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Health Literacy of Polish University Students and Its Relation to Sources of Health Education and Socialization

Abstract

This study aimed to evaluate Polish university students' health literacy (HL) in the context of school and out-of-school health education and socialisation. The survey was conducted in two Polish universities between March 2023 and April 2024 using an online questionnaire. The research revealed the correlation between the HL of Polish university students and both school and non-school health education and socialisation, with a higher positive association with non-school health socialisation. Furthermore, the study revealed statistically significant differences between the general HL of Polish university students and the sources of health education. The lack of health education at school seemed to be the most significant differentiating factor. Health-literate students mean health-literate citizens. Achieving this goal should be at the forefront of future policy decisions. Therefore, implementing health education and health promotion throughout the school system (including higher education) should be a priority today.

Keywords: *health literacy; Polish university students; health education; health socialisation*

Introduction

In recent years, health literacy (HL) has emerged as a prominent area of interest and research on a global scale. Those engaged in public health, both as professionals and as researchers, are aware of and emphasise the potential of HL to improve health, well-being, and health equity (Kickbusch et al., 2013). These objectives remain pertinent, as the contemporary understanding of the factors influencing health does not align with the attitudes of the modern population. As highlighted by researchers, contemporary society is typified by an unhealthy lifestyle, which presents a considerable challenge for healthcare systems to control and navigate. Moreover, the educational system in many countries is ineffective at providing individuals with the necessary skills to access, understand, evaluate and use reliable health information (Kickbusch et al., 2013). All these skills define HL, which the World Health Organization (WHO) describes as ‘the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health’ (WHO, 1998). In turn, Sørensen et al. (2012) link HL with ‘literacy and entails people’s knowledge, motivation and competences to access, understand, appraise and apply health information in order to make judgements and take decisions in everyday life concerning healthcare, disease prevention and health promotion to maintain or improve quality of life during the life course’. Notably, limited competencies in HL are associated with an increased likelihood of making less healthy choices, engaging in more risky behaviours, experiencing poorer health, requiring hospitalisation and ultimately mortality (Kickbusch et al., 2013; Osborne et al., 2013). Individuals with low HL are less likely to utilise preventive healthcare services, exhibit communication difficulties with health professionals and demonstrate suboptimal adherence to medical recommendations. Furthermore, they are more likely to experience challenges in managing chronic conditions, e.g., diabetes, heart disease or arthritis (Osborne et al., 2013). In the context of youth, limited HL is a significant contributing factor to engagement in risky health behaviours, such as pursuing an improved body image. It is not uncommon for teenagers to rely on unchecked and questionable information and pseudo-medical advice, which could have adverse effects on their health and healthy development process. Therefore, efforts must be made to enhance HL by promoting health socialisation and education, particularly in the current environment where misinformation is readily disseminated through various media channels.

Overall, socialisation is defined as the ‘learning and teaching process by which people acquire values, other related knowledge, skills and other orientations in the course of various interactions in family, schools, peer groups and media which in turn shape and form their lifestyles and behaviours in the society’ (Mshingo & Muhanga, 2021; Shim et al., 2011). Many socialisation theories can be used to explain the process of acquiring HL (Mshingo & Muhanga, 2021). Simultaneously, in this paper, we want to draw attention to socialisation types (‘primary’; ‘secondary’) that are closely associated with socialisation agents and exert a pivotal influence on health socialisation. The term ‘primary socialisation’ describes the initial stages of an individual’s life, during which they learn by utilising existing social interactions and experiences. The process typically commences within the family, wherein individuals discern the socially acceptable and unacceptable behaviours, norms and practices that are subsequently internalised. Consequently, the family, educational institutions, peers and social media platforms represent potential agents of primary socialisation. The socialisation process of a child is influenced by these agents, who play a role in the acquisition of skills and knowledge that will be utilised throughout the lifespan. ‘Secondary socialisation’, in turn, is mainly shaped by the media, which can disseminate a vast array of knowledge about diverse cultures and societies, thereby playing a pivotal role in the socialisation process. Through these processes, individuals are afforded the opportunity to learn how to conduct themselves in public settings and to understand and emulate the behaviours exhibited by others in a range of social contexts (Mshingo & Muhanga, 2021).

The existing literature (Zipin et al., 2015; Roulette, 2019) indicates that socialisation agents, including family, school, the broader educational system, peers, and the media, play a pivotal role in acquiring health-related competencies. These competencies facilitate the ability of individuals to make informed decisions that promote health and access and utilise health care appropriately (Mshingo & Muhanga, 2021). Accordingly, socialisation agents exert a profound influence on HL, which, in turn, can contribute to reducing disease prevalence and enhancing population health status (Atkins et al., 2016).

In Poland, children and young people primarily acquire health knowledge and skills within the family and educational system. It occurs from the age of three to six in kindergarten and seven onwards in schools. Regarding the curriculum for kindergarten, the Minister of National Education’s 2017 and 2018 regulations concerning the core curriculum for subsequent education do not explicitly delineate the area of ‘health education’. Nevertheless, the curriculum encompasses content designed to foster psychosocial and physical well-being. In primary schools, health education is integrated into the curriculum as part

of physical and environmental education. Furthermore, students gain awareness of health-related issues by incorporating content on individual areas of development, namely physical, emotional and social. In the subsequent grades of primary school (grades IV-VIII) and secondary schools, health topics are primarily addressed in the core curriculum of biology, education for safety and physical education, which is a principal subject¹. In this light, it can be posited that the university student school health education pathway may exhibit considerable variation in the experiences and efficacy of health education. It may also be surmised that other health socialisation sources may have significantly influenced the students' current HL. Therefore, the study aimed to investigate the HL of Polish university students and its relationship with the context of health socialisation, which is considered one of the most critical determinants of HL. Consequently, two research questions were formulated:

- Are there correlations between the HL of Polish university students and their school and out-of-school health education and socialisation?
- Whether and what differences exist between the overall HL of Polish university students and sources of health education and socialisation?

Methods

Study design and data collection

The findings presented here are based on the results of an online survey conducted among university students in their first and second years of study. The objective of the survey was to examine HL among students. The study was conducted between March 2023 and April 2024 among students of the Faculty of Social Sciences of the University of Silesia in Katowice and the Faculty of Educational Studies of the Adam Mickiewicz University in Poznań. To this end, the LimeSurvey online platform was employed, and the link to the study and an invitation to participate were distributed to students via the USOS system. The sample was selected purposefully, based on the criterion of year of study, namely first- and second-year full-time students. This approach was informed by the belief that recent educational experiences might have influenced HL and that the time elapsed since completion of secondary school (up to two years) could facilitate more accurate recall of school-related experiences related to health education. The participants were informed about the purpose and importance of the study

¹ It is noteworthy that the Ministry of Education is currently developing the regulatory framework for a new subject, 'Health Education', which is scheduled to be introduced in the 2025 school year.

and were required to provide active consent before commencement. Completing the questionnaire required an investment of approximately 20–30 minutes.

Measurement tools

The research instrument consisted of two main components, which can be analysed separately. The first component is a standardised Health Literacy Questionnaire (HLQ). Karina Leksy developed the second part of the questionnaire, which concerns implementing health education in primary and secondary schools based on students' opinions and experiences. This part of the questionnaire also included questions about other sources of health education and a subjective assessment of the effectiveness of school and non-school socialisation and health education. Additionally, the research tool incorporates a metric comprising questions about basic demographic and social data, a field of study, and the type of primary and secondary school completed. In addition, this article will present preliminary findings regarding HL as measured by the first part of the questionnaire. The HLQ, developed by R. H. Osborne et al. (2013), comprised two sections and nine subscales. Section one of the questionnaire, consisting of five subscales, was used in the research. The reliability of the HLQ scale used in this study was satisfactory, with an alpha coefficient of 0.883 (Bedyńska & Cypryńska, 2013, pp. 245–283). The statistical analysis was conducted using IBM SPSS version 29.0 for Windows.

Independent and outcome variables

In the present manuscript, in-school and out-of-school health education and socialisation were independent variables, and the extent to which these two sources of health education had determined students' current health knowledge and competence was considered an independent variable for HL. The extent to which school and out-of-school health education influenced students' health competence was rated on a 5-point scale (from 1: definitely not determined to 5: definitely determined). Two separate questions were asked for each of the two assumed sources of health socialisation.

The outcome variable in this article is the HL of Polish university students based on the HLQ. Students rated on a 4-point scale (from 1: strongly disagree to 4: strongly agree) 20 statements constituting the first part of the questionnaire.

Data analyses

Descriptive statistics were conducted on the main independent variables: the respondents' statements about health education in primary and secondary

schools, out-of-school health education and socialisation sources and the respondents' assessment of the importance of school and out-of-school health education for their current health knowledge and skills. Basic descriptive statistics were also provided for the outcome variable (M; SD). The Tau-b Kendall test was used to check the correlation between the HL of Polish university students and school and out-of-school health education and socialisation. Statistical significance was set as two-sided $p < 0.05$. For differences in the distribution of scores related to school/out-of-school health education and socialisation and HL of Polish university students, the Kruskal-Wallis test and Bonferroni post-hoc tests were used with the statistical significance set at $p < 0.05$. For difference analysis, the respondents were divided into four groups according to their statements about their experience of school and extracurricular health education, such as:

1. students who did not experience both school and out-of-school health education and socialisation;
2. students who did not receive school-based health education and socialisation but did receive out-of-school health education and socialisation;
3. students who received school-based health education and socialisation but no out-of-school health education and socialisation;
4. students who received both school and out-of-school health education and socialisation.

Ethical approval

The study was reviewed by the Research Ethics Committee of the University of Silesia in Katowice (opinion number: KEUS354/03.2023) and subsequently approved.

Research Results

Sample characteristics

A total of 1,123 students participated in the study, of whom 619 answered all the questions in the questionnaire. 82.4% of the respondents were female and aged 18-20 and 21-22 (55.8% and 31.5% respectively). Thirty-two per cent of the respondents came from medium-sized towns, 27.8% from villages and 24.5% from small towns; 15.7% of the students surveyed stated that they came from large cities. Respondents rated their socio-economic status as average (64.5%) or above average (25.6%). The respondents' mothers were more likely to have completed secondary, higher vocational or full higher education (33.4%

vs 30.5%; 9.8% vs 6.7%; 37.6% vs 24.1%). Almost all respondents had completed public primary and secondary education (92.9% in both cases).

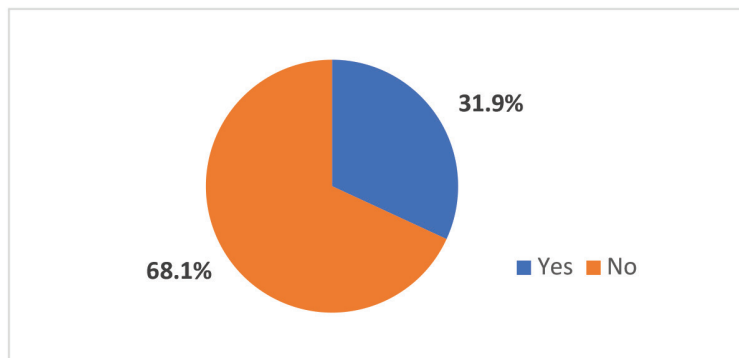
HL of Polish university students

Considering the overall HL of surveyed university students' (section 1 of the HLQ), the mean value is 2.79 (SD = 0.456), which can be assessed as an average.

Sources of health socialisation – frequencies and the impact assessment

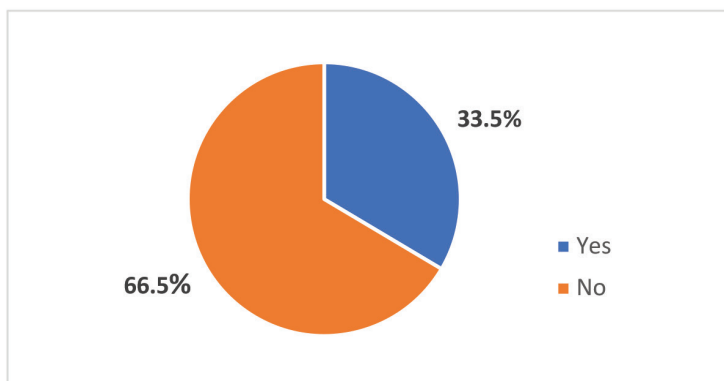
School-based health education was provided in only about one-third of cases at primary and secondary schools (primary: 31.9%; secondary: 33.5%) (Figures 1 and 2).

Figure 1. Presence of health education in primary school [N = 753]



Source: Authors' research.

Figure 2. Presence of health education in secondary school [N = 701]



Source: Authors' research.

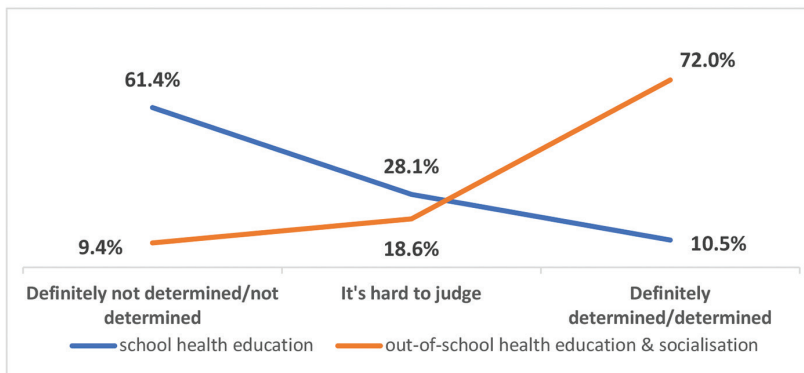
On the other hand, the research results show that out-of-school health education and socialisation, especially at home, was reported much more often (60.5%) than at school. Respondents also reported sports training as a source of health education (27.1%) and, to some extent, youth camps (12.8%) (Table 1).

Table 1. Non-school sources of Polish university students' health education [N = 572]

Were there any other non-school health education sources that influenced health knowledge and skills?	%	N
Yes, informal health education at home (parents/guardians)	60.5	346
Yes, during sports training	27.1	155
Yes, at scout meetings	5.6	32
Yes, in special interest groups (e.g., music, theatre, etc.)	7.5	43
Yes, in church	4.7	27
Yes, youth camps	12.8	73
I can't remember	13.3	76
There was definitely no such informal education	8.6	49

Multiple choice; results do not add up to 100%; Source: Authors' research.

Figure 3. Assessment of the importance of school and out-of-school health education for the respondents' current health knowledge and skills [N = 565]



Source: Authors' research.

When asked to assess the subjective impact of school and non-school health education and socialisation, the university students surveyed indicated that the impact of school health education on current health knowledge and skills was only 10.5%, and two-thirds of them indicated that school had not/definitely had not determined their current health competencies. In contrast, out-of-school health

education and socialisation were rated by 72.0% of respondents as the source that determined/definitely determined their current health knowledge and skills (Figure 3).

Correlation between overall HL and school and out-of-school sources of health education and socialisation

One of the important aims of the research was to check the correlation between school and out-of-school health education and socialisation and Polish university students' HL. As shown in Table 2, there are statistically significant correlations between the mentioned variables in both cases – school and out-of-school health education and socialisation. At the same time, according to the value of Kendall's τ coefficient, the association between the students' HL and out-of-school health socialisation is stronger ($\tau = 0.29$; $p < 0.001$) than in the case of school health education ($\tau = 0.18$; $p < 0.001$). In other words, the university students' HL was higher for those who received health education and socialisation, with a stronger impact of non-school sources of health education (Table 2).

Table 2. The correlation between the HL of the Polish university students and school vs out-of-school health education and socialisation

Sources of health education and socialisation	p	Kendall's τ coefficient
School	<0.001*	0.18*
Out-of-school	<0.001*	0.29*

Results from the Tau-b Kendall test; significance correlation at $p < 0.05$ (two-sided); Source: Authors' research.

Differences between overall HL and sources of health education and socialisation

In the next step of the analysis, the respondents were divided into four groups according to the health education and socialisation they received at school or outside school. The aim of this was to see if there were differences between these groups in terms of their HL. The analysis confirmed existing statistically significant differences between school and out-of-school health education and socialisation and the HL of Polish university students ($p < 0.001$; $\eta^2 = 0.219$) (Table 3). The Bonferroni post-hoc test was used to check between which groups of students there were differences. The statistical analysis revealed differences between three of the four possible group configurations:

- students who did not experience both school and out-of-school health education and socialisation, and those who did not experience school

- health education and socialisation but were provided with out-of-school health socialisation ($p = 0.004$);
- students who did not receive both school and out-of-school health education and socialisation and those who received both school and out-of-school health education and socialisation ($p < 0.001$);
 - students who had no school-based health education and socialisation but received out-of-school health education and socialisation, and those who had both school-based and out-of-school health education and socialisation ($p = 0.002$) (Table 4).

Table 3. Differences between school and out-of-school health education and socialisation and Polish university students' HL

	N	H – Kruskal–Wallis test value	Df – degrees of freedom	p-value	η^2 (Eta squared) – effect size
University students' HL	344	22,590	3	<0.001*	0.219

Results from the Kruskal–Wallis test; * $p < 0.05$; Source: Authors' research.

Table 4. Statistically significant differences between health education and socialisation sources and Polish university students' HL

	School HE&S: NO; Out-of-school HE&S: NO vs School HE&S: NO; Out-of-school HE&S: YES	School HE&S: NO; Out-of-school HE&S: NO vs School HE&S: YES; Out-of-school HE&S: YES	School HE&S: NO; Out-of-school HE&S: YES vs School HE&S: YES; Out-of-school HE&S: YES
Students' HL	0.004*	<0.001*	0.002*

School HE&S: School health education and socialisation; Out-of-school HE&S: Out-of-school health education and socialisation; No: was not provided; YES: was provided; Bonferroni post-hoc test; Adj. Sig. * $p < 0.05$; presented results only for statistically significant differences; Source: Authors' research.

From these results, we hypothesise that the lack of health education in school strongly influences the HL of university students, as the statistically significant differences between the groups occurred in each case when students experienced no health education at school. Significantly, the most desirable situation for sufficient HL is when both school and out-of-school health education and socialisation are provided.

Discussion

There is no doubt that HL depends on a variety of individual and systemic factors, including the communication skills of people in the community and of health professionals, which affect how easily health information is understood and acted upon (Muhanga & Malungo, 2017). However, this article focuses only on schools and other proximal health settings (family, sports training, special interest group, church, etc.). First, the statistical analysis showed a correlation between the HL of Polish university students and school and non-school health education and socialisation. Both factors were positively associated with the respondents' HL, but the non-school health socialisation was more important for their HL. The results of this survey indicate the importance of health education and socialisation from various sources in ensuring high HL among young people. Given the state of school-based health education in Poland, the prediction of a greater role for out-of-school sources of health education and socialisation has been confirmed to some extent. These findings are consistent with the previous study of 452 seventh graders in rural and urban school districts in Georgia, USA. The analysis showed that the more often participants reported hearing about health from their parents, friends and teachers, the higher their self-reported HL. Notably, media socialisation agents also played a stronger role in HL orientation than mentioned (Paek et al., 2011).

The study revealed statistically significant differences between the general HL of Polish university students and the sources of health education and socialisation. The lack of health education at school seems to be the most important differentiating factor. Moreover, no statistically significant differences between the groups were found in the absence of out-of-school health education and the presence of school health education. However, as family and early home health socialisation (Syrek, 2022) play a crucial role in developing children's HL, we must be aware that families differ in health competencies and literacy. Thus, the educational environment should be treated as the most important health promotion and education setting. As Paakkari and Paakkari (2012) point out, 'socialisation in school settings plays the great role of making children and other staff in school settings acquire health-related knowledge, skills and other directions through various interactions particularly when HL and other health-related knowledge are granted to children within the school environments'.

In addition, pupils and students whom schools and universities equip with knowledge and skills that promote health can influence people in their com-

munity and become promoters of HL, significantly influencing community members (Sørensen et al., 2012). A health-focused education system also plays an important role for students from disadvantaged backgrounds (Christensen et al., 2020), as in this case, schools are the only reliable source of health knowledge and socialisation agents that can achieve sufficient HL among the younger generation. In general, reliable health education at school and health socialisation in the family can help to increase children's and adolescents' resistance to the disinformation often found in social media about health and health-related behaviour (e.g., related to the desire to improve their physical appearance) (Leksy, 2020). We must also be aware that a high HL is extremely important for today's students because they will soon fulfil professional roles, which often involve working with and for others. The importance of HL has been demonstrated, among other things, by research conducted among Polish school principals during the pandemic. The study, which aimed to assess the relationship between the HL of Polish school principals and the implementation of the Health Promoting School approach in Polish schools, suggested that principals with adequate HL may be more likely to effectively implement HPS strategies in schools (Leksy et al., 2024).

The present research has some important limitations. Firstly, the present results come from a cross-sectional study and are based on respondents' self-assessment of HL, school and out-of-school health education. Secondly, this study did not investigate the media's and peers' influence on HL. Thirdly, the sample size was not large, so the research findings cannot be extrapolated to the entire Polish university student population. Nevertheless, the research presented could be a starting point for discussion and action aimed at increasing the HL of citizens (Carlsson, 2016) in the most multi-source and comprehensive way possible.

Conclusion

To maintain a health-literate society, it is necessary, among other things, to focus significantly on the role of health socialisation and education (Mshingo & Muhanga, 2021). In the Polish context, implementing health education and health promotion throughout the school system (including higher education) is imperative. Health-literate pupils and students mean a health-literate nation, which, given the large number of health risks, should be at the forefront of future policy decisions.

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