



# A Phenomenographic Study of Adolescents' Conceptions of Health Information Appraisal as a Critical Component of Adolescent Health Literacy

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**Abstract.** This paper reports on a health literacy study that explored adolescents' conceptualizations of health information appraisal as a social practice in Latvia. The study was guided by phenomenography, a qualitative research approach used to describe people's conceptions of a particular phenomenon. A purposive, maximum variation sampling was used, and 24 adolescents were recruited to take part in the study, ranging from 13 to 16 year-olds. Semi-structured interviews were undertaken for data collection. A phenomenographic method for data analysis was performed using the guidelines proved by Sandberg. The data analysis presented seven categories of description and an outcome space representing the adolescents' qualitatively different conceptions of health information appraisal. The implications for health education in school are discussed.

**Keywords:** adolescents, health literacy, information appraisal, health education, phenomenography

## Paaugliu supratimas apie sveikatos informacijos įvertinimą kaip kritinis jų sveikatos raštingumo komponentas: fenomenografinė studija

**Santrauka.** Šiame straipsnyje pristatomas sveikatos raštingumo tyrimas, skirtas atskleisti sveikatos informacijos įvertinimą kaip socialinę praktiką tarp paauglių Latvijoje. Tyrimas remiasi fenomenografija kaip kokybinių tyrimų prieiga, pagal kurią aprašomas žmonių supratimas apie konkretų fenomeną. Taikant tikslią, maksimaliai įvairių atvejų atranką, į šį tyrimą pasirinkta įtraukti dvidešimt keturis 13–16 metų amžiaus paauglius. Tyrimo duomenys surinkti atliekant pusiau struktūruotus interviu, duomenų analizė atlikta remiantis Sandberg rekomendacijomis. Duomenų analizė išskėlė septynias aprašomąsias kategorijas ir atskleidė radinių erdvę, rodančią kokybiškai skirtingą paauglių supratimą apie sveikatos informacijos įvertinimą. Straipsnyje taip pat diskutuojama apie sveikatos švietimo reikšmę mokykloje.

**Pagrindiniai žodžiai:** paaugliai, sveikatos raštingumas, informacijos įvertinimas, sveikatos švietimas, fenomenografija.

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## Introduction

The landscape of health information is evolving and changing constantly (Jacobs, Amuta, Jeon, Alvares, 2017) because of the modern technologies and digitization of information (Diviani, 2019). It is becoming more complicated and demanding. Consequently, adequate health literacy skills are needed for people to become informed consumers of health information (Kickbusch, 2008).

Health information appraisal appears to be an important health literacy component to deal with a complex and sometimes-confusing health claims (Nordheim, Gundersen, Espehaug, Guttersrud, Flottorp, 2016). In general, health information appraisal denotes the ability to interpret, filter, judge, and evaluate (Sorensen et al, 2012) the quality, value, importance, and trustworthiness of obtained health information (Shum, Poureslami, Doyle-Waters, FitzGerald, 2016) i.e., the information about health, health promotion, risks to one's health, and illness (Lambert, Loiselle, 2007). Despite its centrality, health information appraisal remains an under-explored topic in current health literacy studies (Diviani, 2019).

Health literacy is known as a promising determinant of health that must be promoted in all social groups and in diverse educational settings (*Shanghai Declaration on promoting health in the 2030 Agenda for Sustainable Development*, 2016).

The school and school-based health education are largely responsible for developing and improving health literacy for children and adolescents (Paakkari, Paakkari, 2012; Peralta, Rowling, 2018). Health literacy becomes an expected outcome of learning health education in school (Paakkari, Paakkari, 2012). Therefore, qualitative and contemporary school-based health education programs focused on health literacy are required (Begoray, Wharf-Higgins, Macdonald, 2009).

As a concept, health literacy is a challenging and multi-faceted issue with multiple definitions available (Sorensen et al, 2012). In general terms, health literacy is conceived as the ability to act on health information, namely – obtain, understand, appraise, communicate and use health information (Coleman et al, 2011) as a way to promote and maintain good health (Nutbeam, 1998); make sound health decisions (Sorensen, Pleasant, 2017) and informed choices concerning health in different settings (Kickbusch, 2008); reduce health risks and increase quality of life during the life course (Sorensen et al, 2012).

Adolescent health literacy is a specific type of health literacy (Nutbeam, 2015) that is rapidly evolving in terms of both conceptualization and measurement (Broder, Carvalho, 2019). There is a wide-ranging debate in scientific discourse on the definition of adolescent health literacy (Broder et al, 2017). Adolescent health literacy is defined in different ways, for example, as “capacity to access, understand, evaluate and communicate health information, resources and services, and make health decisions” (Wharf-Higgins, Begoray, MacDonald, 2009, p. 353) or more extensively as “a broad range of knowledge and competencies [...] Through health literacy competencies people become able to understand themselves, others and the world in a way that will enable them to make sound health decisions, and to work on and change the factors that

constitute their own and others' health chances" (Paakkari, Paakkari, 2012, p. 136). In most conceptualizations, adolescent health literacy is reflected as a multidimensional concept, consisting of multiple components. It is more than just the ability to read and write simple health messages (Broder et al, 2017).

For the current study, the following working definition of adolescent health literacy has been constructed – adolescent health literacy means health knowledge and capacity to obtain, understand, appraise, communicate, and use health information. This definition reflects the public health perspective (Nutbeam, 2000). The current study focuses on health literacy appraisal as a critical component of adolescent health literacy.

The scientific problem of this study was grounded in the assumption that there is a lack of studies on adolescent health literacy that emphasise an adolescent-centred research approach and reveal adolescents' subjective experiences of health information appraisal as a social practice in their routine life. Frequently, theoretical and practical literature on this topic is adult-centred. A shift from an adult-dominated approach to an adolescent-dominated approach enables a different understanding of the pedagogical phenomenon and offers some creative innovations for adolescent health literacy development. The following research question was used as an orientation in this study: what conceptions do adolescents construct about health information appraisal as a critical component of health literacy?

## Literature review

### *Health information appraisal and critical health literacy*

Health information appraisal is a component of the larger domain of health literacy – critical health literacy, which is the third level of Nutbeam's health literacy framework and reflects "more advanced cognitive skills, which together with social skills, can be applied to critically analyse information, and to use this information to exert greater control over life events and situations" (Nutbeam, 2000, p. 264).

Critical health literacy is characterised as a unique concept with various conceptualizations available (Chinn, 2011; Sykes, Wills, Rowlands, Popple, 2013).

Health information appraisal usually stands as the first aspect of critical health literacy. In this sense, critical health literacy represents the capacity to critically analyse health information (Nutbeam, 2000), and to evaluate the credibility and applicability of health information (Chinn, 2011) when deciding on information relevance and practical use for health purposes (Diviani, 2019). This approach to critical health literacy defines it in terms of health information appraisal and applicability to individual circumstances (Chinn, 2011).

Other aspects of critical health literacy are an individual's understanding of the social determinants of health and their empowerment to act on these determinants and modify it through individual and collective efforts (Nutbeam, 2000; Chinn, 2011; Sykes et al, 2013).

The current study focuses on critical health literacy as an assessment and appraisal of health information.

A health information appraisal is an essential component of adolescent health literacy (Broder et al, 2017) because, as active users of the internet (Jain, Bickham, 2014) and social media, adolescents are exposed to large amounts of diverse health claims on an everyday basis. The ability to critically evaluate the quality and reliability of these claims is critical (Nordheim et al, 2016), likewise the ability to differentiate accurate from inaccurate internet-based health information (Jain, Bickham, 2014). Manganello (2008) developed the adolescent health literacy framework and included media literacy as a fourth level of health literacy for adolescents. The concept of media health literacy was presented by Levin-Zamir, Lemish, and Gofin (2011). In general, media health literacy includes the ability to identify health messages in the media; recognize media effects on people's health-related behaviour; critically analyse the content of the message (similar to critical health literacy); act on media messages for health purposes (Levin-Zamir et al, 2011). Thus, critical health literacy skills are related to critical media literacy skills (Chinn, 2011).

Despite the lack of researchers' attention to the critical health literacy (Diviani, 2019), several studies, conducted to measure health literacy among adolescents, have reached the critical domain of health literacy, as stated by systematic reviews (Nordheim et al, 2016; Guo et al, 2018; Fleary, Joseph, Pappagianopoulos, 2018; Okan et al, 2018). Critically literate students can understand and evaluate obtained information; thus, they are equipped with the skills to make informed judgments and decisions (Wu et al, 2010). Health information appraisal as a component of health literacy should be incorporated into routine conceptualizations and operationalizations of adolescent health literacy.

### ***Health information appraisal and critical literacy***

The concept of *critical literacy* forms general theoretical underpinnings for critical health literacy. Health information appraisal as an aspect of critical health literacy reflects ideas of critical literacy (Stars, 2019).

Although there is no universal definition of critical literacy, it is essentially concerned with the relationship between language, texts, social practices, and power: "Critical literacy, then, is learning to read and write as part of the process of becoming conscious of one's experience as historically constructed within specific power relations" (Anderson, Irvine, 1993, p. 82). Ira Shor defines critical literacy as "habits of thought, reading, writing, and speaking which go beneath surface meaning" (Shor, 1992, p. 129) of texts (books, statements, commercial messages, public speeches, policies, etc.); thinking in-depth about texts and questioning it; revealing the deep meanings of themes under discussion and understanding "the root causes of events" (Shor, 1992, p. 129). Critical literacy raises awareness that texts people use on an everyday basis construct the world in particular ways and present only selective views about different aspects of the world. This fact can be dangerous for consumers of information (Hagood, 2002). To become critical readers of multimodal texts, people need to develop critical and analytical skills and attitudes that allow them to go beyond the superficial meaning of a text. Critical literacy empowers individuals to ask questions about the text and question the worldviews that the texts present (Phelps, 2010).

Health information appraisal fits with an approach to critical literacy, named as a critical text analysis (Luke, 2012). The critical text analysis adopts a position that texts are socially constructed artefacts, they are not neutral representations of reality, and therefore, texts are always influenced by some authorial bias. The critical text analysis helps to reveal the social functions of texts and authors' ideologies standing behind the texts (Luke, 2012).

Becoming critically literate in health means that people have developed and mastered the ability to read, analyse, and question the health-related messages presented within any form of text. A critical consumer of health information should be able to consume health information actively in a manner that promotes a deeper understanding of attitudes, arguments, beliefs, facts, and values expressed in multimodal texts: written, spoken, visual, spatial, etc. A health literate person can evaluate texts to identify potential ideological influences and intentions of the text authors. The development of critical health literacy allows becoming thoughtful and empowered citizens (Stars, 2019).

Health information appraisal as an aspect of health literacy can be developed through education (Sykes et al, 2013), including health education in schools (Paakkari, Paakkari, 2012). Although there is no single pedagogical approach that is particularly appropriate for learning of health information appraisal skills, both skill-based health education (Benes, Alperin, 2016) and critical pedagogy in health education (Peralta, Rowling, Samdal, Hipkins, Dudley, 2017) are mentioned as such. The need to teach the ability to assess health information as a social practice critically is highlighted (Stars, 2019).

### ***Health literacy as a social practice***

The approach of health literacy as a social practice has been recognized as an opportunity to reach the social dimension of health literacy and to discover its social functioning (Papen, 2009; Bertschi, Sahrai, 2016; Samerski, 2019). Without denying the cognitive aspects of health literacy, the sociocultural approach of health literacy combines individuals' health literacy skills with structural and situational factors in the surrounding environment (Broder, Carvalho, 2019). It focuses on exploring what people do with health information in the context of real-life situations rather than on measuring health literacy (Papen, 2009). Health literacy has its ethnographic expressions, which can be studied in the local community and a specific group of people (Bertschi, Sahrai, 2016), considering that neither actions done with texts, nor texts themselves are neutral but are influenced by social conditions (Phelps, 2010). Thus, the sociocultural perspective expands health literacy studies because its interest is not only health literacy as a set of the individual's cognitive skills but also health literacy as a social phenomenon.

Consequently, adolescent health literacy, analysing it within the framework of sociocultural theories of literacy, also acquires expressions of social practice. Adolescents practise health literacy in their everyday life. They manage (i.e. obtain, understand, appraise, communicate, use) health information in different situations, changing conditions, interacting with people around them and with artefacts of the social environment. The conceptualization of adolescent health literacy as a social practise

leads to new notions of education and research strategies, affecting educators' ideas on how to teach health literacy in school and researchers' ideas on how to study adolescent health literacy (Peralta et al, 2017).

### ***Adolescent-centred approach in health literacy research***

Recent trends in the studies of health literacy as social practice highlight a promising belief to accept children and adolescents as active participants in health literacy research (Bond, Rawlings, 2019). The idea of the value of children's views in health education studies is not entirely innovative. Kalnins et al (1992) discussed the dominance of an adult-centred perspective in research on child health education and advocated children as active co-researchers in the research process.

An adolescent-centred research approach is similar to a child-centred approach in research, the theoretical background of which can be linked with the activity of the scientific movement "The New Social Studies of Childhood" and with the revelation that social science researchers have lacked the perspective of children themselves. Instead, researchers have traditionally studied the problems of children from the perspective of adults (James, Jenks, Prout, 1998). When a child-centred research approach is used, the child is no longer a passive object of research, but an active agent who participates in the research process and shares his/her vision of phenomena (Darbyshire, MacDougall, Schiller, 2005).

Health literacy research related to children and adolescents very often fails to include their subjective thoughts and experiences, as a result, continuing to promote adult-centred perceptions of children and adolescent health literacy (Bond, Rawlings, 2019). This can lead to contradictions between the assumptions on adolescent health literacy constructed by adults (i.e. parents, teachers, health care specialists, and researchers) and opinions of adolescents themselves on health literacy. Thus, an imbalance of scientific knowledge develops because understanding of the adolescent health literacy is mostly dominated by the adult theoretical assumptions of this phenomenon. Therefore, the involvement of the subjects themselves (children, adolescents) in the investigation of health literacy is useful for reducing inequalities of scientific knowledge in the health education discourse.

An adolescent-centred approach in health literacy research offers an epistemological shift from the knowledge created by adults to the understanding of health literacy by adolescents. This is an epistemologically different view on adolescent health literacy.

In such a study, adolescents are able to interpret and generate legitimate knowledge. They are social agents (Rubene, 2015) who experience the phenomenon and develop subjective conceptions about it.

The adolescent-centred research approach is an appropriate way to study adolescent health literacy and find out adolescents' subjective experiences on health literacy (Begoray et al, 2009; Peralta, Rowling, 2018).

It is significant to study adolescents' conceptions of health literacy to obtain information on how adolescents realize health literacy in their everyday life and what their health literacy needs are. This information is useful for planning the content of the

health education program and selecting learning methods for health literacy pedagogy (Paakkari, 2012).

This paper reflects the results of research on adolescent health literacy and specifically turns to one aspect of health literacy – health information appraisal. The study was grounded in a view of adolescent health literacy as a social practice. Accordingly, the author obtained information about health literacy practices rather than health literacy skills. An adolescent-centred approach in health literacy research is an approach that highlights the active participation of adolescents in the research process and emphasises their opinions in exploring the research phenomenon.

## **Methodology**

This paper is a part of the Doctoral thesis on the conceptualization of adolescent health literacy submitted at the University of Latvia by the first author. This paper aims to explore adolescents' (aged 13–16) subjective conceptions of health information appraisal as a social practice in their everyday life.

### ***Design***

The study was based on the interpretive research paradigm. The design of this study was descriptive, qualitative research. The qualitative research is useful to achieve an in-depth understanding of a phenomenon by revealing how people comprehend, experience and interpret different phenomena in the world around them (Creswell, 2009). The qualitative research in pedagogy allows obtaining information about the pedagogical process and its phenomena from the perspective of pupils and teachers, exploring their subjective experience, interpretations, conceptions (Lodico, Spaulding, Voegtle, 2010), or the understanding of the world (conceptualization).

This study utilises a phenomenographic research approach. Phenomenography is an empirical, interpretative research approach that seeks to discover, describe, categorize and analyse qualitatively different ways in which people conceptualize various phenomena in the world from a second-order perspective, i.e. people's experiences of something and how that "something" appears to them (Marton, 1981). Assuming that people's experiences are variable, phenomenography tends to identify the diverse conceptions of the phenomena under exploration. The central focus of phenomenographic research is the outcomes of the relationship between people with their external worlds rather than the phenomenon itself (Marton, 1981). The key results of phenomenographic research are conceptions, descriptive categories and outcome space, which altogether represent the different ways in which the phenomenon is understood (Marton, Booth, 1997).

### ***Method of data collection***

A phenomenographic, semi-structured, face-to-face interview was used as the method for data collection to explore various dimensions of understanding of the phenomenon.

To conduct an interview, a semi-structured interview protocol was used, and the following main questions were asked. How much can you trust in what is being written/heard about health? How can you distinguish between reliable health messages/information and those that cannot be believed in? Where do you get reliable health information? Which sources of information do you trust? Please tell me about an occasion/episode when you had doubts about the reliability of the health information you received.

Explanations, additional questions and/or clarifications were used when needed.

### ***Sampling and description of participants***

A purposive, maximum-variation sampling was used to ensure a heterogeneous sample with a wide range of variation across key indicators.

A total of 24 adolescents between the ages of 13 to 16 participated in the interviews in this study. Participants were classified according to the following sampling criteria:

1. Age: 13 (n = 7), 14 (n = 7), 15 (n = 6), 16 (n = 4).
2. Gender: women (n = 14), men (n = 10).
3. Place of residence: big city (n = 12), suburb/rural area (n = 12).
4. Location of the educational institution of the respondent: school in a big city (n = 15), suburb/rural area (n = 9).
5. Type of school: elementary (n = 3), secondary school (n = 16), gymnasium (n = 5).
6. Health condition: with a chronic disease (n = 8), without a chronic disease (n = 16).
7. Participants' subjective evaluation of their interest in health: interested (n = 9), partly interested (n = 12), not interested (n = 3).

The research included adolescents from all regions of Latvia: Riga and Riga region (n = 13), Kurzeme (n = 2), Vidzeme (n = 3), Zemgale (n = 4), Latgale (n = 2) region.

The recruitment of participants took place through schools, sports/dance organizations, parental workplaces. Recruitment began with a letter to the child's parent or guardian informing about the study, asking them to consider the possibility of allowing a child to participate in the study, and asked if the child wanted to participate in the study.

A special information sheet for child/adolescent was sent to their parents, explaining the objectives of the study. If the adolescent agreed to participate in the study and the parent gave permission, the parent contacted the author. A written permission of the parent or guardian was required.

### ***Data collection and analysis***

Ethical approval was gained from the Ethics Committee of the Faculty of Education, Psychology, and Art of the University of Latvia.

Interviews took place three months, from May to July 2018. All participants (n = 24) were interviewed individually by the first author. One interview was conducted with



each adolescent. Participation was voluntary. Participants had the right to decline or discontinue participation whenever they wished for any reason.

Data were obtained by audiotaped or manually recorded interviews of duration 22–64 minutes. The interviewer asked each adolescent if he/she wanted the interview to be recorded on the recorder or manually. An audio recording was made in 15 interviews, but a manual recording was made in 9 interviews.

The settings when and where the interviews took place were chosen by the participants and their parents. The interviews took place at the parental workplace (n = 6); school (n = 4); sport/dance hall (n = 2); the workplace of the author of the study (n = 5); the place of residence of the child (n = 7).

The parents of the adolescent were able to choose whether to be present at the interview. The adolescent was also asked if he/she wanted the parent to be present at the interview. Of the 24 interviews, 4 interviews were accompanied by an adult.

Data were collected until saturation, then transcribed verbatim and analysed manually using a phenomenographic data analysis. The phenomenographic analysis can be realized in several ways and combinations of data analysis methods are possible (Lamb, Sandberg, Liesch, 2011).

The data analysis was performed according to the phenomenographic method, using the guidelines developed by Bruce (1999); Sandberg (2000); Lamb et al (2011). The analytic framework of the phenomenon “what”/“how” aspect was used. “What” aspect focuses on the content of the phenomenon, while “how” aspect describes how the meaning of a particular phenomenon is created (Harris, 2011).

Phenomenographic data analysis in this study was carried out in five steps: 1. Reading and re-reading the transcripts. 2. Uncovering the “what” aspect of phenomenon: manual coding and identification of conceptions. 3. Uncovering the “how” aspect of the phenomenon: manual coding and identification of conceptions. 4. Developing and defining the categories of description. 5. Generating an outcome space: organizing the categories of description into a logical structure.

## Results

In general, seven qualitatively different categories of description were identified in the analysis. Two categories referred to the “what” aspect of the phenomenon, respectively, what do adolescents perceive as health information appraisal and what do they associate with this process: 1. Thinking, reflecting, doubting. 2. It is useful. Five categories referred to the “how” aspect of the phenomenon, respectively, dealing with the adolescent’s ideas of how does a health information appraisal comes about in practice: 1. Identifying and appraising the characteristics of information. 2. Comparing information. 3. Using prior knowledge. 4. Asking for help from others. 5. I do not know what to do to evaluate the reliability of the information.

## *The “what” aspect: categories of description*

### **Category 1. Thinking, reflecting and doubting**

This category conceptualizes the process of health information appraisal as a dynamic activity or social practice in which adolescent actively participates (“You know how ... with that information ... well, there is a need to be very careful, to keep track of it all the time,” said a 14-year old male) and not passively accepts the available information without questioning it. Adolescents’ conceptions were such that they need to pay attention, think, reflect, ask, be careful, and even doubt regarding health information and its reliability. These conceptions reveal adolescents’ active and reflective relationship with health information, not passive and inert.

Health information appraisal was seen by adolescents as a slightly provocative practice that tends to cause a variety of reactions, such as doubts about whether the health information found is true; confusion over how to make sure that information is reliable; what to believe when two or more information materials express conflicting messages (“In one material, it is written that someone has to drink 8 glasses of water every day. In one other article that you have to drink as much as you want. In another article, that you can’t drink a lot, because it’s harmful. It is confusing,” said a 13-year old female).

Some participants critically considered that the scope of health information available is so extensive and that the information is so diverse that sometimes doubts and even mistakes in assessing the reliability of health information are only a normal issue. As one participant stated: “We need to adopt rules of this play”, said 14-year old male, which means that people should accept the existing situation in the health information landscape, characterized by the diversity and dynamics, the impact of marketing, and the different intentions of the authors, etc.

This category of description reflects the process of health information appraisal as a dynamic, diverse, vivid, but sometimes challenging aspect of health literacy.

### **Category 2. It is useful**

The health information appraisal seemed to adolescents as a useful activity. Participants considered it beneficial. The assessment of health information can help them recognize false information, which may lead to wrong health-related choices and behaviour.

Adolescents also stated that health information appraisal is useful to help other people better manage health information and determine its reliability: “My grandmother reads everything about health in journals and then tells us. Yes, it’s been when it comes to tell her that it’s not true,” said a 13-year old female.

Several participants expressed a belief that the health information appraisal can prevent further dissemination of false health information for the public safe: “This is how we [by sharing false health messages] pollute this information space. Then we don’t get over it,” said a 14-year old female.

Thus interpreted, the process of health information assessment reveals a citizenship dimension of health literacy, i.e. people care and feel responsibility not only for their health but also for public health.

## *The “how” aspect: categories of description*

### **Category 1. Identifying and appraising the characteristics of information**

This category focuses on evaluating health information by characteristics of its quality.

Adolescents accounted for several characteristics, which they believe, should be addressed to determine whether the information obtained is reliable and trustworthy:

1. Reliability of the information source or “where the information comes from”, as a 13-year old female said. Adolescents expressed very diverse opinions on different sources of health information and its reliability, ranging from various Internet resources and social media to parents, family members, relatives, friends, teachers, and textbooks. Some participants considered that the official home pages of health-care organizations are the most reliable sources, as well as health-care professionals.
2. Author of the text. Most participants claimed that they pay attention to the author of the article, the author’s qualifications, as well as to whether the author can be identified. If the author of the message is not mentioned at all or is an unfamiliar person, for which compelling information cannot be obtained, then it is only reasonable not to believe the message.
3. The availability of scientific evidence and references in the text. Several participants stated that the reliability of the information could be assessed depending on whether the information is supported by the evidence from studies and whether an adequate reference list has been used in the text. By examining the reference list, it may be concluded that the information is/is not reliable.
4. The overall “appearance” of a text, such as the language style (overstated statements or errors in the text would raise doubts about its quality), the wording of the heading of a text (illogical title may cause a suspicion), the logic of the text and its compliance with general health knowledge.

### **Category 2. Comparing information**

Adolescents considered it beneficial to assess the reliability of health information by comparing information about one specific health topic across multiple information sources. Several participants claimed that they have already used such a strategy for assessing the reliability of information when writing a scientific project at school, preparing presentations or obtaining health information for their own needs. In their view, this strategy is an effective way of detecting information pollution.

### **Category 3. Using prior knowledge**

The adolescents’ conception was that they actively use prior health knowledge they have already received from the family, a health care specialist or at the school. If newly accessed information does not match or even contradicts the previously acquired health knowledge, there is a sufficient reason to worry about the reliability of the information: “If someone tells us that smoking is not harmful, although we were told at school and doctors say it is harmful, I will not believe it,” said a 13-year old female.

At the same time, as one of the participants reported, in adolescence, health knowledge is often not enough to comprehend health issues fully, so distinguishing true messages from false by relying solely on current knowledge could be challenging: “To a large extent, it depends on how well I am familiar with a particular health topic. If there’s good knowledge, I’ll recognize inaccuracies. If, no, it will be harder,” said 15-year old male.

#### **Category 4. Seeking help from others**

Some participants expressed readiness to seek help from other people when assessing the reliability of health information. Adolescents reported that they would choose to ask adults (parents, teachers, doctors, trainers, etc.) for help in the event of confusion, less frequently their friends and peers: “You can also ask an adult, whether this information is true,” said a 14-year old female.

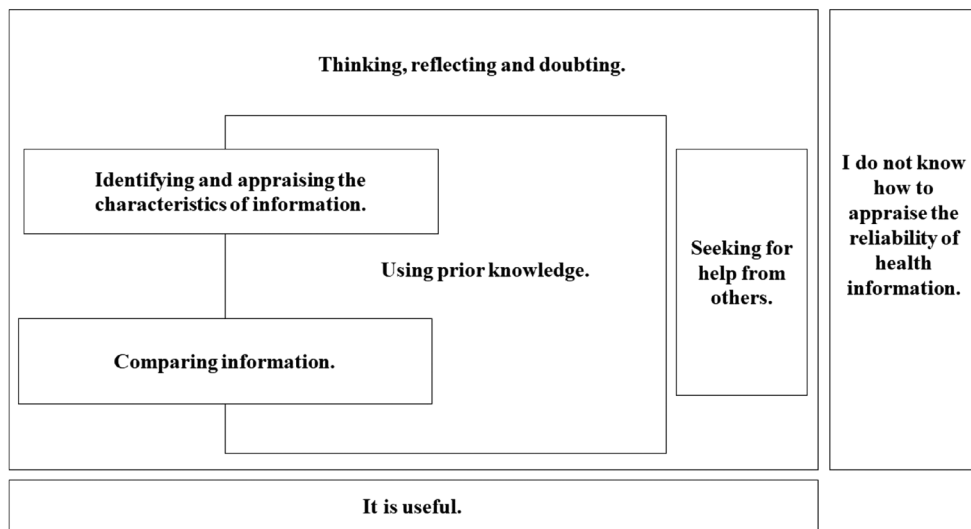
#### **Category 5. I do not know how to appraise the reliability of health information**

This category symbolizes a conception reported by two adolescents. They expressed confusion and uncertainty on such issues as why the reliability of the health information should be assessed and how it should be done. They were unable to name actions that need to be performed to determine the reliability of the health information. One participant concluded that she has never previously thought about the reliability of the health information and has not paid attention to this issue at all.

#### ***An outcome space: adolescent conceptions on health information appraisal***

The outcome space (Figure 1) reflects mutual relationships between identified categories of description on health information appraisal.

The category of description “Thinking, reflecting and doubting” has been determined as an inclusive category. It includes three categories of description of the different activities that adolescents employ to assess the reliability of health information: “Identifying and appraising the characteristics of information”, “Comparing information”, and “Using prior knowledge”. These categories of description are interlinked by referring to the use of personal resources. The category of description “Seeking help from others” refers to the action where a young person does not have the necessary resources (knowledge and skills) to assess the health information material in question. Yet, they still are empowered active agents focused on resolving an unclear situation. This category stands in parallel to other three categories. The category of description that conceptualizes the health information appraisal as a useful activity (“It is useful”) stands as an autonomous category. In addition, the category of description “I do not know how to appraise the reliability of health information” is conceptualized as an autonomous category because it represents a different experience compared with the other categories of description.



*Figure 1. Outcome Space Representing Qualitatively Different Conceptions of Adolescents on Health Information Appraisal*

## Discussion and conclusion

The current study focused on defining a set of categories of a description representing different ways of experiencing the phenomenon of health information appraisal by adolescents aged 13–16 living in Latvia.

In sum, adolescents perceived health information appraisal as a beneficial activity that demands thinking, reflecting and doubting. Correspondingly, adolescents saw health information appraisal as being performed by identifying characteristics of information, comparing information, using prior knowledge, seeking help from others, and not knowing what to do.

The category “Thinking, reflecting and doubting” demonstrates adolescents’ active and dynamic attitudes to texts. Rather than approaching a text passively, adolescents reported the effort to be active consumers of the text. They felt encouraged to question and evaluate texts for bias and underlying messages. Such a result conforms with the theoretical position of critical literacy which highlights the ability to read various texts actively and reflectively (Shor, 1992), and also represents the ability to go further from inertly accepting the text’s messages to asking questions about the text (Phelps, 2010). The results showed that adolescents experienced some doubts and concerns about their capabilities and readiness to assess the reliability of health information. Adolescents mentioned, in their view, two primary reasons for such a non-confidence: the lack of health knowledge and the complex landscape of health information. The first reason supports the classical assumption of the need to teach health issues at school (Paakkari, Paakkari, 2012). The second reason, however, reflects the idea of both theoretical approaches to literacy – Multiliteracies and Critical literacy – about the diversification of

a textual field: texts are multimodal today (O'Rourke, 2005) and texts contain diverse, sometimes mixed messages (Fajardo, 2015) which can cause confusion.

Conceptualization of health information appraisal as a beneficial and useful activity reflects the idea of health literacy as an empowering social practice (Papen, 2009). Adolescents described activities related to health information appraisal as real ongoing actions in their surroundings. They revealed real examples of how health information appraisal has been helpful to them in everyday life. Therefore, the ability to evaluate the trustworthiness of obtained health information is not just a cognitive and individual phenomenon but also a lived practice in social reality. Similarly, Fairbrother et al's (2016) study on children's health literacy practices concluded that health literacy is not just a compilation of technical skills. It is rather something children do as "active health literacy practitioners" (Fairbrother, Curtis, Goyder, 2016, p. 483) in diverse social contexts and the social relationships with other people (family, friends, community members) (Fairbrother et al, 2016).

The categories in which adolescents described the process of appraising health information continue to coincide with ideas of social practice and critical literacy. The adolescents reported that, while striving to be critical consumers of health information, they have tried to employ several strategies to assess the reliability of information: identifying characteristics of information, comparing information, using the previous knowledge and experience; and seeking help from others. These categories highlight an idea of critical reading – an active way of reading in which a questioning approach and the elements of logical analysis are used to examine the validity of the text (Harris, Hodges, 1981).

The strategies that adolescents employed to assess health information are similar to those in other studies. Freeman et al's (2018) systematic review reported main approaches of how adolescents appraise the credibility of online health information: evaluation of the Internet site name and reputation, evaluation of the first impression of a particular online site, and evaluation of the Web site content. Comparing health information from multiple sources is also a known strategy for health information appraisal (Zou et al, 2018).

The results of the study showed that most adolescents were encouraged to assess health information. Adolescents in Ghaddar et al's (2012) study on the importance of credible sources for online health information reported that they are motivated in assessing health information. 81% of research participants stated they had checked health information online. In another study, teachers were asked how they assess students' skills in finding reliable online sources on health information. More than half (58%) of teachers reported that it is easy for students to find trustworthy online resources on health (Skopelja, Whipple, Richwine, 2008). Another study, however, indicated challenges that adolescents face when trying to access health information and to differentiate accurate from inaccurate online health information (Jain, Bickham, 2014).

The category "I do not know how to appraise the reliability of health information" reported on two adolescents' conceptions describing a confusion about how and why

health information appraisal should be performed. However, these results are not unique. In other studies, researchers have also found a similar pattern. Freeman et al's study reported an absence of a precise appraisal strategy for some adolescents (Freeman et al, 2018). Students reported that they have experienced difficulties in finding out whether the received health information was right (Zou et al, 2018). A study on how adolescents use technology for health information also revealed some adolescents' concerns about their ability to the quality of health information found through eHealth sources (Skinner, Biscope, Poland, Goldberg, 2003).

Although several adolescents indicated that they were taught at school how to assess the information, others acknowledged that they had not received such information and they would need a pedagogical support. In a study on media literacy among adolescents in Latvia, researchers provided a similar conclusion. Research participants reported the need to learn more about false news and about the assessment of the reliability of information (*Pētījums par 9 līdz 16 gadus vecu bērnu un pusaudžu medijpratību Latvijā*, 2017).

The health information appraisal as a health literacy component should be included in the content of school-based health education to allow pupils to acquire and develop the skills to assess the reliability of the information (Paakkari, Paakkari, 2012).

Schools have opportunities to develop young people's health literacy through the curriculum and the supportive environment (McDaid, 2016). Alongside traditional health education, health literacy programs (McDaid, 2016) and school-based adolescent health literacy programs (Peralta, Rowling, 2018) are introduced. Studies on health literacy pedagogy reinforce the idea of adapting critical pedagogy to learning health literacy in schools (Peralta et al, 2017; Peralta, Rowling, 2018). The concept of empowerment is known as critical in critical pedagogy and critical health literacy, which also includes health information appraisal. Health literacy itself is an empowering tool (Kickbusch, 2008). To teach pupils empowering health literacy, schools must provide an iterative cycle of learning, investigation, reflection, and evaluation in a close dialogue with others in the learning process. By investigating health literacy issues in the context of everyday life, it allows adolescents to see their connection to the community (Peralta et al, 2017). This pedagogical idea is similar to the idea of teaching and learning health literacy as a social practice that highlights the need to teach health literacy in close connection with learners' personal experience and surrounding socio-cultural contexts where they practice health literacy (Papen, 2009; Samerski, 2019). A social practice view of health literacy pedagogy moves beyond the cognitive understanding of phenomena. It encourages teaching, learning, and using health literacy as a meaningful practice employed not only in the classroom but also in the real world (Fairbrother et al, 2016). Alongside these approaches, the skill-based health education (Benes, Alperin, 2016) and classroom-based health education (Benham-Deal, Hodges, 2009) remain relevant in teaching health literacy as a learning outcome in schools (Paakkari, Paakkari, 2012).

However, regardless of the teaching approach used, health literacy pedagogy needs to take account of adolescents' expectancies regarding health literacy and to teach health

literacy as a relevant and socially effective practice that they feel empowered to realize. Sophisticated pedagogical support is needed to teach adolescents health literacy as a socially useful practice.

## Limitations

The current study aimed to identify and describe how differently adolescents aged from 13 to 16 conceptualized the health information appraisal. The study did not investigate the quantitative aspects of the phenomenon. It was based on a relatively small participant sample, and the results cannot be applied to the broader population quantitatively. A quantitative, cross-sectional study on patterns of appraising health information is required for a more extensive understanding of this phenomenon in Latvia.

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