

A Comparison of Health Literacy and Health-Related Quality of Life between Orphan and Normal Adolescents

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ABSTRACT

Background and Objective: Adolescence is one of the most important periods of life. Adolescents living in Orphanages are more exposed to health risks. One of the factors influencing health in Adolescence is health literacy and the health-related quality of life. This study aimed to compare health literacy and health-related quality of life between Orphan and Normal Adolescents.

Materials and Methods: In this cross-sectional descriptive study, 72 Orphanage adolescents and 160 adolescents at home were selected from Tehran Province through cluster sampling from Sep 13, 2020 to Jan 9, 2021. The data was collected using adolescents' health literacy (HELMA) questionnaire and HRQOL (Kidscreen-27) questionnaire. In order to analyze the data, ANCOVA, Chi-square test, Independent Samples t-test, Fisher's exact test, and Mann-Whitney test were used in SPSS 22.

Results: There is no significant difference in health literacy among the two groups ($p=0.84$) and only in the subclass calculation, Orphanage adolescents obtained a significantly higher score ($p=0.007$). There was also no significant difference in HRQOL between the two groups ($p=0.11$). However, in the subclasses school environment ($P=0.03$) and psychological well-being ($p=0.01$) adolescents at home and in the subclass social support and peers ($p=0.02$) Orphanage adolescents gained significantly higher scores.

Conclusion: Despite the special conditions of Orphanage adolescents, the health literacy and HRQOL were not significantly different between the two groups. In the subclass calculation of health literacy, Orphanage adolescents obtained a significantly higher score and the subclasses of HRQOL, school environment, and psychological well-being adolescents at home, and the subclass social support and peers Orphanage adolescents gained significantly higher scores.

Paper Type: Research Article

Keywords: health literacy, health-related quality of life, adolescents, Orphanages, residential Facilities

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Introduction

With regard to health and hygiene, adolescence is considered as one of the most vital periods of life, because health issues in this period affect one's whole life (1). Developmental changes during this period lead to adolescents' involvement in activities independent of the family, where deficiencies in their experiences and abilities make them extremely vulnerable in various aspects, especially health. Due to the mental and physical vulnerability of adolescents, examining their health is significant importance (2, 3). It is estimated that 20% of the total 1.5 billion adolescents worldwide suffer from health issues (4).

Adolescents' lives are affected by various factors such as health status, lifestyle behaviors, interpersonal behaviors, and family(2). Family is also considered as an important health protection factor among adolescents and youngsters (5). Therefore, the adolescents with unfit guardians or without guardians are exposed to further health damage due to the lack of family as a source of support and protection (6, 7).

An orphan is defined as a person under 18 who has lost one or both parents (8). According to estimations, there exist around 168 million orphans worldwide (9). In addition, according to the statistics published by the State Welfare Organization of Iran in 2019, there are a total of 25,538 children and adolescents under the protection of this organization (10).

Health literacy can be regarded as one of the major indicators in health planning (11). The term health literacy was first considered by researchers in 1974 during the concurrent investigations on knowledge and health (12) and it is defined as a measure of one's capacity to acquire, understand and comprehend health information and use it to make health decisions and judgments in daily life (11, 13).

It also includes a variety of skills such as effective listening, understanding diseases, and self-efficacy (14). Health literacy influences the effective use of health knowledge. Nutbeam's high health literacy functional definition states that health literacy consists of functional, interactive, and critical levels. The functional health literacy covers the basic skills for reading and writing health information, and the interactive level, and advanced skills that allow people to extract and grasp meaning from health information. While the critical level refers to the advanced skills that are used for the critical evaluation of health information and controlling health determinants (15). Low Health literacy is associated with more hospitalizations, poor adherence to care, poor health and higher mortality (16).

The number of studies on health literacy is increasing, but the dynamism and the variability of health literacy at different stages of life has developed many unknown aspects for health literacy (13, 17). In the studies conducted on adolescents, health knowledge and its health outcomes are often not clearly stated (18, 19). This may be partly due to the fact that the outcomes of insufficient health knowledge and the consequent health-damaging decisions will not become evident until adulthood. Although many consider the knowledge-behavior relationship to be strong, intervention studies have often shown that awareness of health-related risks is not sufficient to influence behavior (20).

Due to contradictory findings and the fact that few studies have been done in this field, it is necessary to conduct Health literacy studies on adolescents, especially high-risk adolescents and certain populations. Adolescents are developing health habits that will influence them throughout adulthood (21). In order to determine their needs in this critical period of physical, mental and social

development, sufficient information is needed to identify and implement appropriate methods of health promotion. One of the clearest frameworks for studying adolescents' Health literacy was provided by Jennifer Manganello (22). Her framework shows that different components of Health literacy (e.g. functional, interactive, critical) are influenced by individual characteristics (i.e. demographic factors, social and cognitive skills, etc.), family influences, and social systems (e.g. mass media, educational systems, health systems)(2, 22).

Increasing health literacy, especially among adolescents and children with lower family levels, is a perfect way to improve their health and prevent disease. This improved health literacy in the early years of life reduces the health needs of the society as a long-term outcome (13, 23).

Health-related quality of life (HRQOL) is another major concept in making huge policies and plans, such as health planning .(2, 24) Health-related quality of life (HRQOL) is one's ability to physically, emotionally and socially function at high levels(25). Although, biological indicators have historically considered as the area of focus in health research, greater attention has recently been paid to the results of holistic and patient-centered approaches such as HRQOL (26). Assessing HRQOL, (i.e. one's perception of physical, mental, and social health) is particular importance because it focuses on emotional and social capacities, thereby enhancing physical health and preventing disease (27).

Interpreting the results of HRQOL studies on different groups, especially among adolescents, helps identify the current needs and the policies needed to address these needs (2, 24). In fact, assessing HRQOL among all children and adolescents with individual, social and cultural differences is a crucial factor in improving the community health (2, 28).

Among adults, health literacy and HRQOL are

high health literacy correlated constructs that are associated with tangible health outcomes (16) . While the relations between these concepts and health outcomes are not yet clear among adolescents stated (18, 19), previous research has shown that adolescents with low health literacy experience have poor HRQOL (23). The current literature shows few studies conducted on the correlation between health literacy and HRQOL among Orphanage adolescents. However, studying these factors among the adolescents provides researchers, policymakers, and instructors with an opportunity to obtain a higher knowledge of challenges that they reduce health inequalities.

In a Swedish study conducted in 2018 on adolescents living in health care centers, the HRQOL was significantly different in the two groups, and adolescents living in these centers had lower HRQOL (29). Furthermore, Carrol et al (2013) conducted a study on the HRQOL of the adolescents and the children living in residential facilities. In this study, HRQOL was lower in residential individuals (30). In a 2007 study by Carbone et al, HRQOL was also significantly lower in among Iranian studies. There is no study on comparing HRQOL between adolescents at home and those living in Orphanage facilities. However, Khormehr et al (2015) compared the quality of life and happiness in the children and the adolescents living at home and those living in Orphanage facilities in Ahvaz. The study showed that Orphanage adolescents and children have lower quality of life and happiness(31).

The study of Padmore Adusei Amoah et al shows that street adolescents had poor health literacy (32). The study of Shubhangi Dumbray et al reported inadequate level of mental health literacy among orphans adolescent (33). In the study conducted by bin Shazimnv et al, less than 50% of Orphanage adolescents had adequate nutrition literacy (34).

Also according to the literature review conducted by the research team, there are no Iranian studies comparing HRQOL and health literacy between the two groups of adolescents living in Orphanage and those living at home.

Given the importance of health literacy and HRQOL in the field of health and their vital role during adolescence, and especially among Orphanage as a vulnerable group (2, 13, 17), the present study is conducted aiming to compare health literacy and HRQOL among the adolescents living in Orphanages and those living at home, in Tehran Province in the year 2020. Therefore, in addition to the adolescents living at home, this study focused on Orphanage adolescents to examine their differences, vulnerabilities and potentials in comparison with the general population of adolescents.

Materials and Methods

This cross-sectional descriptive study was conducted in Tehran from Sep 13, 2020 to Jan 9, 2021. The research population consists of all adolescents between 10 and 18 years of age who live at home or in Orphanages in Tehran Province. The following equation was used to determine the sample size:

$$n \geq \frac{(z_{\alpha/2})^2 \sigma^2}{(d)^2}$$

For adolescents at home, where $d = 2$, 160 samples were selected, including 80 female and 80 male adolescents (29). In addition, due to COVID-19 pandemic and the subsequent limitations in sampling from Orphanages, where $d = 3$, 30 female and 42 male adolescents living in Orphanages have been included in this study. In the orphanages introduced to the researcher, more girls did not meet the inclusion criteria, such as 15-18 years old.

The inclusion criteria consisted of signing the

informed consent, being aware of the research objectives and the confidentiality of data, being 15-18 years old, and the lack of mental and physical disabilities. Furthermore, the sample consisted of adolescents living at home with both parents and those who live permanently in Orphanages.

In the current study, cluster sampling was done through google form. The samples were selected from schools after dividing Tehran educational districts into four main regions including north, south, east and west regions. One area was randomly and through sortition selected from each region. Then, one girls' high school and one boys' high school were randomly selected from each area. After the presence of the researcher in the schools, 20 students were randomly selected from each school. The questionnaires, which were designed in the Google Forms and Audio and message that included the description of the research group, were then send to students through the school manager.

In order to select samples from Orphanages, one girls' center and one boys' center were randomly selected from each of the 3 welfare districts of Tehran province. Then the researcher visited each of the Orphanages and provided the related official with the informed consent form, the questionnaire forms and an audio file containing the researcher's explanations. Given that the questionnaires were online, after the subjects completed the forms, the answers were automatically submitted to the researcher.

In this study, health literacy was measured using health literacy measure for adolescents, which was developed and psychometrically evaluated by Ghanbari et al (2016). This tool contains 44 items and 8 domains including access (5 items, Sample question: I am able to access information about the healthy diet that

is appropriate for my age group), reading (5 items, Sample question: I can read brochures on prescribed medicine), understanding (10 items, Sample question: I can understand most thing I hear about health), appraisal (5 items: Sample question: I would compare the data obtained from various sources), use (4 items, Sample question: I try to keep my body weight in balance), communication (8 items, Sample question: When visiting a doctor or health provider I am able to ask question based on my research), self-efficacy (4 items, Sample question: I try to get more information about health as much as possible) and calculation (3 items). Each domain was scored as never (1 point), rarely (2 points), sometimes (3 points), most of the time (4 points), always (5 points). According to the scores, health literacy is then classified into 4 levels as insufficient (0 to 50), not enough (50.1 to 66), favorable (66.1 to 84) and excellent (84.1 to 100)(35).

In order to assess the health-related quality of life, the HRQOL Kidscreen-27 developed by Pascal et al (2007) was used. In Iran, the validity and the reliability of this tool were evaluated and approved in a study on 551 Iranian students (36). This questionnaire investigates subjects in the 5 domains physical well-being (5 items), psychological well-being (7 items), parents relations and autonomy (7 items), peers and social support (4 items) and school environment (4 items). This tool is scored on a 5-point Likert scale ranging from never (1 point) to always (score 5). Some items are reverse scored. This questionnaire consists of a total of 27 items, in which a higher score reflects a higher quality of life (37, 38).

In the present study, face and content validity were examined to determine the validity of research tools. The questionnaires were distributed among 10 faculty members of

Shahid Beheshti University of Medical Sciences. After collecting expert opinions and making the necessary changes, the abovementioned tools were used in the study.

In order to investigate the reliability of the questionnaires, the internal consistency was measured by calculating Cronbach's alpha coefficient. In the health literacy questionnaire, the Cronbach's alpha was calculated to be 0.96 for the whole scale. Furthermore, the Cronbach's alpha for the whole HRQOL Kidscreen-27 was reported to be 0.89.

In this study, SPSS V22 was used for data analysis. In order to analyze the data, descriptive statistics, mean, standard deviation and relative and absolute frequency percentages were measured. Kolmogorov-Smirnov test was performed to check the normality of the data, and Chi-square test, Fisher's exact test and Mann-Whitney test, to analyze the demographic data. Finally, ANCOVA was applied to compare the data between the two groups. A confidence level of 95% was also established.

Ethical Considerations: This study was conducted under the ethics code IR.SBMU.PHARMACY.REC.1399.031, approved by the ethics committee of Shahid Beheshti University of Medical Sciences. In order to select the subjects, informed consent forms were obtained from parents and adolescents for adolescents living at home, and also from the facility's officials and adolescents for Orphanage adolescents

Results

In this study, 72 Orphanage adolescents and 160 adolescents living at home were investigated. The mean age of Orphanage adolescents is 15.68 ± 1.01 and that of adolescents living at home, 15.62 ± 0.68 . Table 1 displays demographic information.

Table 1. The demographic information of the two groups of Orphanage adolescents and adolescents at home

Variables Frequency		non-Orphanage		Orphanage		P- value	
		Percentage	Frequency	Percentage	Test/ F		
Gender	Girls	80	50	30	41/7	Fisher's exact test	0.26
	Boys	80	50	42	58/3		
	Total	160	100	72	100		
Age	15	77	48.1	46	63.9	Independent Samples Test	0.67
	16	68	42.5	9	12.5		
	17	13	8.1	11	15.3		
	18	2	1.3	6	8.3		
	average	15.62 ± 0.68		15.68 ± 1.01			
Class	9	0	0	46	63.9	Chi-Square Tests	<0/001
	10	136	85	15	20.8		
	11	18	11.2	3	4.2		
	12	6	3.8	8	11.1		

There was no significant difference in health literacy between the two groups ($p = 0.84$) and only in the subclass calculation; adolescents at home obtained a much higher score ($p = 0.007$). Table 2 shows health literacy scores and compares it between the two groups. Additionally, according to the scores obtained from health literacy questionnaire for the group of Orphanage adolescents (59.3 ± 9.23) and adolescents at home (65.8 ± 14.2), adequate health literacy were observed in neither of the groups.

There was no significant difference in HRQOL between the two groups ($p = 0.11$). But in the subclass school environment ($p = 0.03$) and psychological well-being ($p = 0.01$) adolescents at home and in the subclass social support and peers ($p: 0.02$) Orphanage adolescents obtained higher scores. Table 3 indicates the scores of HRQOL in each group and makes a comparison between the two groups.

Pearson's correlation coefficient between

the subclasses of both questionnaires was then examined. In Orphanage adolescents, the subclass self-efficacy of health literacy questionnaire had a weak significant relationship with the subclasses psychological well-being ($r = 0.27$), parents relations and autonomy ($r = 0.35$), social support and peers ($r = 0.28$) and school environment ($r = 0.28$) of HRQOL questionnaire. Furthermore, for adolescents at home, the subclass parent's relations and autonomy of the health literacy questionnaire had a weak significant relationship with the subclasses self-efficacy ($r = 0.16$), access ($r = 0.18$) and communication ($r = 0.27$) of HRQOL questionnaire. Pearson's correlation was used to evaluate the severity of the relationship as well as the type of relationship (direct or inverse) of health literacy and health-related quality of life in this study.

Table 4 shows the Pearson's correlation coefficient between the subclasses of both questionnaires for adolescents at home.

Table 2. A comparison of health literacy between Orphanage adolescents and adolescents living at home

Group		non-Orphanage n=160	Orphanage N=72	Total N=232	F	(ANOVA) PVALUE
Self-Efficacy	min	7	4	4	0/39	0/53
	max	20	20	20		
	Mean SD	14/3 (2/4)	13/3 (3/9)	13/9 (2/9)		
Access	min	5	8	8	1/05	0/31
	max	25	25	25		
	Mean SD	17/8 (3/8)	17/5 (4/3)	17/7 (4/0)		
Read	min	8	5	5	0/14	0/71
	max	25	25	25		
	Mean SD	19/3 (4/3)	18/6 (5/9)	19/1 (4/8)		
Understand	min	20	10	10	0/74	0/39
	max	50	50	50		
	Mean SD	41/2 (6/2)	37/1 (9/6)	39/9 (7/7)		
Assessment	min	5	5	5	0/59	0/44
	max	25	25	25		
	Mean SD	17/9 (3/6)	16/2 (4/8)	17/4 (4/1)		
Use	min	5	4	4	0/88	0/35
	max	20	20	20		
	Mean SD	13/5 (3/3)	12/4 (4/4)	13/1 (3/7)		
Relationship	min	14	8	8	0/005	0/94
	max	40	40	40		
	Mean SD	28/7 (5/7)	27/1 (7/6)	28/2 (6/4)		
Computing	min	0	0	0	7/51	**0/007
	max	3	3	3		
	Mean SD	1/2 (1/1)	1/4 (1/3)	1/3 (1/2)		
Health Literacy	min	24/05	0	0	0/04	0/84
	max	100	97/5	100		
	Mean SD	65/8 (14/2)	59/3 (20/9)	63/8 (16/8)		

Table 3. A Comparison of HRQOL between Orphanage adolescents and adolescents at home

Group		non-Orphanage n=160	Orphanage N=72	Total N=232	F	(ANOVA) PVALUE
Physical Well-Being	min	7	8	7	0/22	0/64
	max	25	25	25		
	Mean	17/6	17/5	17/6		
	SD	(4/3)	(4/1)	(4/3)		
Psychological Well-Being	min	9	10	9	11/15	<0/001
	max	35	34	35		
	Mean	25/2	21/5	24/1		
	SD	(5/7)	(5/5)	(5/9)		
Parents & Autonomy	min	9	7	7	3/04	0/08
	max	35	35	35		
	Mean	24/4	21/6	23/5		
	SD	(5/8)	(7/1)	(6/4)		
Social Support & Peers	min	4	4	4	5/67	**0/02
	max	20	20	20		
	Mean	11/2	13/8	12/02		
	SD	(4/6)	(3/9)	(4/6)		
School Environment	min	7	4	4	4/63	**0/03
	max	20	20	20		
	Mean	14/7	14/1	14/5		
	SD	(2/6)	(4/2)	(3/2)		
HRQOL	min	42	48	42	2/59	0/11
	max	129	132	132		
	Mean	93/1	88/6	91/7		
	SD	(17/6)	(18/2)	(17/9)		

Discussion

The results of the study showed that, according to the tool's classification, Orphanage adolescents have inadequate levels of health literacy.

According to the literature review, it was observed that few studies are conducted on Orphanage adolescents as a vulnerable group, despite the importance of health literacy as a protective tool in the field of health. However, even these few studies report results similar to those of the current study reflecting poor health literacy and its subclasses among Orphanage adolescents.

In line with the results of this study, the

study of Padmore Adusei Amoah et al, street adolescents had poor health literacy (32). In addition, the study of Shubhangi Dumbrey et al reported inadequate level of mental health literacy among adolescent orphans (33). In the study conducted by bin Shazimnv et al, less than 50% of Orphanage adolescents had adequate nutrition literacy (34). Low health literacy among Orphanage adolescents indicates a serious crisis in the field of health and hygiene, since these adolescents are a group who have a kind of collective life who are exposed to risk factors such as mental or health dangers and face health

Table 4. Pearson's correlation coefficient between the subclasses of health literacy and HRQOL questionnaires

Variables		Physical Well-Being	Psychological Well-Being	Parents & Autonomy	School Environment	Social Support & Peers
Self-Efficacy	Non-Orphanage	-0/1	-0/04	-0/06	*0/16	0/01
	Orphanage	*0/28	0/21	*0/27	*0/35	*0/28
access	Non-Orphanage	0/02	-0/002	0/05	*0/18	-0/02
	Orphanage	0/19	0/21	0/16	0/19	0/18
Read	Non-Orphanage	0/01	-0/13	-0/07	0/06	-0/14
	Orphanage	0/04	0/04	0/03	0/07	0/17
Understand	Non-Orphanage	-0/13	-0/04	-0/12	0/04	-0/16
	Orphanage	0/12	-0/06	0/07	0/17	0/21
Assessment	Non-Orphanage	-0/04	0/05	-0/03	0/006	-0/11
	Orphanage	-0/02	-0/02	-0/02	0/14	0/07
Use	Non-Orphanage	0/01	0/06	0/13	0/13	-0/05
	Orphanage	0/03	0/05	0/07	0/23	0/31
Relationship	Non-Orphanage	0/02	0/07	0/1	*0/27	0/01
	Orphanage	0/11	0/05	0/19	0/21	0/22
Computing	Non-Orphanage	0/02	-0/01	0/03	0/07	-0/08
	Orphanage	0/04	-0/07	0/23	0/10	-0/03

problems in younger ages (6, 7, 39)

Orphanage adolescents are constantly in touch with two important educational resources including the facility's instructors and school-teachers. This low level of health literacy may be the result of being provided with necessary health information neither in schools, nor in Orphanages, which is a result of the lack of practical health-related education in these two groups.

However, in some studies such as Roy et al, the results of examining personal health knowledge(40) are not consistent with those of the present study, which can be a result of the basic and limited health information being investigated on the study by Roy.

The analysis of the data obtained from the present study showed that, according the classifications made by the tool, adolescents

living at home have insufficient health literacy as well.

The results of other studies were mostly in line with the results of the present study indicating that adolescents had inadequate health literacy in most communities (23, 41-43). Despite the fact that health literacy is of great importance in health policy making and planning as a tool for health promotion(23, 41, 42) .and insufficient health literacy among adolescents, as a vulnerable group who form the future of the society, is extremely harmful(2, 13, 17).

The results of the present study have been achieved under the circumstances where communication technologies are widespread more than ever and TVs, cell phones and computers exist in almost every house, available to children and adolescents (44). Furthermore, in most societies, adolescents are in constant contact with the

school environment as an educational resource (45). Therefore, poor health literacy indicates that either the educational packages are not properly planned for adolescents by health authorities, or there are not appropriate approaches in Iranian media and proper individuals in schools for this transfer of knowledge. In addition, considering parents' vital role in children's education (46), this poor health literacy indicates that Iranian parents do not have an adequate level of health literacy as well (47-49) or there is no proper way to transfer information to adolescents, both referring to the family's need for a purposeful education.

The results of some studies are not in line with those of the current study. For instance, in the study by Shuaijun Guo et al, adolescents had high levels of health literacy (50). These different results can be due to using different tools. In the study conducted by Dehghan et al in Iran, according to the questionnaire's scoring system, the overall health literacy of adolescents is considered as desirable (51), which is not consistent with the results of the present study. This inconsistency can be also due to the fact that all the selected samples were females (52).

The results of the present study show that there is no difference in health literacy between the two groups and only in the subclass calculation; Orphanage adolescents acquired much higher scores. With regard to the subclass calculation of this questionnaire, 3 items examine the adolescents' knowledge after offering brief explanations on common issues such as BMI and calories of nutrients. It seems that in Orphanage adolescents, due to the lack of parental support in understating and solving new problems, these adolescents show a more promising performance in problem-solving situations compared to adolescents who live at home.

Before beginning the present study, it was predicted that adolescents living at home would have a higher level of health literacy, considering their situation, receiving constant parental support, and access to more facilities. Although the overall scores of health literacy are different between the two groups, this difference is not significant and both groups have inadequate health literacy, which may indicate that parents, as a difference-making factor, have not played a significant role in increasing health literacy among adolescents living at home. On the other hand, according to the information acquired by visiting Orphanages, most Orphanages have a two-fold structure consisting of offices and accommodations. Only adolescents and instructors are present in accommodation areas, while a staff of various individuals works in the offices. It seems that the absence of parents as an educational resource is made up for by the presence of different individuals with various educational backgrounds who are in constant contact with these adolescents. Orphanage instructors and staff, health curricula of the State Welfare Organization of Iran and also charitable programs conducted by university student groups are among the constant resources accessed by Orphanage adolescents.

No significant difference in HRQOL between the two groups was observed. However, adolescents living at home obtained significantly higher scores in the subclasses school environment and psychological well-being, and Orphanage adolescents obtained significantly higher scores in the subclass social support and peers.

In line with this study, in the study by Yendork et al, no significant difference in the quality of life was seen between the two groups of adolescents living at home and in Orphanage facilities. However, in the four subclasses physical health, psychological health, social relationship

and environment, the mean scores were lower in Orphanage children (53). The results of some studies were not in line with the study. For example, in the studies conducted by Hjern et al, Carrol et al, and Carbone et al, HRQOL was lower in Welfare children and adolescents (29, 54). Although no study in Iran has been conducted to compare HRQOL, in the study by Khoormehr et al, Welfare children and adolescents had lower qualities of life (31).

These different results may be due to the lockdown conditions during the present study. In fact, lockdowns may affect one's quality of life and as a result, adolescents living at home have distanced themselves from most outdoor group and recreational activities. Welfare adolescents, however, still enjoy group and recreational activities because of their living situation (55).

Pearson's correlation coefficients between the subclasses of both questionnaires were calculated. In Orphanage adolescents, the subclass self-efficacy of health literacy questionnaire had weak significant relationships with the subclasses mental well-being, parents relations and autonomy, social support and peers and school environment of HRQOL questionnaire.

Additionally, in adolescents living at home, the subclass parent's relations and autonomy of the HRQOL questionnaire had weak significant relationships with the subclasses self-efficacy, access, and communication of health literacy questionnaire.

In the study by Diana Richter et al, which was conducted on adolescents and young adults (AYA), according to the regression results, health literacy was statistically correlated with all aspects of HRQOL, particularly psychological health, cheerfulness, social functioning and depression (56). In Iran, in the study by Khaleghi et al, students' health literacy was correlated with the quality of life and its physical and mental

dimensions (57). In addition, the regression results of the study by Hoffman et al on black American adolescents showed that no correlation is observed between health literacy and HRQOL in both physical and mental dimensions (58). This inconsistency with the present study can be due to COVID-19 and its impact on HRQOL as well as the differences in tools and settings (11, 55).

One of the limitations of this study is the self-report approach used to complete the questionnaires, as well as the lack of direct access to the subjects due to covid-19 pandemic, which may reduce the accuracy of the collected data.

Conclusion: The present study showed that no significant difference in health literacy and health-related quality of life exists between the two groups of adolescents living in Orphanage and at home. Furthermore, neither group of adolescents had fairly adequate health literacy. It was also found that weak significant correlations exist between some subclasses of health literacy and HRQOL in the two groups.

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Conflicts of Interest: The authors declare that there is no conflict of interest.

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