision, speech, and physical disabilities etc.)

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