

# *Comparing Health Education Approaches in Textbooks of Sixteen Countries*

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**ABSTRACT:** Classically, health education has provided mainly factual knowledge about diseases and their prevention. This educational approach is within the so called Biomedical Model (BM). It is based on pathologic (Pa), curative (Cu), and preventive (Pr) conceptions of health. In contrast, the Health Promotion (HP) approach of health education intends to improve health by promoting healthy habits (He) and by developing empowerment (Ep) for a healthy decision-making with regard to environmental (Ev) challenges. The aim of the present study focused on a comparison of the emphasis on either model (BM or HP), as it was presented by textbooks from 16 countries. Each country team analysed the textbooks that were more frequently used at each educational level. Text and image analysis identified that some countries, such as France and Italy, were more associated with the Biomedical Model, whereas Germany, Mozambique and Finland were more linked to the Health Promotion approach. Data organised for four pupils' age groups (6–9, 10–12, 13–15, 16–18 years old) showed that text and images of the same textbooks gave similar results in terms of following either the BM or HP model, and showed different indicators of consistency (Pa, Cu, Pr for BM; and He, Ep, Ev for HP). Furthermore, although the analyses might be, to a certain extent, subjective (depending on the researcher), it was shown to be very reliable, since all countries, whose textbooks were analysed for the four age groups or only for three age groups, showed a similar tendency of evolving from a HP (early ages) to a BM approach (elder ages). The interesting finding that the younger pupils' textbooks were more associated with the Health Promotion model, whereas the older pupils' textbooks were consistent with the Biomedical Model seems to be a matter for further and deep investigation.

**KEYWORDS:** Biomedical model, comparative study, health education, health promotion, textbooks.

### Introduction

Health and disease have been a matter of great concern. Both terms have been used either as synonymous or as non-synonymous. As synonymous, when for example “health centre” or “mental health hospital” are attributed to the centres taking care of persons with diseases or hospitals devoted to treat persons with mental diseases, respectively. Health and disease are also taken as non-synonymous terms when, for instance, in current language one says: “*you don’t think about your health until you become ill.*” The concept of health varies widely as it is shaped by the person’s life experiences, values, knowledge, and expectations (Ewles & Simnet, 1999).

For the health professionals, health has been viewed mainly as the absence of diseases or infirmity (Katz & Peberdy, 1997). This view, which is structured within the *Biomedical Model* of health, has gained high importance in the Western world in the second half of the 19<sup>th</sup> century and the beginning of the 20<sup>th</sup> century with the implementation of the Public Health (slum clearance, sanitation, and clean air improvement), the discovery of the antibiotics (control of infect-contagious diseases) and, more recently, the development of new technologies of diagnosis and treatment (Lindemann, 2002; Fortin, 2004). The characteristics of the Biomedical Model are the following (Nettleton 1995; Freund & Beard, 1995; Ribeiro, 1998; Lupton, 1994; Quartilho, 2001; Carvalho & Carvalho, 2006):

- i)* The person is seen as a complex machine, and thus it is necessary to separate the organism in its different parts and study it by several specialities, in an attempt to better understand its structure and functioning.
- ii)* A disease emerges when a machine component is out of order or when the relationship between different components is deficient either temporarily or permanently.
- iii)* Healing is the repairing of the specific machine component.
- iv)* To any given cause (e.g., a micro-organism infection, a gene change) corresponds a specific disease.
- v)* Attention is centred on the diseases – “nosology” (field of medicine relating to the description, differences, and classification of diseases).

The advances and successes in the medical field have transmitted the idea to the layperson that individual’s health might always be gained as far as the cause of the disease (*e.g.*, the infectious agent, the gene) is identified, because medical technology would solve all problems (Katz & Peberdy, 1997). Thus during the second half of the 20<sup>th</sup> century, there was high public investment in many Western countries for creating national infrastructures and services to protect health and prevent diseases. Simultaneously, and following the great expenses in the health sector, the argument that “prevention is cheaper than curing” convinced the national health authorities to extend their work beyond prevention of diseases towards the notion of improving health through health education (Katz & Peberdy, 1997; Green, 1999), such as, family planning, venereal disease, accident prevention, vaccination, female cervical smear checks, weight control, alcohol consumption, and smoking (DHSS, 1976).

The narrow emphasis on the absence of diseases or infirmity, as well as on the personal life-styles was criticised in the 1970s, because it distracted attention from the social and economic determinants of health and tended to blame individuals for their own illness (Ewles & Simnet 1999). Thus, a broader approach of *Health Promotion* emerged in the 1980s, addressing not only the transmission of knowledge (traditional health education), but also the need for political and social action, as well as the involvement of the persons themselves in shaping their own health future. The concern of Health Promotion is to improve health, as opposed to the focus on the disease treatment (Katz & Peberdy, 1997), aiming to empower people to have more control over aspects of their lives that can affect their health (Ewles & Simnet, 1999) in more general terms, including their physical, mental, emotional, social, spiritual, sexual, as well as societal, and environmental health (Naidoo & Wills, 1994). Within this context, the World Health Organisation (WHO 1986) defined health as “a resource for everyday life, not the objectives of living; it is a positive concept emphasising social and personal resources, as well as physical capacities;” and it declared Health Promotion as “the process of enabling people to increase control over, and to improve, their health”; therefore, to be healthy, “an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment” (p. 1).

There is an immense variety of approaches or models of health education and Health Promotion. They essentially describe what occurs in particular settings of health education and health promotion, and should be considered as representations of complex real practices rather than straight forward guidelines to follow. Indeed, such descriptions of practice (*i*) may not be transferable from one practice setting to another, (*ii*) and an appropriate model in a particular setting may become unsuitable later, due to the dynamic and complex processes of health education and health promotion (Katz & Peberdy, 1998).

In the case of a school setting, the topic of health education is part of the curriculum and is taught in its traditional perspective based on the Biomedical Model (BM), putting emphasis on diseases and their prevention, delivering knowledge which often increases students' worries and feelings of powerlessness within the health area (Jensen, 2000). From this perspective, health education is based on the transmission of information about diseases, how to cure patients, and especially how to effectively prevent them, by means of persuasion by educators and/or by health professionals (Leininger, 1984). The idea is to well inform children and young people about diseases – which are often shown in horrifying images – and to convince them to avoid or change unhealthy habits relating to such diseases. Bury (1988) expressed clearly this perspective and stated that “*Health education motivates persons to obtain information and to do something to be in good health, by avoiding the harmful actions and by creating favourable habits*” (p. 106).

In the decade of the 1980s, the notion of Health Promotion (HP) emerged with a holistic perspective of health, where the person is seen as a bio-psycho-social unit in permanent interaction within him/herself and his/her environment, including the other human beings. The HP approach does not dispense the medical practice, but considers that the BM is only a small part of a much larger whole, where upstream causes (socio-economic, housing, nutrition) are determinants to

set off persons' illness. The dynamic relationship of the person with the environment plays a major role in the HP approach, where the person needs to create his/her own resources and acquire competencies to fight constantly against disturbing environmental agents (Antonovsky 1987, 1993 – both references in Katz & Peberdy, 1998). In this view of Health Promotion, health education is conceptualized as a life-long process, from birth until death, which helps persons to make informed choices towards healthy habits (Jones & Naidoo, 1997; Katz & Peberdy, 1998; Ewles & Simnett, 1999; Giordan, 2000; Carvalho, 2006; Carvalho & Carvalho, 2006). This view of school health education, based on the Health Promotion approach, has had a great drive by the European Network of Health Promoting Schools (ENHPS) that was launched in 1991, as the result of a collaborative effort between the WHO Regional Office for Europe, the Commission of European Communities, and the Council of Europe (Carvalho 2000). The ENHPS “*aims to integrate health promotion into every aspect of the curriculum, introduce healthy programmes and practices into schools' daily routines*” (Burgher, Rasmussen, & Rivett, 1999, p. 4).

In the present paper, we assumed a continuum between the two approaches of school health education, that is, the Biomedical Model (BM) approach and the Health Promotion (HP) approach. The former (BM) concerns the pathologic, the curative and the preventive concepts, whereas the latter (HP) includes the healthy, the empowerment, and the environmental concepts. We aimed at comparing the emphases on either model (BM or HP), as these are presented by primary and secondary textbooks on the topic of health education in the 16 participating countries, so that the textbooks from each country would be positioned somewhere along this continuum between the two approaches.

### Methodology

The corpus of this study was composed of 71 textbooks of primary and secondary schools on the topic “Health Education” from 16 countries, as follows: Lebanon (14 textbooks), Italy (11), Morocco (7), Portugal (7), France (6), Germany (5), Hungary (5), Cyprus (3), Estonia (2), Lithuania (2), Malta (2), Mozambique (2), Senegal (2), Finland (1), Poland (1), Romania (1). For the textbook analysis, we used a specific grid on Health education constructed by the European FP6 STREP project BIOHEAD-Citizen (CIT2-CT-2004-506015) (Carvalho & Clément, 2007). For the initial grid construction, two meetings of the BIOHEAD-Citizen project were held, the first one in Algeria (6–10/05/05) and the second one in Malta (21–25/05/05). The differentiation between two approaches on health education – Biomedical Model (BM) and Health Promotion (HP) – was clarified during the first meeting (in Algeria with the Francophone teams) and a first draft of the grid was prepared. In the second meeting (in Malta with the Anglophone teams), this grid was modified and improved based on feedback from all the participants. A preliminary test of the grid was carried out in few textbooks by all national teams during the last four months of 2005. Suggestions to improve the grid were taken together at the Marrakech meeting (21–25/01/06), and the improved/corrected definitive grid was applied between March and September 2006 in the 16 countries.

Out of the numerous questions of the entire grid on health education, only the questions concerning the “Biomedical Model *vs.* Health Promotion approaches” were used for the present study. The question concerning the text, titles, and sub-titles of textbooks was presented in the grid as indicated in Table 1, while a similar question was asked for the images in the same textbooks.

Table 1  
Data from Textbooks Relating to the BM and the HP Approach

**HE-1.2. Text, titles and sub-titles: Biomedical (BM) *vs.* Health Promotion (HP)**

For each sentence, classify it as:

**Pa** – Pathologic; **Cu** – Curative; **Pr** – Preventive;

**He** – Healthy; **Ep** – Empowerment; **Ev** – Environmental.

Explicit messages – when some key-words are present: disease names, infections, etc. (Biomedical conception) *vs.* healthy choices, lifestyles, empowerment, etc. (Health Promotion conception).

The results can be summarised in the following Table:

Total analysed phrases	Biomedical (BM) conception			Health Promotion (HP) conception				
	<b>Pa</b> n (%)	<b>Cu</b> n (%)	<b>Pr</b> n (%)	<b>Total BM</b> (Pa+Cu+Pr) n (%)	<b>He</b> n (%)	<b>Ep</b> n (%)	<b>Ev</b> n (%)	<b>Total HP</b> (He+Ep+Ev) n (%)
Number and % of phrases	n (100%)							

## Results and Discussion

The aim of the present study was to compare health education in 16 countries with regard to the emphasis on the *Biomedical Model* and the *Health Promotion* approaches. In other words, it was intended to compare the emphasis given by each country on either approach, by analysing the text and the images of the textbooks across all educational levels. The textbooks that were analysed in all countries were those that were used at the time of collecting the data, and, in the case that more than one textbook per grade was available, the textbook that was more frequently used.

The text related to biology and health education issues was most of the time in a neutral style. For example, it provided scientific information, which had no connotation with either the Biomedical Model or the Health Promotion approach. However, in general, in each book it was possible to find expressions more associated with the Biomedical Model (BM) and other expressions more associated with the Health Promotion (HP) approach. The proportion between BM and HP gave the overall health education perspective of the textbook text. Similarly, the images, including their captions, were also associated with the one or the other approach. Therefore, the proportion between BM and HP images also contributed to identify the health education perspective of the textbook.

### Text Analysis

As it has been already mentioned, the BM was defined by the Pathologic (Pa), the Curative (Cu) and the Preventive (Pr) concepts. Examples of sentences that implicitly expressed these concepts are the following (French textbook: R. Tavernier & C. Lizeaux, 1997, "Sciences de la Vie et de la Terre." Bordas; Level of study: "5<sup>ème</sup>"; 12/13 year-old pupils):

*Pathological:* "Fractures result from shocks or violent movements that break a bone" (p. 22).

*Curative:* "The doctor has to put back together the pieces of bones and the joint must be kept still to allow the cicatrizing" (p. 22).

*Preventive:* "French doctors are concerned about the increase of the number of too heavy children, who will be later at risk of becoming obese" (p. 70).

On the other hand, the HP approach was defined by the Healthy (He), the Empowerment (Ep), and the Environmental (Ev) concepts. Textbook sentences that implicitly expressed these concepts can be identified in the following examples (German textbook: Eckerskorn et al. "Ikarus – Nature and techniques" F. X. Stratil; Level of study: grade 5; 10/11 years-old pupils):

*Healthy:* "Children who are still growing need more proteins than adults" (p. 57).

*Empowerment:* "Be powerful against drugs: Resist seduction and peer pressure from others, defend your self-recognised values, and distance yourself from morbid fashions" (p. 83).

*Environmental:* "Correct eating means: do not ingest more energy than needed" (p. 57).

Each country team analysed the textbook(s) that were more frequently used at each educational level. For the calculation of the Biomedical Model *vs.* Health Promotion proportion per country, two steps were carried out. At first, each textbook was analysed for the proportion BM *vs.* HP, and, subsequently, the mean of the proportion BM *vs.* HP of all textbooks of each country was calculated. Figure 1 shows that the countries with higher percentage of the BM approach were Poland (100%), France (99%), and Malta (98%). In the opposite side – HP approach – were the textbooks from Germany (35% BM), Mozambique (42% BM), Morocco (49% BM), and Finland (50% BM).

Data were organised in four age groups: 6–9, 10–12, 13–15, and 16–18 years old. Only Lebanon, Portugal, and Morocco analysed textbooks for the four age groups, and Italy, Hungary, and Germany analysed textbooks for three age groups. The other countries analysed textbooks for only two or one age group, as indicated in Figure 2. When examining the BM/HP proportion from the youngest pupils' textbooks (age 6–9 years) up to the eldest ones (age 16–18 years), a general tendency towards an increase of the Biomedical Model approach was evident. This occurred not only for countries positioned at the Biomedical approach (*e.g.*, Italy), but also for countries at the Health Promotion approach (*e.g.*, Germany), as it is clearly indicated in Figures 1 and 2.

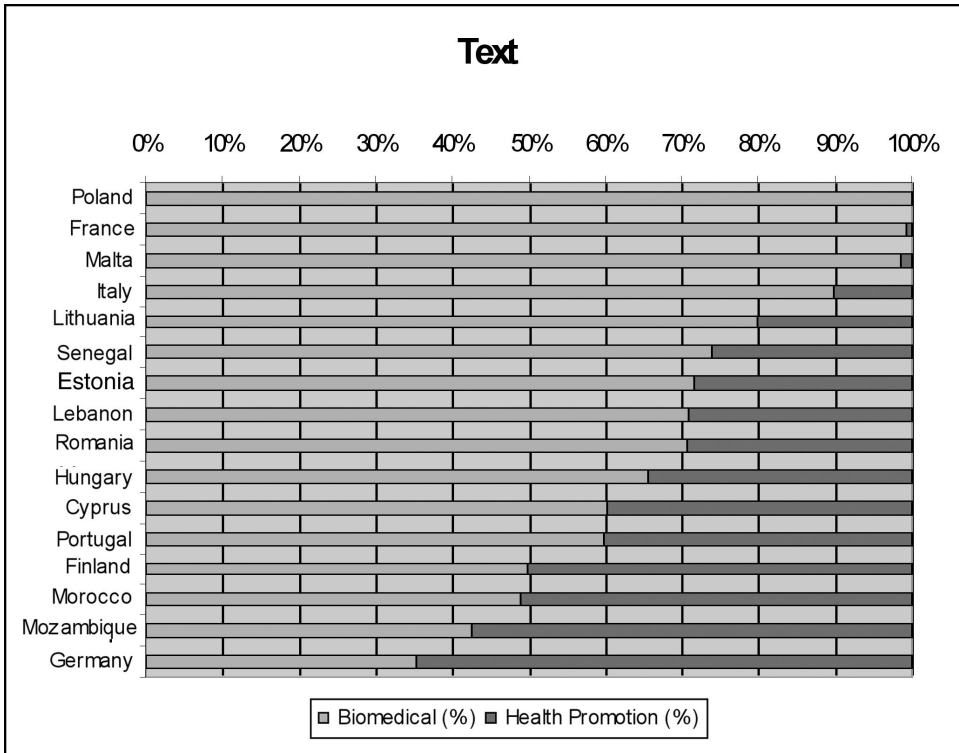


Figure 1. Percentage of BM and HP Occurrences in the Text of All Textbooks from the 16 Countries. (Numbers represent BM percentages).

### Image Analysis

As in the texts, there were several images in textbooks that just provided scientific information, but were not associated with either the Biomedical Model or the Health Promotion approaches, as it can be seen in Figure 3.

Biomedical Model and Health promotion approaches were also interpreted from image analysis. When they were transmitting Pathologic (Pa), Curative (Cu) or Preventive (Pr) concepts, as indicated in Figures 4 and 5(21), then they were included in the BM. On the contrary, when they were transmitting Healthy (He), the Empowerment (Ep), and the Environmental (Ev) concepts, then they were included in the HP approach, as indicated in Figure 5(22).

Figure 4 transmits explicitly the notion of the pathologic effects of smoking, leading to death and it is clearly in the BM approach of health education. Figure 5 is an interesting picture from a Portuguese textbook (11/12 years old pupils) where, on the left, there is an image associated with the BM with emphasis on the negative habit of smoking (*"prisoner of a unhealthy habit"*) and, on the right, there is an image associated with the HP approach, where a healthy attitude is transmitted not only by the image itself, but also by its caption that expresses explicitly: *"say yes to life, saying: I'm free, I don't smoke."*

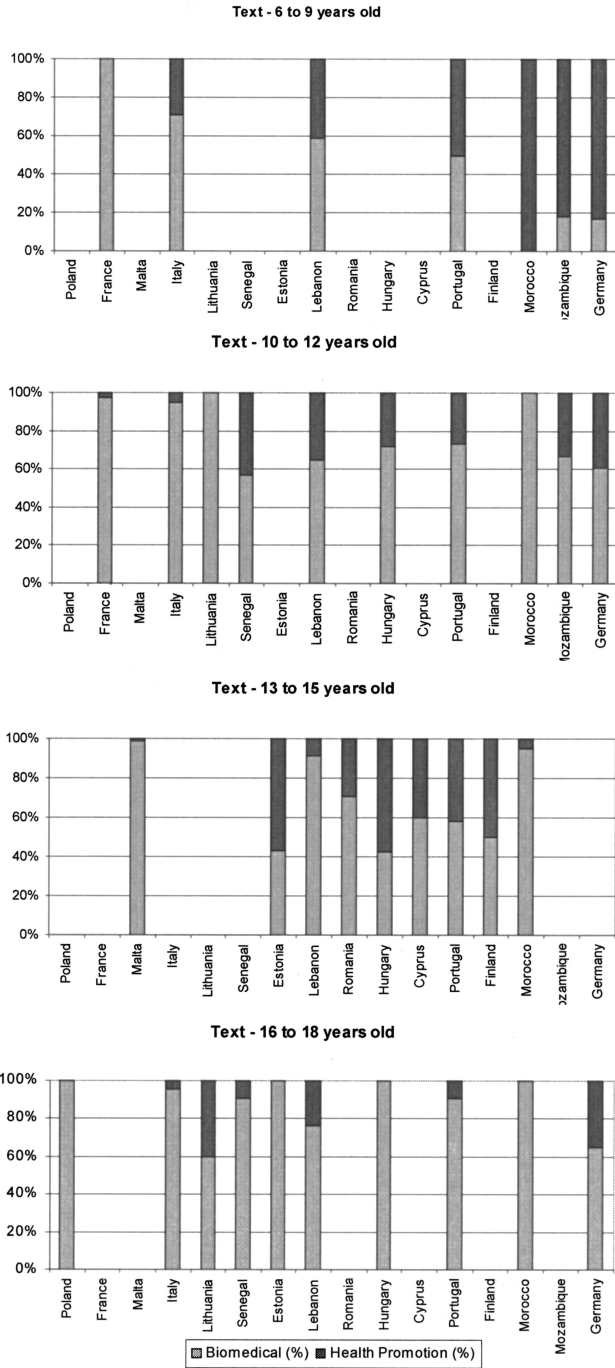


Figure 2. Percentage of BM and HP in the Text, per Group Age from Each Country. (Numbers represent BM percentages).





Figure 3. *Neutral Image or Image Transmitting Scientific Knowledge Only.* “Approximate energy requirement of an adult in different circumstances in KJ.” (Eckerskorn et al., “Ikarus – Nature and techniques” F. X. Stratil (Germany); grade 5; 10/11 years-old pupils).

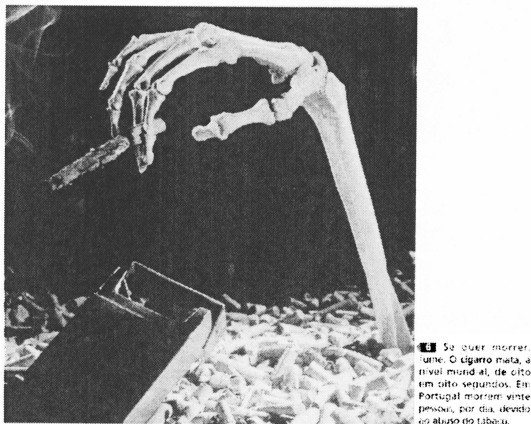


Figure 4. *Example of a Biomedical Model approach to Health Education.* “If you want to die, smoke. The cigarette kills somebody every eight seconds, at global scale. In Portugal, twenty persons die, per day, due to the tobacco abuse.” (Peralta, C. R. & Calhau, M. B., (2004), *Nós e a Vida*. Porto Editora (Portugal); grade 6; 11/12 years-old pupils.)

- Cada pessoa terá de optar por uma das seguintes vias:



**21** Ser prisioneiro do vício de fumar, suportando todas as suas consequências...



**22** ...ou dizer sim à vida, afirmando: sou livre, não fumo.

Figure 5. *BM and HP images.* “Each person must make an option for one of the following pathways: 21: Being a **prisoner of the smoking habit**, supporting all its consequences” 22: ...or say yes to life, saying: **I’m free, I don’t smoke.**” (Peralta, C. R. & Calhau, M. B. (2004), *Nós e a Vida*. Porto Editora (Portugal); grade 6; 11/12 years-old pupils).

The analysis from all countries indicated that images from Malta, France, and Estonia were associated with the Biomedical Model, with percentages of 99%, 92%, and 86%, respectively (Figure 6). In the opposite approach, that is, the Health Promotion approach, there were the following countries: Germany (25, 8% BM); Mozambique (26, 3% BM), Hungary (35% BM) and Finland (38%).

The comparison of the analysis of images (Figure 6) with the analysis of text (Figure 1) from all countries indicated that France and Italy were the countries that text and images were mostly aligned with the BM approach, whereas Germany, Mozambique, and Finland were in both cases (images and texts) aligned with the HP approach. Like the text analysis (Figure 2), the image analysis by age groups (Figure 7) indicated that there was a general tendency to progressively move from the Health Promotion approach for younger pupils towards the Biomedical Model approach for older pupils.

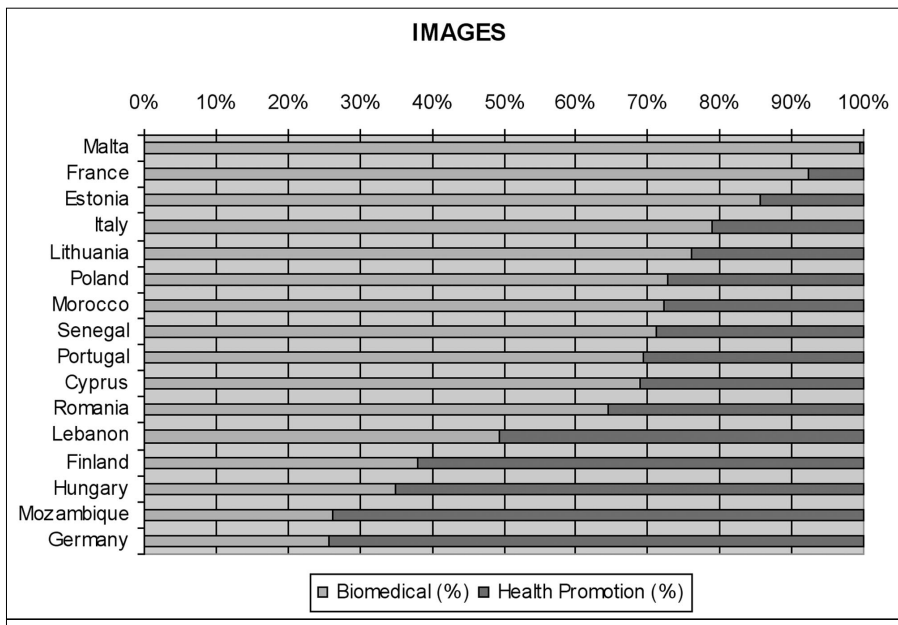


Figure 6. Percentage of BM and HP in Images of All Textbooks of the 16 Countries. (Numbers represent BM percentages).

Again, as in the text analysis, this was very clear for countries at either the BM approach (Italy), at the HP approach (Germany), or those positioned somewhere between the two approaches (Morocco, Portugal, and Lebanon).

Country teams, who analysed textbooks from all 4 age groups (Lebanon, Portugal, and Morocco) or only 3 age groups (Italy, Hungary, and Germany), indicated that the textbooks addressing the youngest pupils were more associated with the Health Promotion approach, while the books addressing the older pupils were

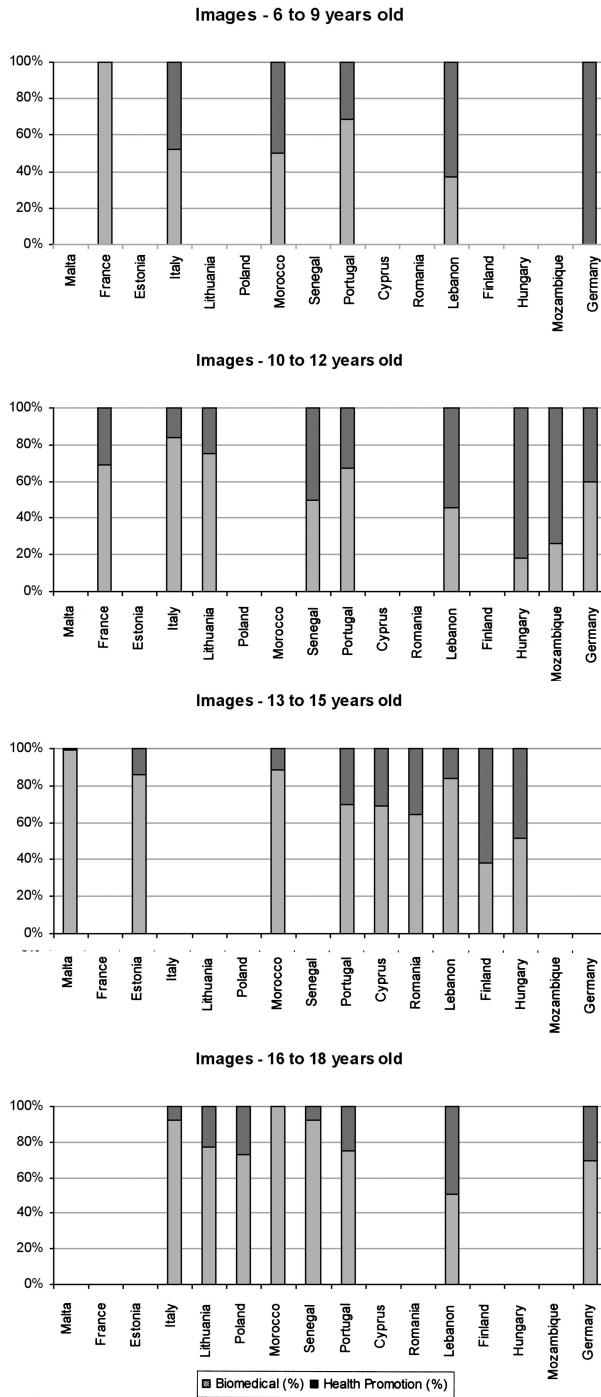


Figure 7. Percentage of BM and HP in Images, per Group Age of Each Country. (Numbers represent BM percentages.)

more aligned to the Biomedical Model approach. These findings indicate that authors and publishers of all these countries followed a similar approach, and the textbooks for younger pupils put more emphasis on good health and healthy habits, whereas the textbooks for older students put more emphasis on the transmission of knowledge about diseases (Pathologic), treatments (Curative), and disease prevention (Preventive).

Although all countries were expected to analyze textbooks from all the educational levels/grades where health education was taught, some countries analysed only one or two textbooks, and they thus created difficulties for a global analysis. This drawback turned out to be a source of difficulties concerning the way health education is presented to children and young people of these countries, and how it possibly progresses from the Health Promotion approach (at early ages) to the Biomedical Model (at elder ages). For example, Mozambique was shown to be in the Health Promotion approach (just immediately after Germany, Figures 1 and 6), but only textbooks from primary school (10–12 years old) were analysed. If Mozambican textbooks from all school levels follow a similar progression from the HP to BM approach, then it could be possible that, in the overall analysis of all Mozambican textbooks, both text and image analysis could be in total less HP and more BM. Further studies must be done to clarify this point.

In contrast to all the other textbooks analysed in this study, the French primary school textbooks (6–9 years old) were 100% aligned with the BM, in both text and image analysis. At age 10–12, there was a little reduction to 98% in text and 69% in image analysis, and aspects of the HP approach were also included. Not only textbooks from the two other age groups (13–15 and 16–18 years old), but also textbooks from other French publishers should be analysed in order to examine whether the French textbooks are much more associated with the Biomedical Model than the textbooks from the other countries of the present study.

Text analysis and image analysis of textbooks gave similar results in terms of BM and HP proportion, showing that the indicators used (Pa, Cu, Pr for BM; and He, Ep, Ev for HP) were consistent. In addition, the present study showed that although the analysis may be subjective (depending on the researcher), it appeared to be very reliable, since all the countries that analyzed textbooks from the 4 age groups or the 3 age groups clearly indicated a similar tendency to progress from the HP (early ages) to the BM approach (elder ages).

The interesting finding that textbooks for the younger pupils were more associated with the Health Promotion approach, whereas the textbooks for the elder ones were aligned with the Biomedical Model approach is a matter that needs further investigation. This was a first study intending to compare the emphasis given on BM or on HP approaches in health education textbooks of several countries with different cultural and social contexts. Analysis of all school levels by all countries and analysis of books from more than one publisher (in countries where there are several publishers) is a matter of future studies that may closely examine how health education is presented to pupils of several age cohorts.

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