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Research paper

Health literacy of Iranian adolescent girls and its determinants

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Abstract

Introduction: Adolescent health literacy refers to social and cognitive skills that show the motivation and ability of adolescents to receive and use beneficial knowledge to maintain and promote their health status.

Aim: Determine the health literacy of Iranian adolescent girls and its determinants.

Material and methods: This is a cross-sectional-analytical study performed on 324 first- and second-grade high school female students. The sampling method included a multi-stage cluster sampling. Data collection tools included a demographic questionnaire and the health literacy measure for adolescents (HELMA). HELMA consisted of 44 items within 8 areas: self-efficacy, access, reading, understanding, appraisal, use, communication, and numeracy. HELMA was scored based on a 5-point Likert scale.

Results and discussion: The mean health literacy score of participants was 20.79%. Also, multiple linear regression showed a statistically significant relationship between access area of health literacy with living with one of the parents ($P = 0.02$), appraisal area with educational level ($P = 0.04$) and mother's job ($P = 0.03$), use the area with mother's job ($P = 0.038$), and numeracy area with the who is asked first regarding health or disease-related question ($P = 0.004$), and understanding the area with parental education ($P < 0.01$). Overall, the educational level was the most important determinant of health literacy ($P = 0.045$).

Conclusions: The results of the present study showed that adolescent girls had lower health literacy level. Therefore, it is suggested that health service providers improve the level of adolescent health literacy level by designing and implementing the relevant programs.

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1. INTRODUCTION

Adolescence is an important and vital period in human life.[1] Adolescents defined by the the World Health Organization (WHO) as those between 10 and 19 years of age.[2] Adolescent health is currently considered as an importante issue in the world.[3,4] One of the reasons for this emphasis is the high population ratio of this group compared to other age groups.[5] As statistics show that adolescents make up more than one-fifth of the world's population, and there are 1.2 billion adolescents in the world, 90% of whom live in low- and middle-income countries.[6] Also, according to the statistics provided by the Statistical Centre of Iran, out of the total population of 79 million people, 11 million are adolescents.[7] On the other hand, estimates in health economics show that adolescents are quantitatively the most valuable age group in society.[4] They are considered as the best age group to learn healthy living skills, and adolescent health literacy promotion programs are among the most cost-effective programs.[8]

Health literacy means the ability of individuals to access health information and use it to make appropriate decisions about maintaining and promoting health status.[9] Health literacy can also be considered as cognitive and social skills to promote and maintain the health status.[5] Health literacy has played a vital role in promoting health and has received increasing attention as a method to improve health outcomes.[3] Existing information shows that inadequate adolescent health literacy is one of the most important factors threatening the health of this age group.[9] In the last decade, the results of studies have shown a relationship between adolescent health literacy and health outcomes in adulthood.[10] Over the last decade, concerns regarding literacy and health skills have been a serious warning to many primary health care systems.[7] Accordingly, public education and empowerment to prevent and care for diseases have become an important principle.[2] In this regard, one of the important goals of the health system is to promote the health literacy of different sections of society, especially adolescents, and identify effective and related factors.[11] In fact, health literacy is considered as a determinant in the public health policy agenda that can empower adolescents to play an active role in promoting their health status.[3] Health literacy is one of the factors affecting women's health and an important element in a woman's ability to engage in health promotion activities.[13]

Paying attention to the health of adolescents, especially adolescent girls is one of the goals of the millennium development and one of the missions of WHO member states.[14] According to the United Nations Population Fund, girls' health is the key to breaking the intergenerational transmission of poverty and achieving the millennium development goals (MDGs).[15] It is of particular importance to pay attention to girls' health, considering their essential role in childbirth, culture transfer, literacy promotion, and control of health care behavior of families in the future. The prevailing culture in some societies does not increase the health literacy of adolescent girls and deprives them of proper health information.[16]

2. AIM

Determine the health literacy of Iranian adolescent girls and its determinants.

3. MATERIAL AND METHODS

This is a descriptive-analytical cross-sectional study. The study population included first and second grade high school female students in Rasht who entered the study through multi-stage random sampling. First, Districts 1 and 2 of education in Rasht were considered as the two main clusters. Then, using the list of governmental and non-governmental schools in Districts 1 and 2, 8 schools in each district and a total of 16 schools were randomly selected. Afterwards, a total of 6 classes in Districts 1 and 2 was calculated in each cluster based on the type of school (non-governmental and governmental) and the course of study (first and second grade high school). Considering the approximate number of students, we selected 12 classes (2 classes per grade) from governmental schools and 6 classes from non-governmental schools (1 class per grade). Finally, a total number of 216 students were determined based on the results of the pilot studies. Considering the fact that the whole of each class was considered as a cluster, the number of samples increased to 324 people (18 clusters).

Inclusion criteria included first and second grade high school female students, willingness to participate in the study, parental consent to participate in the study. Exclusion criteria included self-reported physical (cancer, heart disease, diabetes, and epilepsy) or mental illness. The data collection tool included a two-part questionnaire. The first part included the demographic information form and the second part was a standardized HELMA, which was designed and its psychometric properties were assessed by Ghanbari in Iran. HELMA consists of 44 questions and evaluates adolescent girls' health literacy in 8 areas: self-efficacy, access, reading, understanding, appraisal, use, communication, and numeracy. HELMA is scored based on a 5-point Likert scale ranging from the lowest score (1 point) assigned to 'Never' option and the highest score (5 points) assigned to 'Always' option.

The score of each construct is determined by calculating the mean scores of the items of that construct. The total score of the questionnaire was determined by calculating the mean scores of the total items. Also, the total score of each questionnaire was calculated according to the total number of questions. The average content validity index (CVI) value was 92%. The reliability of the questionnaire was measured using Cronbach's α coefficient ($\alpha = 93\%$).[17]

Statistical analysis was carried out using descriptive (mean, standard deviation, median, minimum, and maxi-

mum) and inferential statistical methods (Mann-Whitney, χ^2 and Kruskal-Wallis tests, and multiple regression coefficient) in SPSS v. 16. P value of less than 0.05 was considered as the significance level in all tests.

4. RESULTS

The mean age of participants was 15.50 ± 1.41 years. The majority (67.90%) of the participants was studying in governmental schools. A total of 62.5% and 37% of the participants studied in the first and second grades of high school, respectively. Moreover, the field of study of 31.7%, 22.8%, 18.6%, 13.6%, and 13.3% of them was empirical sciences, humanities, mathematics, technical/vocational, and manual skills branch, respectively. A total of 85.5% of the participants lived in the city and 92.6% of them had a native guilanian mother and 91% native guilanian father. Also, 54.6% of the participants lived in a four-person family. A total of 60.5% of the participants were the first born child and 97.2% of them lived with their parents. Also, 94.8% of students reported having very good health conditions and 63.3% of them first refer to their parents if they have an important health or disease-related question.

The mean age of the participants' fathers and mothers was 46.05 ± 5.18 and 42.05 ± 5.39 years, respectively. The majority of fathers (41%) and mothers (39.8%) had a university education and a diploma, respectively. The majority of fathers (80.2%) worked in other centers except healthcare centers and the majority of mothers (67.9%) were housewives. Parents of participants were employees of the Ministry of Health only in 3.7% of cases. The majority of parents (59.3%) earned more than 2 million per month on average (equivalent 80 USD).

Mean and standard deviation of the total health literacy scores and by dimensions presented in Table 1.

Based on the results of multiple linear regression analysis, among the studied variables, the variable of living with one of the parents ($P = 0.02$) of the access area, the educational level ($P = 0.04$), and mother's job ($P = 0.03$) of the appraisal area were one of the most important determinants of health literacy. Also, the mother's job ($P = 0.038$) was one of the most important determinants of adolescent health literacy in the use area. Moreover, participants with working mothers (other than health care centers) higher health literacy rates in the appraisal and use areas.

Table 1. Mean and standard deviation of health literacy scores by dimensions.

Domain	Mean	SD	Median	Minimum	Maximum
Self-efficacy	15.37	2.60	15.00	9	20
Access	20.36	3.71	21.00	10	25
Reading	21.78	3.92	24.00	8	25
Understanding	43.47	6.15	45.00	20	50
Appraisal	19.49	4.09	20.00	6	25
Use	14.36	3.53	15.00	4	20
Communication	31.49	5.83	32.00	15	40
Numeracy	3.88	1.04	3.00	3	9
Total HELMA	166.32	23.3	171.00	93	205

5. DISCUSSION

The results of the present study showed that the highest and lowest mean health literacy scores were related to the understanding and numeracy areas, respectively. In a study, Kehtari et al. found that adolescents had the highest and lowest health literacy scores in understanding and numeracy areas, respectively.[18] Ahmadi et al. also obtained the highest health literacy score in the understanding area.[19]

Living with one parent was one of the most important health literacy determinants in the access area. Participants who did not live with their parents for reasons such as divorce or the death of their parents had a higher health literacy rate than those who lived with both of them. Consistent with the present study, Ahmadi et al.[19] Believe that parental divorce will also aggravate stressful conditions for parents and adolescents considering that adolescence is associated with a crisis. This can cause parents to pay more attention to the individual and increase health literacy in the access area.

With regard to the reading area, a higher health literacy rate was observed among 14-year-old participants than in other age groups, participants studying in the experimental field of study than those studying in other fields, and participants with college-educated parents.

Concerning the understanding area, a higher health literacy rate was observed among participants with an experimental field of study, participants with a non-guilanian father, participants with mothers aged less than 40 years, and participants with college-educated parents. After controlling for other variables in the multiple linear regression model, the level of parental education was considered as the most important determinant of health literacy in the understanding area. Since parents play an important role in the process of personal health, parental education, and guidance can also be an important factor in promoting adolescent understanding.[20] According to the researcher, parents' level of education can play an important role in raising their children and educated parents will also have a higher culture, a better environment, and a position because of the chances of finding better and more useful jobs. Moreover, having a good social status, in turn, affects the attitude of children towards parents and their sense of security and self-confidence, therefore, they can communicate with their environment more effectively, which increases their health literacy and strengthen their interaction with the environment.

With regard to the appraisal area, the mother's educational level and job were the most important determinants of the participants' health literacy. In other words, in the appraisal area, a higher health literacy rate was observed

Table 2. Regression coefficients of health literacy determinants based on stepwise linear regression.

Variable	Regression coefficient	Standard error	*t*	*P*	95% CI	
					Minimum	Maximum
Age	0.67	1.03	0.65	0.52	–1.36	2.69
Grade	–2.13	1.06	–2.01	0.045*	–4.21	–0.04
Living with one parent	–3.98	3.60	–1.11	0.27	11.05	3.10
Father's job						
Employed	–3.73	2.85	–1.31	0.19	–9.43	1.87
Unemployed	–6.29	3.97	–1.58	0.11	–14.09	1.52
Retired	–3.64	3.21	–1.13	0.26	–9.69	2.69
Father's educational level						
Elementary school	–7.66	7.53	–1.02	0.31	–22.48	7.15
Middle school	–7.38	7.22	–1.02	0.30	–21.58	6.83
High school	–5.57	7.42	–0.75	0.45	–20.17	9.04
Diploma	–3.88	7.30	–0.53	0.59	–18.24	10.48
College	–3.87	7.42	–0.52	0.60	–18.47	10.74
Mother's job						
Health care provider	–0.90	3.01	–0.30	0.76	–6.84	5.02
Other	–1.22	1.45	–0.84	0.40	–4.07	1.64
Mother's education						
Elementary school	–12.08	9.98	–1.21	0.23	–31.72	7.57
Middle school	–11.59	9.66	–1.20	0.23	–30.61	7.42
High school	–6.77	9.77	–0.69	0.49	–26.00	12.46
Diploma	–5.34	9.72	–0.55	0.58	–24.47	13.77
College	–5.43	9.78	–0.55	0.58	–24.69	13.83
Average parental income	–0.57	0.98	–0.58	0.56	–2.49	1.35
Ask a health question	–0.27	0.40	–0.67	0.50	–1.06	0.52
Constant value	101.19	15.00	6.74	0.000	71.663	130.712

Comments: * Statistically significant.

among the participants of mothers working in centers other than health care centers. The results were consistent with York et al. study.[21] According to the researcher, working mothers, help to significantly promote their health literacy by having an independent income and spending it on their children.

With regard to the use area, participants of mothers working in centers other than health care centers had higher health literacy. The results are consistent with Karimi et al. study, which showed a significant relationship between a mother's job and health literacy and increase health literacy in the use area.[22] However, Kamalipour et al. showed no relationship between health literacy and mother's job.[23] According to the researcher, the mother's job and having an independent income helps them overcome many health challenges in various areas, especially the use area, as well as helps to solve adolescent health problems.

In the multiple linear regression model, among the studied variables, the level of education was the most important determinant of adolescent girls' health literacy so that the first-grade secondary school students had more health literacy than second-grade secondary school students. Panahi et al. showed that increasing age and entering higher education leads to an increase in adolescents' social interactions, obtaining more information, and achieving a better understanding and processing such information, and thus an increase in health literacy.[24] This discrepancy may be due to the fact that first-grade secondary school students answered the questionnaire questions more patiently and accurately.

6. CONCLUSIONS

The results of the present study showed that adolescent girls had lower health literacy level. Therefore, it is suggested that health service providers improve the level of adolescent health literacy level by designing and implementing the relevant programs.

The strengths of this study are the use of the tool that is tailored as much as possible to the traits of health literacy. Therefore, it can be said that the results obtained can be a stronger basis for planning for programs aiming at promoting the health literacy of adolescent girls. The limitations of

the current study are the lack of access to adolescents who have dropped out of school for any reason. More research is needed to support the findings of this research in the areas of factors determining health literacy.

Conflict of interests
The authors declared no potential conflicts of interest.

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Ethics
The professional doctoral dissertation was approved by Ethics Committee of Guilin University of Medical Sciences (No. IR.GUMS.REC.1398.350).

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