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Original research article

Research on the health literacy of professionals working in early childhood education

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ARTICLE INFO

Received: 2018-07-30

Received in revised form:

2018-09-05

Accepted: 2018-10-03

Published online: 2018-11-30

Keywords:

Health literacy

Health behaviour

Health condition

Early childhood education

ABSTRACT

The aim of the research is to map the health literacy of Hungarian early childhood educators through the exploration of the characteristics of their health condition and health behaviour. Early childhood educators, kindergarten teachers, teaching assistants and nurses were involved in our quantitative, cross-sectional, descriptive research (N = 1010). The data obtained by using a measuring tool containing standardised questionnaires were analysed using descriptive statistics, chi-square test and variance analysis (ANOVA; $p < 0.05$). Based on our findings we can state that – compared to the Hungarian population as a whole – the examined population is in a more favourable situation both in terms of health condition and health behaviour. However, because of their role-model status, the further improvement of health literacy-related skills of professionals working in early childhood education is still of the utmost importance, as this improvement can contribute to the foundation of rising generations' health literacy.

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Introduction

The health condition of the Hungarian population is rather unfavourable; in the case of several health indicators it is lagging behind Western European countries. In 2015, life expectancy at birth was 79 years for women and 72 for men, which was lower than that of the previous year for both sexes. Two thirds of early mortality cases (before the age of 65) were caused by cancer and cardiovascular diseases. Besides mortality, Hungarian figures related to the number of lost disability-free life years are also less favourable than in other Western member states of the

EU. The vast majority of health losses can be traced back to health risk behaviour; mainly dietary risks, smoking, high systolic blood pressure, being overweight and obesity [1].

The correlations between health literacy and health behaviour

An important component of the procedural knowledge element of health literacy [2] is the ability to apply factual knowledge related to health and health maintenance, which is most evident in health behaviour. Research concerning health literacy in Hungary shows that the health, preventive and health promotion competences of

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<http://dx.doi.org/10.1016/j.kontakt.2018.10.002>

the Hungarian population are at a low level. However, in terms of a European comparison they are not significantly behind Western European countries [3, 4].

Since health behaviour is strongly embedded socially [1], and is slow and difficult to change, greater efficiency can be expected from health promotion interventions focusing on children in development, as these interventions can provide an early foundation of their health literacy.

In this context, the examination of this field has high priority in professions whose representatives have an impact on rising generations through their conduct and behaviour patterns [5].

In early childhood – especially during the first 6 years – children are extremely responsive to the acquisition of habits, thus the examination of health value and health behaviour transmitted by educators is of fundamental importance to the foundation of health protection habits.

Health literacy and early childhood education

In recent years, health literacy has been at the forefront of scientific interest. After its appearance in 1974, the concept mostly gained a biomedical interpretation in the 1980s and 1990s. However, later it became multidisciplinary [6]. Accordingly, the 1998 definition of the WHO emphasises the individual motivation of information seeking, and the underlying cognitive and social skills [7]. Thanks to all this, by the late 1990s the consensual interpretation of health literacy emerged: *“The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions”* [8]. Sorensen et al. [9] interpreted the concept of health literacy in a multidimensional model in which, besides health-care-related competences, elements in connection with prevention and health promotion also appeared. In their model, related to prevention the following abilities were associated:

- access to information on health risk factors;
- comprehension and interpretation of information about risk factors;
- evaluation of health risk factors;
- sound decision-making concerning risk factors.

The foundation of the attitude to prevention occurs in early childhood, when the embedding of health as a value in the value system takes place, along with the formation of health-related good habits.

Early childhood educators have a key role in sowing the seeds for a positive attitude to health and for the sense of control over it. These professionals provide a model with their behaviour, and they have a crucial role in habit formation and behaviour development.

The system of early childhood education in Hungary

In Hungary, early childhood education fundamentally takes place in two types of institutions: infants and toddlers are provided with day care (mostly in nurseries) between the ages of 20 weeks and 3 years. After 3 years of age it is compulsory for all children to go to kindergarten, until the age of 6 [10].

In nursery care, qualified early childhood educators deal with the daily care and education of young children (2 early childhood educators attend a group containing up to 14 children). The first three-year training course to provide a degree for the participants in early childhood education was launched in 2009 (ISCED – International standard classification of education 6) [11]. Prior to that, qualification could be obtained through various secondary and postsecondary level vocational training (ISCED 3–4–5), the majority of which has been abolished over the years. Both in earlier and current training courses the proportion of medical content of curriculum (anatomy, nursing studies, paediatrics, epidemiology, first aid, dietetics, health education) is high.

Nursery education is regulated by the National Core Programme of Nursery Education and Care [12], and thus, within the framework of day care, the conditions of care, education and healthy nutrition must be provided to children in accordance with their physiological needs and health condition.

In kindergarten education, the work of kindergarten teachers is supported by nurses and teaching assistants. The maximum number of children is 33 in each kindergarten group (the groups usually consist of 20–30 children), with two kindergarten teachers and a nurse. Moreover, a teaching assistant is employed for every three groups. Since the late 1980s, kindergarten teachers have been participating in three-year graduate courses; prior to that, they could obtain qualification in various secondary and tertiary level vocational training courses. During their training, pedagogical and methodological content of curriculum dominates. The field of health science appears only sporadically, mostly within the framework of health education. Nurses and teaching assistants obtain their qualification in shorter training courses (ISCED 3–4). Kindergarten education is regulated by the National Core Programme for Kindergarten Education [13], which, among the general tasks of kindergarten education, gives priority to the development of a healthy lifestyle. All of this is reflected in the education of a healthy lifestyle, the creation of the need for a healthy lifestyle and the promotion of children’s physical development. As specific tasks, the following are defined: besides the satisfaction of the children’s physical needs, the protection, improvement, care and maintenance of their health; there are also the formation of their habits concerning a healthy lifestyle, hygiene, eating, dressing, relaxation, the prevention of diseases and health maintenance.

Furthermore, recent research has proven that pre-school children are responsive not only to the formation of habits related to prevention, but also to the recognition of changes in condition due to accidents and to the acquisition of basic first aid knowledge as well [14].

Based on the above, we can say that, although healthy lifestyle is more pronounced in the National Core Programme for Kindergarten Education [13], in the training of early childhood educators the foundation of health literacy plays a greater role, which is also justified by the greater demand for care among 0–3-year-old children.

Materials and methods

The aim of our quantitative, cross-sectional, descriptive research is to explore the health condition and health behaviour of early childhood educators, seeking answers to the following questions:

- What characterises the health condition and health behaviour of professionals working in early childhood education?
- Along what factors do the health condition and health behaviour of early childhood educators differentiate?
- How does factual, declarative knowledge (acquired during training) related to health and its promotion appear in their health behaviour?
- How does health literacy – related to factual knowledge about health and illnesses – appear in their responses?

During the elaboration of the questionnaire, the following major issues were focused on: questions about position, education and qualification, as well as questions about health condition and health behaviour (screening tests, smoking, alcohol consumption and nutrition).

During the development of the measuring tool, in addition to standardised questions used in international and Hungarian surveys (Short Form Survey Instrument (SF-36), European Health Interview Survey (EHIS)), we also used our own questions in order to explore the subject in greater depth.

The target group of our survey were professionals working with children in Hungarian nurseries and kindergartens (kindergarten teachers, early childhood educators, teaching assistants and nurses). Their selection was done with simple, non-random sampling.

The sample included educators working in institutions that have professional connections with the Faculty of Pedagogy of Kaposvár University. In Kaposvár, full-range

sampling was applied. Three quarters of the sample were professionals working in rural and urban kindergartens and nurseries in Budapest, Somogy, Zala, Baranya, Tolna, Fejér, Jász-Nagykun-Szolnok and Vas counties. After coordination with the heads of institutions, respondents filled in the questionnaires in paper form, then sent them to the researchers in closed envelopes with the university seal.

In the survey, respondents volunteered, and their anonymity was granted. The survey was completed in January 2018. The element number of the sample was 1010 persons – after recording and cleaning the data.

In this study, we focus on the components of health literacy that can be captured in the health condition and health behaviour of individuals.

Results and discussion

The characteristics of the sample

As for the job position of the respondents, we can state that 41% of the sample work as early childhood educators in nurseries, 37% as kindergarten teachers, 16% as nurses and 6% as teaching assistants.

The respondents' highest level of education is closely related to their positions: more than 95% of those who work as kindergarten teachers have a college or university degree (ISCED 6–7). In the case of early childhood educators we get a more nuanced picture on education: the majority have post-secondary vocational qualification (ISCED 5), but employees with bachelor's degree (ISCED 6), as well as those with secondary school qualification (ISCED 4) are also present. Teaching assistants mainly have secondary school qualification (ISCED 3), while nurses typically have completed vocational school training (ISCED 3) – Table 1.

Table 1 – The distribution of the sample's highest-level completed education according to job position

Education, highest level completed	Job position				Total sample
	Early childhood educator	Kinder-garten teacher	Teaching assistant	Nurse	
Primary school graduation	0.0%	0.0%	0.0%	4.4%	0,7%
Vocational school	5.2%	0.0%	0.0%	60.4%	11.8%
Secondary school graduation	18.2%	2.1%	49.2%	29.6%	15.9%
Post-secondary vocational training	55.9%	0%	32.2%	3.8%	28.1%
College/Bachelor's degree	20.0%	95.7%	18.6%	1.8%	42.4%
University/Master's degree	0.7%	2.2%	0.0%	0.0%	1.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

The problem of the ageing teacher population is strongly perceptible in the age of the sample: the average age is over 45, and several persons work in retirement. From the data it is clear that in the sample kindergarten teachers are

the oldest (48.42 ± 8.93 years of age), while the teaching assistants are the youngest (38.12 ± 9.29 years of age) (Table 2). According to ANOVA, the age difference proved to be significant ($F = 28.845$; $p < 0.001$).

Table 2 – Respondents' age and time spent in their career according to position

	Mean	Standard deviation	Minimum	Maximum
Age, year (<i>N</i> = 970)	45.29	10.78	21.0	68
kindergarten teacher	48.42	8.93	24.0	68
early childhood educator	42.81	12.11	21.0	65
teaching assistant	38.12	9.29	24.0	63
nurse	46.92	8.52	24.0	63
Time spent in career, year (<i>N</i> = 963)	17.75	13.03	0.3	44
kindergarten teacher	24.26	11.47	0.5	44
early childhood educator	15.75	13.49	0.3	41
teaching assistant	6.46	7.67	0.5	36
nurse	12.15	9.20	0.5	35

The main characteristics of the health condition of professionals working in early childhood education

The subjective indicators of health condition

The declarative knowledge element of health literacy related to health condition can be captured by the objective and subjective indicators of health condition. These have a strong, positive correlation with mortality, and make subjective and objective health condition predictable in the case of adequate health literacy [15]. Based on consistent results of research, self-rated health is an adequate indicator of health condition, so while exploring the characteristics of health condition, besides examining the objective features, researchers put a great emphasis on its subjective assessment as well [16, 17, 18].

In our survey, we enquired about perceived health according to the formulations of the Hungarian Health Survey [1] and, as a result, we can conclude that almost two thirds of the professionals involved in the survey rate their health condition as good or very good. According to the data of the Yearbook of Health Statistics in Hungary, in 2014 this proportion was similar – 60% among the Hungarian population over 18 years of age [19]. Nearly 89% of the population aged 18–34, and 61% of the population aged 35–64 rated their health condition as good or very good [1].

Research aimed at finding out about health condition (beyond subjective and objective indicators) places great emphasis on learning about the extent to which the individual is able to control his/her own health [1, 20]. This issue is of the utmost importance in the sense that we know that the main purpose of health promotion is to increase control over health. The vast majority of professionals involved in our study think that they are in control of their health (Table 3).

However, if we examine the issue according to job positions, we get a more subtle picture. While kindergarten teachers and pedagogical assistants believe that they can do a lot for their health, the same is not true for early childhood educators and nurses. Among them there is a considerably bigger proportion of those who do not think that they are able to control their own health. ($\chi^2 = 17.421$; $df = 6$; $p = 0.008$).

The objective indicators of health condition: physical health

The objective indicators of health condition refer to diagnosed chronic diseases and related conditions and

symptoms, such as being overweight, obesity or the decreased ability to work. In this respect, 60 % of the sample suffer from a chronic illness, and a lot of them from more than one. As for diagnosed chronic illnesses, no significant difference can be proven among people working in different job positions ($\chi^2 = 4.069$; $df = 3$; $p = 0.254$).

Table 3 – Sense of control over health (*N* = 982)

	Number	%
Can do quite a lot for his/her health	295	30.0
kindergarten teacher	128	35.9
early childhood educator	104	25.9
teaching assistant	17	28.8
nurse	42	27.3
Can do a lot for his/her health	598	60.9
kindergarten teacher	207	58.0
early childhood assistant	254	63.2
teaching assistant	40	67.8
nurse	92	59.7
Can do little for his/her health	89	9.1
kindergarten teacher	22	6.2
early childhood educator	43	10.7
teaching assistant	2	3.4
nurse	20	13.0

Among the participants the most common chronic illnesses are backache, lower back pain, hypertension and other joint problems, such as cervical pain or arthritis. We must highlight backaches, lower back pains and pains in the neck or the spine, because in this respect the examined group seems to be particularly endangered in comparison to the whole of the Hungarian population. This group of diseases has caused health loss for 9% of all the adult female population [1], while among the examined educators and nurses the rate is 35.8%.

While providing a conceptual interpretation of health literacy, Sorensen et al. [9] identified six clusters, the third of which is associated with the interpretation of health-related information. Accordingly, the individual's health literacy manifests itself in having basic knowledge about health and illness and that he/she can interpret it properly. In the interpretation of our findings we concluded that there are basic deficiencies in health literacy in the proper interpretation of information: one can observe, especially among respondents with a low level of education, that they classify chronic illnesses as conditions that – though

they do impair quality of life – cannot be considered illnesses. The list, among others, includes the menopause, hot flushes, menorrhagia, fatigue, dry eyes and eyesight deterioration. Obesity and being overweight – the second largest physiological health risk, and which, according to the Hungarian Health Report of 2016 affect 49% of the female population [1] – were classified as chronic illnesses by several respondents. In this respect, among respondents working in early childhood education. BMI values are somewhat more favourable: the proportion of overweight and obese persons is 42%. Based on the results of the study, obesity and overweight are present in different job positions to a similar extent.

The main characteristics of the health behaviour of professionals working in early childhood education

In the concept created by Sorensen et al. [9], the fourth, 'objective' cluster of health literacy includes health promotion, making appropriate health decisions and the reduction of health risks. Accordingly, several question

groups of the questionnaire focused on the exploration of health behaviour of professionals working in early childhood education. In addition to nutrition and exercise habits, we examined smoking and alcohol consumption.

The protective factors of health behaviour

Nutrition is one of the most significant factors of health behaviour. In the questionnaire, we analysed the consumption habits related to several food groups. The most important data are shown in Table 4.

The results show that compared to the Hungarian population [1] the respondents have healthier eating habits: more than 50% consume wholemeal bakery products on a regular basis, and the daily consumption of fruit and vegetables can be observed in more than two thirds of the sample (though the recommended daily intake of 5 portions of fruit and vegetables is not typical for the majority). The daily consumption of dairy products and cooked meals is also frequent. However, the consumption of fish is below the recommended weekly rate.

Table 4 – The eating habits of professionals working in early childhood education (%)

	The relative frequency of consumption (%)					
	More than once a day	Once a day	4–6 times a week	1–3 times a week	1–3 times a month	Less than once a month
Wholemeal bakery products	19.7	20.7	12.2	22.2	12.9	12.3
Fish	0.7	0.2	3.0	17.5	41.4	37.2
Sweets	2.0	8.0	7.8	25.5	28.4	28.4
Sugary soft drinks	9.3	12.7	8.3	14.9	17.8	36.9
Energy drinks	0.8	1.4	0.8	2.4	6.2	88.4
Fruit	37.1	32.5	17.0	11.3	1.5	0.6
Vegetables	33.0	34.7	20.1	10.0	1.6	0.6
Fast food	0.2	0.4	0.6	3.1	20.6	75.1

Concerning the eating habits, we did not find any significant correlations with job position. However, in the consumption of some food groups the differentiating effect of age can be found.

The biggest generational differences can be seen in the consumption of energy drinks: it is not typical at all for the respondents born before 1980, while almost half of those under 35 years of age consume them on a weekly or monthly basis. As for fast food consumption, a similar correlation can be found.

Besides healthy eating, adequate physical activity is also essential for health maintenance. With regards to the

respondents, we can state that nearly 15% of them walk for less than 10 min a day, and 40% walk for less than half an hour daily. 43% spend at least half an hour per day walking; among them the proportion of those who walk for more than an hour is 13%. Table 5 indicates the differences according to job position. The figures show that it is the least typical among the kindergarten teachers to walk for more than half an hour, while the majority of nurses walk for a considerably longer time daily ($\chi^2 = 44.144$; $df = 12$; $p < 0.001$).

In addition to walking, doing sports and other exercise is also an important part of physical activity. Those who

Table 5 – Time spent walking daily according to job position (N = 978)

Job position	Relative frequency (%)					Total
	Less than 10 min	10–29 min	30–59 min	Between 1 and 2 h	More than 2 h	
Early childhood educator	12.3	41.3	32.3	10.0	4.2	100
Kindergarten teacher	19.6	45.7	25.1	7.4	2.2	100
Teaching assistant	8.8	45.6	33.3	8.8	3.5	100
Nurse	13.3	32.9	35.4	7.6	10.8	100

exercise regularly do it once or twice a week. However, the fact that nearly 30% of the interviewed professionals do not do any exercise on a weekly basis is worrying.

The risk factors of health behaviour

With regards to smoking, we can say that 21.4% of the sample smoke, which approximates to the national average (26%) [1]. It is especially worrying, since during our research we interviewed professionals who have a role-model status in the lives of rising generations. Considering the amount of cigarettes smoked daily, the standard deviation is extremely high (1–30 cigarettes); the majority of smokers put this amount between 5 and 15 cigarettes. In terms of smoking, no significant correlation can be found with the variable of job position.

The rate of alcohol consumption is very low in the sample: around 90% of the respondents do not drink alcohol on a weekly basis, and for almost two thirds drinking does not even appear on a monthly basis. Based on the data it seems that the rate of alcohol consumers is somewhat higher among early childhood educators and kindergarten teachers (2.8% and 3.2% respectively), but due to the low number of elements, the correlation cannot be examined.

Screening tests

Within the framework of the European Health Literacy Survey, which involved 8 countries, the preventive knowledge elements of health literacy were also studied, among these was the attitude to screening tests. The Hungarian results show that 85% of the interviewed people can understand easily why they need screening tests, but for 26% of them it is difficult to judge which ones they need [20]. In Hungary, the mortality rate of malignant tumorous diseases is extremely unfavourable in the European context. Besides, it is the second most frequent cause of death, and its rate among women rose from 21% to 26% between 1990 and 2016 [21].

By using screening tests several tumorous diseases can be diagnosed in time, among them high incidence and mortality cervical cancer and breast cancer. Based on the data of Boncz et al. [22], in women aged 25–64 the three-year coverage of participation in cytological testing is 52.6%, and the annual coverage is 24.3%. The low participation rate may be due to fear of tumorous diseases and defence behaviour [17].

71% of professionals working in early childhood education took part in cytological testing in the last 3 years, and 46.6% of them did so last year, which significantly exceeds the Hungarian average [22].

Participation in the mammographic screening test in Hungary for women over 45 is provided every two years. Among the respondents belonging to the age group concerned, the participation rate was 68.1%, which shows no job position-related differences. In addition to this, the respondents also participated in other screening tests, such as lung screening (which is compulsory yearly because of their job position), dental, dermatological and DEXA screening.

They are uninformed about screening tests, which is shown by the fact that they classified the following

examinations as screening tests: allergy tests, blood tests, orthopaedic examination, internal medical examination, ECG, CT, MR, abdominal and cardiac ultrasound, gastroscopy, colonoscopy and hormone testing.

Although these data show a more favourable picture compared to the overall female population, a 100% rate would be desirable for participation in screening tests. To achieve this, it is necessary to disseminate information more widely, to dissolve negative attitudes towards screening tests and to refute misconceptions.

Conclusions

As a result of our survey, we can gain an insight into some factors of the health literacy of professionals working in Hungarian kindergartens and nurseries.

Both in respect of health condition and health behaviour we have found a more favourable picture compared to the population as a whole. Exceptions to this are locomotor disorders, which result in significant loss of health and hinder their everyday activities – including child-related tasks. To prevent the problem, effective primary prevention can be useful, which – already in the training of prospective teachers dealing with young children – incorporates the acquisition of techniques and practices that can be used to prevent a considerable part of locomotor disorders.

No significant differences can be observed between the health behaviour of early childhood educators and of kindergarten teachers, despite the fact that the medical content of the curriculum plays a more important role in early childhood educators' training, which could contribute to the foundation of their health literacy.

Underlying this, we can find the correlation already justified by international studies, that, on the one hand, health-related knowledge in itself does not result in a change in health behaviour, and on the other hand, a longer time spent at school influences the individual's health behaviour via mediating variables.

Based on our results we can state that – in respect of the examined population – the existence of the declarative knowledge component of health education (the factual knowledge related to health and its maintenance) does not guarantee the activation of procedural knowledge related to the ability to use this factual knowledge.

Limitations

The respondents of our research were selected by simple, non-random sampling. Therefore it may not be representative for the whole population of professionals working in early childhood education in Hungary. Despite this limitation, the results of our study are promising.

Conflict of interests

The authors declare no conflict of interests regarding this article.

Acknowledgements

The research was supported by the ÚNKP-17-4-I-KE-19 New National Excellence Program of the Ministry of Human Capacities, Hungary.

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