Evaluation of Health Literacy in Children and Adolescents in the Czech Republic

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Abstract

Introduction: Health literacy (HL) is a cognitive and social ability determining the individuals` capability to access information, comprehend and use the information in a way that promotes and maintains good health. It helps to choose healthy behaviour and can influence skills achieved in childhood.

Objectives: The main aim was to specify the level of health literacy in children and adolescents between 12 and 18 years of age.

Method: The research was quantitative, using a questioning method of a face-to-face dialogue. For data collection a short form of the standardized HLSQ16 questionnaire was used to identify health literacy level of the population. The survey was carried out in 2017. The sample consisted of 302 children and adolescents at the age between 12 and 18 years (South Bohemian Region, Czech Republic).

Results: The results showed inadequate health literacy in 11.3%, problematic health literacy in 41.3% and adequate health literacy in 47.3% of children and adolescents. No significant correlations were proven between health literacy and health condition, contact with medical emergency during the last two years, contact with general practitioner during the last twelve months or hospitalization for the last two years.

Conclusion: The results show problems in the level of health literacy in children and adolescents.

Keywords: Health Literacy; Child; Adolescent; Evaluation; The Czech Republic

Introduction

Kickbush., *et al.* [1] define health literacy as a set of cognitive and social capabilities, determining the motivation and ability of individuals to access, understand and use information in a way that promotes and maintains good health. They also point out that today's modern times with the availability of various health-detrimenting substances has caused a health literacy crisis in Europe and beyond. According to Holčík [2], the Health 2020 Program was adopted at the meeting of the WHO Regional Committee for Europe in 2012, which included the publication of Health Literacy-The Solid Facts, serving for understanding the importance and improving health literacy.

The Ministry of Health of the Czech Republic has been active in the preparation of the follow-up program for Health 2020 - National Strategy for the Protection and Promotion of Health and Prevention from Disease. The National Strategy in the Czech Republic focuses on 11 so-called horizontal themes, including screening programs, and 4 vertical themes. One of these topics is health literacy. In 2015, research was conducted in the Czech Republic aimed to determine the level of health literacy. In the results, Czech citizens occupy the penultimate, eighth place with the last place being occupied by Bulgarians. The reason for the next but last, rather unsatisfactory position is that two thirds of the Czech population is incapable to use available information to maintain and strengthen their health [3].

A voluntary grouping of individuals, organizations and institutions was formed that is involved in raising the level of health literacy of the population in the Czech Republic. This group is named the Alliance for Health Literacy. Its members are aware of the importance of health literacy and consider it an indispensable part of 21st century culture. The establishment of the Alliance has been made possible by the Institute for Health Literacy which also coordinates it. The Institute is engaged in research and evaluation of the level of health literacy and when necessary organizes seminars and conferences. The Alliance seeks to spread and enhance information on health literacy by gaining insights from practice and reviewing results at seminars and conferences. The basic mission is to develop communication among all those who are trying to identify problems in the area of health literacy and find a solution [4].

In the Czech Republic there are no medical literacy studies regarding children, adolescents and parents. There are only studies in which the target population includes Czechs aged over 15 [5]. This is the reason our project team focused on a group of children aged 12 - 18 using a shortened version of the HLSQ-EU-Q16 questionnaire.

Aim of the Study

The main aim was to specify the level of health literacy in children and adolescents between 12 and 18 years of age. The partial goals was assessment of health literacy from the following points of view: a) accessibility of information about health, health situation and healthcare system, b) motivation and activities for searching health information, c) orientation in the Czech healthcare system, d) abilities of effective cooperation with healthcare providers and management of health problems, e) cognitive and effective abilities to find and understand the information about own health.

Materials and Methods

Research sample and sampling technique

The research sample consisted of 302 children and adolescents (12 - 18 years old). The age distribution of the sample was as follows: 12-year-olds: 45 (15%); 13-year-olds: 41 (14%); 14-year-olds: 45 (15%); 15-year-olds: 43 (14%); 16-year-olds: 43 (14%); 17-year-olds: 42 (14%); 18-year-olds: 43 (14%) respondents. 157 (52%) were boys and 145 (48%) girls. 168 (56%) respondent s were from urban areas and 134 (44%) from countryside. The file selection was stratified and deliberate. The composition of the research sample corresponded with the structure of the basic population of the South Bohemian Region.

Methods and data analysis

The data collection was carried out by a trained team of internal and external staff of the Faculty of Health and Social Sciences, using a shortened version of the questionnaire for assessment of the level of health literacy HLS-EU-Q16 in the Czech language. The survey was carried out in 2017. The method of interviewing, the technique of leading interviews, was used for data collection.

As a part of the context analysis, the Chi-squared for good agreement and Independence Test were applied according to character and number of observations. Furthermore, calculations of the Pearson coefficient of contingency, the Normalized Person's Contingency Coefficient, the Pomeron coefficient, the Cramer coefficient, the Walis coefficient, the Spearman coefficient and the Correlation coefficient were calculated. In order to apply more sensitive tests of statistically significant contexts requiring a sufficient number of observations, it was necessary to perform the following data file edits with respect to the sample size: in the health state, the answers "bad" and "very bad" were merged together; in the area of used services, the categories "3 - 5 times" and "6 times and more times" are merged into category "3 times and more" and in the hospitalization area the "0 times" category has been transformed into the answer "no hospitalisation", while the answers "2 times", "3 to 5 times", and "6 times and more" were fused into one category "hospitalized".

The "I do not know" and "rejection" responses were filtered for each character and the calculations were made only based on valid values. A more precise degree of health literacy is expressed by an index, calculated only from the data of respondents who answered all questions (N = 229).

Operational Definition

- **The index characterizing health literacy (HL score):** A plain sum of points attributed to answers designating an answer as very easy and quite easy
- **The resulting scale for the HLS-EU-Q16:** 16 grades ranging from 0 to 16.
- **Levels of health literacy:** inadequate health literacy (0 - 8 points), marginal health literacy (9 - 12 points), and adequate health literacy (13 - 16 points).

Results

The health literacy index calculated only from full answers (N = 229) shows that inadequate health literacy, marginal health literacy and adequate health literacy were found in 8.7%, 39.3% and 52.2% of the respondents, respectively.

Descriptive Statistics

127 (42.1%) of the respondents fround their state of health very good, 120 (39.7%) good, 45 (14.9%) satisfactory, 1 (0.3%) very poor and 2 (0. 7%) respondents did not answer the question.

In the past two years, 154 (51.0%) of the respondents did not use energency medical services, the frequency 1 - 2 times was indicated by 89 (29.5%), 3 - 5 times by 44 (14.6%), 6 times and more by 13 (4.3%) of the respondents and 2 (0.7%) respondents did not give an answer.

	N	Minimum	Maximum	Mean	Std. Deviation
HLscore_16	229	2	16	12.23	2.534
Valid N (listwise)	229				

***Table 1:** HL score_16_cat categorized score of health literacy (for 16 valid items of the 16-item questionnaire).*

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1 inadequate HL (0 - 8 points)	20	6.6	8.7	8.7
	2 marginal (problematic HL (9 - 12 points)	90	29.8	39.3	48.0
	3 adequate HL (13 - 16 points)	119	39.4	52.2	100.0
	Total	229	75.8	100.0	
Missing	System	73	24.2		
Total		302	100.0		

***Table 2:** Health literacy in children and adolescents.*

State of health	Absolute frequency	Relative frequency	Relative frequency valid	Cumulative totals	Relative cumulative totals	Histogram
Very good	127	42.1%	42.1%	127	42.%	■
Good	120	39.7%	39.7%	247	81.8%	■
Satisfactory	45	14.9%	14.9%	292	96.7%	■
Bad	7	2.3%	2.3%	299	99,0%	■
Very bad	1	0.3%	0.3%	300	99.3%	■
Do not know Rejection	2	0.7%	0.7%	302	100.0%	■
Missing	0	0.0%	0.0%	302	100.0%	■
Total	302	100.0%	100.0%	302	100.0%	

***Table 3:** Health condition.*

Frequency	Absolute frequency	Relative frequency	Relative frequency valid	Cumulative totals	Relative cumulative totals	Histogram
0 times	154	51.0%	51.0%	154	51.0%	■
1 - 2 times	89	29.5%	29.5%	243	80.5%	■
3 - 5 times	44	14.6%	14.6%	287	95.0%	■
6 times or more	13	4.3%	4.3%	300	99.3%	■
I do not know	2	0.7%	0.7%	302	100.0%	■
No answer	0	0.0%	0.0%	302	100.0%	■
Total	302	100.0%	100.0%	302	100.0%	

***Table 4:** Contact with medical emergency during the last 2 years.*

29 (9.6%) of the respondents did not have to visit practical pediatrician during the last 12 months, 136 made 1 - 2 visits (45.0%), 86 (28.5%) 3 - 5 visits and 46 6 visits and more (15.2%). I do not know as an answer and no answer was marked for 5 (1.7%) respondents.

No hospitalization in the last two years was reported by 260 (86.1%) of the respondents, 1-2 hospitalization was reported by 34 (11.3%) and 3-5 hospitalizations by 5 (1.7%) of respondents. I do not know and missing answer was given by 3 (1.0%) respondents.

There was no statistically significant correlation between health literacy and health status in the sample of children and adolescents. There was no statistically significant correlation between health literacy and the frequency of contact of children and adolescents with medical emergency during the last two years. There was no statistically significant correlation between health literacy and the number of visits of the children and adolescents to a doctor within the last 12 months. There has been no statistically significant correlation between health literacy and hospitalization for the last 12 months.

Frequency	Absolute frequency	Relative frequency	Relative frequency valid	Cumulative totals	Relative cumulative totals	Histogram
0 times	29	9.6%	9.7%	29	9.6%	🟩
1 - 2 times	136	45.0%	45.3%	165	54.6%	🟩
3 - 5 times	86	28.5%	28.7%	251	83.1%	🟩
6 times or more	46	15.2%	15.3%	297	98,3%	🟩
I do not know	3	1.0%	1.0%	300	99.3%	🟩
No answer	2	0.7%	0.0%	302	100.0%	🟩
Total	302	100.0%	100.0%	302	100.0%	

Table 5: *Contact with general practitioner during the last 12 months.*

Frequency	Absolute frequency	Relative frequency	Relative frequency valid	Cumulative totals	Relative cumulative totals	Histogram
0 times	260	86.1%	86.7%	260	86.1%	🟩
1 - 2 times	34	11.3%	11.3%	294	97.4%	🟩
3 - 5 times	5	1,7%	1.7%	299	99.0%	🟩
6 times or more	0	0.0%	0.0%	299	9.0%	🟩
I do not know	1	0.3%	0.3%	300	99.3%	🟩
No answer	2	0.7%	0.0%	302	100.0%	🟩
Total	302	100.0%	100.0%	302	100.0%	

Table 6: *Hospitalization in the last 2 years.*

Health literacy and ...	N	Value X^2	df	p	Stat. Signif.
Health condition	227	6,935	6	0,327	n.s.
Contact with medical emergency	229	4,434	4	0,350	n.s.
Contact with general practitioner during last 12 months	226	5,642	6	0,465	n.s.
Hospitalisation during last 12 months	227	1,705	2	0,426	n.s.

Table 7: *The relationship between health literacy and health of children and adolescents and health services used.*

Discussion

There are specific measuring tools for assessing the health literacy in children and adolescents, such as REALM-Teen (Rapid Estimate of Adolescent Literacy in Medicine) and HELMA (Health Literacy Measure for Adolescents). These tools are widely used in English-speaking countries mainly. The most commonly used were REALM and REALM Teen Assessment Tool [6-11] by themselves or in combination with TOFHLA (N of Western Vital Sign). Unfortunately, these evaluation tools are not available in the Czech language. For this reason, we have decided to use the HLSQ-EU-16 questionnaire, which has so far been only used for the adult population. Its use was preceded by a pilot survey focusing on the pediatric and adolescent population, which examined the suitability of the questionnaire for this age category [12].

The results showed that 48.0% of the children and adolescents questioned exhibit inadequate and problematic health literacy. The results are not optimal, given that the level of health literacy shows the approach of these children and adolescents to their own health. Identical results were reported by Chisolm., *et al* [8].

We also focused on a possible link between the level of health literacy and the subjective assessment of health status and the use of health care facilities (emergency room, GP and child admission visits and hospitalization).

Out of the 302 children, 42.1% consider their health to be very good or 39.7% good, 14.9% of respondents rated their health as satisfactory and 2.3% as bad. We can consider this assessment to be very positive, especially in connection with the fact that in the Czech Republic an increasing number of dispensarized children with chronic diseases are repported every year. The results are consistent with the 2010 EBSC study, where 9 out of 10 children assessed their health as positive [13]. A statistically significant correlation between the subjective health assessment and the level of health literacy in our research set was not proven. However, Park., *et al*. [11] reported a link between lower health literacy and lower self-evaluated general health.

Answers to questions about doctor visits or emergency contacts can be, to a certain extent, seen as responses on the health status of the children. Czech Republic is considered one of the countries with very good child health care. Due to the concept of focus on preventive care, current pediatrics has a well-established system of preventive examinations aimed at monitoring the development of children and the immunization program based on the vaccination calendar. Worldwide and in Europe there are significant differences in the concept of primary care. In the Czech Republic, it is traditionally based on the function of GPs for children and adolescents and general practitioners for adults. GPs for children and adolescents register children from a given location for long-term care. The availability of other specialized health care facilities in the region enables them to coordinate the care of children patients not only in terms of health, but also socially.

In our research, we have investigated whether the respondents had been in contact with medical emergency during the last two years, had been to see a doctor or been hospitalized in the last 12 months. The answers correspond well with previous results and the subjective assessment of children's health. Medical emergency was not necessary for 51.0% of the respondents and 9.7% of the respondents did not have to visit the doctor during the last 12 months. 45.3% visited the doctor 1 - 2 times, 44.00% more than once. Hospitalization was only required for 13.0% of respondents. The number of visits to medical emergency, general practitioner and hospitalization was also assessed statistically in relation to health literacy, where no statistically significant link to any of the variables was demonstrated.

Conclusion

Health literacy is important for both the healthy and chronically ill population, regardless of age. However, the greatest emphasis should be placed on creating attitudes towards one's own health and consolidating a healthy lifestyle in the pediatric and adolescent population, as this is later reflected in the adult population's access to health. The standardized HLSQ16 questionnaire has been proven suitable not only for the adult population but can be used for the elderly population and adolescents. However, it has been shown inappropriate for the younger ages.

Recommendations for Practice

- Regarding the assessment of HL of children and adolescents, it is necessary to use
- Standardized measuring tools
- To repeatedly carry out the assessments during school years until adulthood
- Health professionals and educators should be involved in the assessment of health literacy
- Use the evaluation results in the field of health education
- Individualization of health education (age, mental maturity, possible health or social disadvantage of children and adolescents)
- Health education to focus on the whole family.

Acknowledgments

Conflict of Interest

We declare no financial interest or conflict of interest.

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