

HIV, AIDS, sexuality: health education in science textbooks

ABSTRACT

Youry Souza Marques

yurysmsm@gmail.com

orcid.org/0000-0001-5967-4761

Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro, Rio de Janeiro, Brazil.

Andréa Costa da Silva

acostadasilva@gmail.com

orcid.org/0000-0003-4130-1646

Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro, Rio de Janeiro, Brazil.

Based on the premise that research in Science and Health Education is developed within a field of interfaces characterized by the interaction of multiple forms of knowledge and perspectives, this article aims to analyze how Science textbooks designed for Youth and Adult Education (EJA) address the topics of HIV, aids, and sexuality, identifying in the discourses the elements that guide the possible construction of meanings related to health. Through a discourse analysis inspired by Foucault, we examined four textbooks from the National Textbook and Teaching Materials Program (PNLD/EJA). The initial analysis of these materials revealed the centrality of health as a recurring theme in the tables of contents, titles, and units of the books. With regard to discourses on prevention and behavior, we observed a normative character aimed at regulating practices and bodies, particularly through the imperative use of recurring terms associated with this aspect. In addition, we identified a fragmented approach to HIV and sexually transmitted infections (STIs) in the analyzed materials, which may compromise an integrated understanding of these phenomena. The isolated emphasis on aids to the detriment of other STIs reflects a hierarchy of knowledge that hinders a comprehensive view of sexual health. Finally, a lack of representativeness and the omission of discussions on social inequalities, gender, and race were observed, pointing to the need for reformulations that embrace diversity and promote a more inclusive and contextualized education for Youth and Adult Education (EJA).

KEYWORDS: Education; Textbook; Science Education; STIs; Youth and Adult Education.

HIV, aids, sexualidade: ensinamentos sobre saúde em livros didáticos de ciências

RESUMO

Com o pressuposto de que a pesquisa em Educação em Ciências e Saúde desenvolve-se em um campo de interfaces, caracterizado pela interação entre múltiplos saberes e perspectivas, o presente artigo busca analisar como os livros didáticos de Ciências destinados à Educação de Jovens e Adultos (EJA) abordam os temas HIV, aids e sexualidade, identificando nos discursos, silenciamentos e perspectivas que orientam a possível construção de sentidos sobre saúde. Através da análise de discurso de inspiração foucaultiana, observamos 04 livros pertencentes ao Programa Nacional do Livro e do Material Didático (PNLD/ EJA), onde a análise inicial dos exemplares evidenciou a centralidade das noções de saúde como tema recorrente nos sumários, títulos e unidades dos livros. Já no que diz respeito aos discursos sobre prevenção e comportamento, observamos um caráter normativo que busca regular práticas e corpos, destacando-se o uso imperativo de termos recorrentes a tal aspecto. Além disso, constatamos uma abordagem fragmentada do HIV e das ISTs nos materiais analisados, o que pode comprometer a compreensão integrada desses fenômenos. A ênfase isolada na aids em detrimento de outras ISTs reflete uma hierarquização do conhecimento, dificultando a visão ampla da saúde sexual. Por fim, observou-se a falta de representatividade e a omissão de debates sobre desigualdades sociais, gênero e raça, apontando para a necessidade de reformulações que contemplem a diversidade e promovam uma educação mais inclusiva e contextualizada para a EJA.

PALAVRAS-CHAVE: Educação; Livro Didático; Ensino de Ciências, IST, Educação de Jovens e Adultos.

INTRODUCTION

The COVID-19 pandemic exposed and intensified pre-existing social, political, and cultural vulnerabilities, bringing to light the interdependence and unpredictability of global systems. In parallel, another virus (HIV) has, for decades, revealed social vulnerabilities and stigmas, particularly due to its initial association with gay men and people who inject drugs. Since the 1980s, the media and religious institutions have played a significant role in constructing the image of aids as a “gay epidemic,” reinforcing prejudice and sustaining exclusionary discourses. Ana Cláudia Condeixa de Araújo (2016) highlights this process by analyzing early bulletins from the Centers for Disease Control and Prevention (CDC) and the impact of these narratives on the social imaginary.

Quinalha (2021) also refers to this same period discussed by Araújo (2016), during which HIV and aids¹ were spreading while being assigned inappropriate names, but provides additional insights into this moment in the 1980s:

It is within this context that an organized LGBTI+ movement emerges. Although traces of earlier struggles and forms of resistance should neither be forgotten nor underestimated, it is from the Stonewall Riots in 1969 that significant changes take place, marked by the radicalization of an agenda of sexual and gender diversity. [...] At that moment, the disease represented a threat to the revolution of free desire and love embodied by homosexuals. At first glance, it seemed to be yet another perverse creation of medical discourse aimed at controlling the lives, bodies, and sexuality of those who did not conform to the standards of a society seeking to restore the centrality of the traditional, patriarchal, and heteronormative family. Thus, some sectors of the community viewed with skepticism and distrust the risk of the re-pathologization of these identities. (Quinalha, 2021, n.p.)

Araújo (2016) further notes that, by associating HIV transmission with unprotected sexual relations, religious leaders interpreted the disease as a “divine punishment” for homosexual practices, reinforcing stigmas during a period of limited scientific understanding of the virus. Over time, however, HIV and aids came to be recognized as a broader social issue, moving beyond a moralized and narrowly preventive health perspective. As a result, the topic became central to public policies and debates encompassing different groups and spaces, including schools, where sexual diversity and the educational and social dimensions of the epidemic are addressed.

In the context of Youth and Adult Education (EJA), the textbook assumes a distinctive role as both a pedagogical and political instrument, shaped by the intentions and orientations of educational public policies. Within this framework, it ceases to be merely a supporting material and instead organizes teaching practices and meanings, even if implicitly, expressing a particular conception of education, of the subject, and of knowledge. Textbooks designed for EJA often present organizational and structural adaptations aimed at addressing the specificities of an audience composed of young people, adults, and older adults, with diverse trajectories and multiple life experiences. These adaptations seek to integrate content and promote greater articulation among areas of knowledge, while also revealing ideological and cultural imprints that permeate their development.

Thus, understanding the textbook in intersection with EJA entails analyzing an artifact that simultaneously fulfills curricular requirements and carries socially and politically produced values, particularly since the institutionalization of the

National Textbook and Teaching Materials Program (PNLD), which regulates and guides its production and distribution throughout Brazil.

This article is part of a broader research project that seeks to understand how discourses on HIV, aids, and sexuality are presented in Science textbooks intended for the final years of lower secondary education (equivalent to grades 6–9 in Brazil), distributed in the 2011 and 2014 editions of the National Textbook Program for Youth and Adult Education (PNLD/EJA). The focus of this article lies on the discourses, silences, and perspectives that guide the construction of meanings related to health in these materials.

In light of this, we advance this discussion by engaging with theoretical frameworks that strengthen reflections on health. In this sense, we turn our attention to knowledge already consolidated in the field of health, recognizing it as fundamental to the debate. The following sections are therefore guided by references that enable reflection on HIV, aids, and sexuality, foregrounding the theme of health.

HIV, AIDS AND HEALTH: INTERFACES IN EDUCATION, SCIENCE AND SOCIETY

In his lecture at the Collège de France on January 22, 1975, Foucault (2001) discusses the social and historical construction of the figure of the “human monster” in the nineteenth century, a concept that, according to him, is grounded in juridical-biological assumptions. Foucault examines how, over time, criteria of normality were developed, elucidating that the normal and the abnormal are not objective categories, but rather social constructions shaped by power relations that legitimize certain truths as universal. The representation of deviations, not only physical, but also those considered ethical, ultimately reinforces social norms and justifies the control of behaviors deemed deviant.

Foucault’s reflections guide this text in considering transformations related to health, particularly as specific perspectives and concepts within the field of health intersect with issues of HIV, aids, and sexuality. Sandra Caponi (2003), for example, emphasizes the need to think of health as an openness to risk, drawing attention to the fact that the concept of health has been consolidated through a mathematically oriented approach to events that affect or originate in the human organism. The author points out that, when reflecting on a healthy state — whether through the manipulation of genetic codes considered defective or abnormal, or through the definition of behaviors and actions aimed at controlling potential illnesses — we are confronted with the notion that “[...] the concepts of health and normality tend to merge with the concept of ‘frequency’” (Caponi, 2003, p. 55).

Within Canguilhem’s (2009) framework, the therapeutic approach should respect the new state of life established by illness, rather than promoting a forced restoration to the “normal” as an ideal standard or average. In this sense, clinical practice oriented toward health should not be limited to the mere elimination of symptoms. According to the author, with regard to the process of healing, it does not necessarily imply a return to a previous state of health, as the individual’s condition tends to change in accordance with the internal reorganization resulting from organic adaptations produced by the disease. In light of this,

the patient's perspective should be prioritized, preceding scientific knowledge, which in turn must establish a respectful and collaborative dialogue with the individual experience of illness.

Regarding conceptualization, Canguilhem (2009) proposes an innovative perspective by differentiating qualitative aspects of health and disease and by introducing a new understanding of the relationship between normality and health. He defines normality as a "norm of life," encompassing both health and pathology. Thus, health and disease coexist within the spectrum of normality, and pathology does not represent an absence of norms, but rather a fundamental aspect in the formation of individual life norms. For Canguilhem, health is not merely the absence of disease, but the capacity to fall ill and recover; this possibility of overcoming adversity is an essential component of health. Moreover, health involves the ability to confront crises caused by illness and to reorganize physiological functioning through the establishment of new norms of life. Health, therefore, is a dynamic process that reflects how individuals interact with and respond to challenges throughout life, constituting not a state of complete well-being or absence of abnormalities, but a concrete expression of human experience in living with the inherent fluctuations of one's environment.

Normality and social stigma are related insofar as stigma exists only in contrast to an established social norm, constituting a social construction that defines who belongs and who is excluded from what is considered "normal." According to the sociologist Goffman (1980), a central reference in this field, normality is not an inherent characteristic, but rather a social expectation that imposes standards of identity, whereas stigma is a discrediting attribute that disqualifies individuals from full social acceptance.

Canguilhem's (2009) arguments converge with those of Caponi (2003, p. 56), who emphasizes that "[...] the difficulties of these attempts to define the concept of health in scientific terms begin to emerge." Such difficulty lies in the limitations of conceptions that define health solely as the absence of disease (Maria Thereza Ávila Dantas Coelho & Almeida Filho, 2003) or, alternatively, as proposed by the World Health Organization (WHO), as a state of complete physical, mental, and social well-being. Both definitions prove insufficient and restrictive, representing variations of the notion of health that fail to encompass the complexity and dynamism inherent to human health.

It is important to note that this article is grounded in theoretical frameworks based on the perspective of Dagmar E. Estermann Meyer et al. (2006), particularly in addressing the notion of vulnerability in its multiple dimensions. Our approach aligns with theoretical formulations that place the concept of vulnerability at the center of analysis, especially in light of its emergence within the context of the HIV and AIDS epidemic and its contemporary developments. In this context, the concept becomes particularly relevant as it is associated with efforts to move beyond preventive practices centered exclusively on the logic of risk, as traditionally conceived in epidemiology. As argued by Ayres (1997), this paradigm shift represents a significant development in the field of health, displacing the sanitary-preventive focus toward a broader, relational, and contextualized approach to prevention.

The concept of vulnerability, as articulated by Ayres et al. (2003), can be defined as “[...] the movement to consider individuals’ likelihood of exposure to illness as resulting from a set of factors that are not only individual, but also collective [and] contextual” (Ayres et al., 2003, p. 123), which are implicated both in increased susceptibility to harm and in the availability of protective resources. According to the authors, the analysis of vulnerability should consider three interdependent dimensions: individual, social, and programmatic. Individual vulnerability refers to the level and quality of information, as well as the ability to understand and apply it in daily life. Social vulnerability relates to structural factors that affect access to and appropriation of such information, such as access to education, material resources, and political participation. Programmatic vulnerability, in turn, concerns the commitment and effectiveness of state and institutional actions within public policies of prevention and care (Ayres et al., 2003).

These three dimensions —individual, social, and programmatic— are essential for understanding the multiple factors that condition both exposure to illness and the possibilities for coping with it. These understandings guide the present investigation, as Science textbooks constitute school-based devices through which health education is mediated and disseminated. In this context, the critique advanced by Meyer et al. (2006) is particularly relevant, as it emphasizes the need for health education initiatives to incorporate the complexity of the multiple dimensions of the health–disease process.

Among the perspectives put forward by Ayres and collaborators, particular attention is drawn to the approach of reducing vulnerability beyond the limited task of merely raising awareness about the problem. According to Ayres et al. (2003, pp. 135–136), “It is necessary not only to ensure that social subjects are made aware, but also that they respond in ways that enable them to overcome the material, cultural, and political obstacles that keep them vulnerable, even when they are individually aware.” In the field of education, this perspective mobilizes us to recognize Science textbooks as strategic instruments, aligned with the technological and scientific advancements of the current sociocultural context.

It is important to consider that health and disease constitute dimensions experienced in singular ways by individuals living with and affected by HIV and aids, as these dimensions transcend biomedical control and involve an ongoing process of resignification and social inclusion, which is fundamental to the construction of a positive and healthy identity. This identity is supported by key concepts within the field of health, as discussed by Ayres et al. (2003), Canguilhem (2009), Caponi (2003), Coelho and Almeida Filho (2003), and Meyer et al. (2006).

Although biomedical advances have led to significant improvements in the quality of life of people living with HIV, the stigma and discrimination associated with HIV and aids persist and manifest in different ways. As discussed thus far, the issue is not merely one of “[...] proposing more inclusive and complex scientific concepts and models, but of constructing discourses and practices that establish a new relationship with scientific knowledge,” as noted by Dina Czeresnia (2003, p. 40). Reflecting from this standpoint, discussions on the core concepts related to health lead us to new understandings of prevailing public health discourses.

Returning once again to Czeresnia (2003, p. 40), we find the following observation:

At the same time, progressive perspectives emerge that emphasize another dimension of health promotion discourse, highlighting the development of intersectoral public policies aimed at improving the quality of life of populations. In this way, promoting health acquires a much broader scope than that which confines it to the specific field of health, encompassing the environment in a broad sense, traversing both local and global perspectives, and incorporating physical, psychological, and social elements.

In continuing her analysis, the author underscores the existence of intrinsic challenges in operationalizing health promotion, noting that these challenges stem from inconsistencies, contradictions, and ambiguities that permeate both the theory and practice of this field. Such limitations reveal the complexity of translating the ideal of health promotion into concrete and effective actions, highlighting the tensions between stated objectives and the real conditions of implementation, which often encounter political, philosophical, theoretical, as well as structural and cultural constraints.

It is undeniable that the aids epidemic presents multiple facets, encompassing social and cultural aspects as well as structural and political issues. This scientific study does not intend, nor would it be feasible within its scope, to carry out an exhaustive mapping of these various manifestations, which include prejudice, fear, and the persistent lack of information. However, one of these dimensions that deserves particular attention is that of public health policies. When such policies intersect with bodies marked by different intersectionalities, such as social class, race, and sexual orientation, the relevance and complexity of the issue become evident, demanding reflections that take into account inequalities and the impacts these conditions impose on the diverse contexts of groups and individuals.

Mariana Vieira Villarinho et al. (2013), in a review study, identified the main public policies related to HIV and aids in the Brazilian context since the 1980s. Two key moments were highlighted: the first involving the implementation and consolidation of public health policies in response to the aids epidemic, and the second concerning policies aimed at improving care for people living with HIV and aids in Brazil. Villarinho and colleagues (2013) point to numerous efforts supported by legislation and various incentives from the Federal Government to ensure that public policies overcome barriers of different natures and expand their effective reach. In practice, these efforts aim to improve health care conditions for people living with HIV and aids through a broad, integrated network whose linkages ensure and sustain the full exercise of the right to health.

In this regard, Parker (1997) emphasizes that public health policies related to HIV and aids in Brazil have undergone different phases throughout their development. These stages reflect a combination of factors, including diverse contributions to the advancement of scientific knowledge about the disease, the influence of various social and institutional actors in shaping responses to the epidemic, and the articulations that have structured the organization and implementation of official actions, processes that remain challenging. In a more recent study on national STD and aids policies, Ana Isabella Sousa Almeida, Ribeiro, and Bastos (2022) identify positive coalitions in terms of social engagement, governmental

capacity, and international partnerships aimed at combating aids. However, they also warn of the rise of conservative trends in the Brazilian context, which aligns with the challenges previously noted by Parker (1997).

Another point that demands attention at this moment is reflection on the body. We are constantly confronted with everyday imperatives such as “eat healthy,” “exercise,” and “reduce screen time,” which reflect the pervasive influence of biomedical discourse. This aligns with what Foucault (1987, p. 118) had already indicated regarding the incidence of power over the body: “[...] a body is docile that may be subjected, used, transformed and improved [...] in any society, the body is caught within very tight systems of power, which impose limitations, prohibitions, or obligations upon it.” These forms of power guide individuals toward a constant pursuit of self-control in the name of health and continuous bodily improvement (that is, of the self), within a framework in which illness is not tolerated and everything becomes a matter of concern.

Silvana Vilodre Goellner and collaborators organized a work in which Couto (2003), in one of the chapters, offers contributions to reflect on the aspects that define the boundary between the healthy and the ill. In his analysis, the author highlights contemporary trends in bodily modification, explaining that:

These trends call for a redefinition of terms such as “healthy” and “ill.” In the recent past, health was considered a state of organic balance. Today, it is the fleeting glow of an ever-changing performance. The goal of medicine is no longer solely to cure; instead, there is increasing emphasis on probabilities, propensities, and tendencies. The key term is prevention. Individuals are expected to remain vigilant, to anticipate and manage risks that must be immediately detected through computerized examinations. It is not the disease itself that is pursued and cured, but rather the “probable” risk of disease that must be addressed before it manifests (Couto, 2003, p. 184).

Observing these processes, it is possible to identify the “biomedical imperative” in operation, as previously mentioned. This involves the internalization of health norms that render individuals responsible for their own “good health,” keeping them in a constant state of alert while simultaneously reproducing rigid and individualized standards of self-care. It is essential, however, not to lose sight of the fact that:

[...] the concept of health as openness to risk allows us to rethink the concepts of prevention and health promotion. Let us recall that, for Canguilhem, health implies security against risks, the audacity to correct them, and the possibility of surpassing our initial capacities. In this sense, it will be the responsibility of public health programs to create disease prevention strategies capable of minimizing exposure to unnecessary risks, while at the same time generating health promotion policies that enable us to maximize each individual’s capacity to tolerate, confront, and correct those risks or setbacks that inevitably form part of our history.” (Czeresnia, 2003, p. 71)

In this study, we bring the theme of health as a driving force for advancing our theoretical framework. Accordingly, following Czeresnia (2003), and grounded in the understanding of health as a phenomenon as proposed by Canguilhem (2009), we move beyond traditional sanitary thinking — not only in relation to health itself, but also in challenging biological explanations of normality, pathology, and disease. Our theoretical framework is thus anchored in the conceptual model of vulnerability within the field of health, as developed by Meyer et al. (2006) and Ayres et al. (2003).

THEORETICAL AND METHODOLOGICAL STRATEGIES FOR DATA PRODUCTION AND ANALYSIS IN TEXTBOOKS

Our effort to locate the PNLD/EJA textbooks took place between September 2022 and September 2024. As these are editions distributed in the triennia following 2011 and 2014, this selection is justified by the fact that these were the only years in which the PNLD/EJA issued official calls for submissions, with the approved textbooks remaining valid for the subsequent three-year periods. It is important to emphasize that these materials were not readily accessible. Table 1 below presents the materials effectively analyzed, indicating their covers, the year of distribution by PNLD/EJA, the codes used in the presentation of results and discussion, as well as the full references in accordance with the standards adopted for this scientific work. The materials correspond to the first and second segments of Youth and Adult Education (EJA), namely grades 1–5 of Basic Education (formerly referred to as *Ensino Fundamental I*) and the final years of lower secondary education (equivalent to grades 6–9 in Brazil, formerly *Ensino Fundamental II*). It should also be noted that all analyzed materials are student textbooks (*Student Edition*), although textbooks 5B and 13E also include the teacher's manual (*Teacher's Edition*).

Table 1

Textbook covers analyzed

	PNLD/EJA	2011	2014	2014	2014
Capa					
	Código	5B	13E	7A	15D
	Referência	Pifaia e Gonçalves (2009)	Pifaia e Gonçalves (2013)	Bunzen et al. (2013)	Aguiar et al. (2013)

Source: Prepared by the author (2024).

These materials, understood here as artifacts that articulate connections between macro and micropolitics, shape culturally embedded ways of thinking. Situated within debates in Science and Health Education, this study analyzes issues related to sexuality, HIV, and aids in the educational context, drawing on the theoretical and methodological framework developed by Michel Foucault. However, the ways of describing, analyzing, and presenting the findings are not fixed or limited solely to what is derived from the aforementioned author. Rather, they seek to engage with other thinkers who weave networks of dialogue aimed at deconstructing universalized truths. In an excerpt from Foucault, we read:

[...] discourse analysis, thus understood, does not reveal the universality of meaning; it brings to light the play of imposed rarity, with a fundamental power of affirmation. Rarity and affirmation, rarity, ultimately, of affirmation and not the continuous generosity of meaning, nor the monarchy of the signifier." (Foucault, 2006, p. 70)

We therefore turn to the contributions of Andréa Costa da Silva, Vera Helena Ferraz de Siqueira, and Nilmar Gonçalves Lacerda (2010), who ground their analysis in this Foucauldian perspective. According to these authors, such “rarity” described by Foucault can be identified within discursive spaces. Through ruptures and discontinuities, it becomes possible to identify privileged perspectives, revealing the interplay between passivity and activity, as well as “visibilities and silences,” and the threads and possible interweavings of the discursive fabric.

We operate within the field of possibilities of folds and compositions in the notion of “methodology” (Dagmar Estermann Meyer & Marlucy Alves Paraíso, 2012), aligning with a post-critical approach. In this sense, we adopt a productive and flexible mode of conducting research by articulating and bricolaging (Paraíso, 2012). These articulations are developed through the use of Foucauldian concepts as analytical tools, in dialogue with the field of Cultural Studies. The result of this bricolage is therefore a composition of heterogeneous elements (Paraíso, 2012), mobilized in alignment with qualitative research practices in education.

Thus, by considering textbooks as cultural artifacts authorized to materialize discourses about science, their analysis is expanded beyond their informational or instructional content to encompass the complex network of social conditions surrounding their production, distribution, and consumption. They are examined as cultural and historical products shaped by prevailing values, ideologies, representations, and discourses within a given context. In this way, these materials not only convey scientific knowledge but also produce and reinforce social norms, particularly in fields that address bodies, gender, and sexuality.

As the research progressed, we expanded our investigative possibilities by developing procedures aligned with the demands of our objects of study. To this end, we employed problematizations, guiding questions, and conceptual tools, maintaining rigor and responsibility in each decision made throughout the research process.

RESULTS AND DISCUSSION

HEALTH EDUCATION RELATED TO HIV, AIDS, AND SEXUALITY IN SCIENCE TEXTBOOKS

Our starting point for the analysis was alignment with the guidelines established by the PNLD/EJA calls for proposals (2011 and 2014), which define evaluation criteria for textbooks produced for each period of validity, considering their editorial structure in relation to the didactic-pedagogical objectives of the collection. In both calls, one of the aspects evaluated is the organization of content and activities, as expressed in the following requirement: “A table of contents that clearly reflects the organization of the proposed content and activities, and allows for the rapid location of information.” (Brazil, 2010, p. 36; Brazil, 2012, p. 49).

Figure 1

Compiled tables of contents – textbook 15D (a), 5B (b), and 13E (a)

CIÊNCIAS • 7º ANO		111	A
UNIDADE 1 • MEIO AMBIENTE			262
Capítulo 1	Haverá amanhã?	262	
• Fotosíntese • Cadeia alimentar • Teia alimentar			
Capítulo 2	O que fazer?	276	
• Ar: existência, importância, utilização, composição • Água: importância, tipos, purificação • Solo: importância, características • Impactos ambientais: efeito estufa, camada de ozônio, chuva ácida; efeitos da poluição da água e saneamento básico; efeitos da poluição do solo			
UNIDADE 2 • SAÚDE E QUALIDADE DE VIDA			294
Capítulo 3	Quando a vida começa... ..	294	
• Reprodução: sistema reprodutor (masculino e feminino), gravidez e parto • Doenças sexualmente transmissíveis • Métodos contraceptivos			
Capítulo 4	...e continua (a vida)	307	
• Saúde e qualidade de vida • Funções do organismo humano • Nutrição – sistemas digestório, respiratório e circulatório • Doenças relacionadas aos sistemas estudados • Vermínoses			
Indicações de leituras complementares			328
Bibliografia			329

UNIDADE 6 – CIÊNCIAS		B
CAPÍTULO 1 – Os materiais e a Química	301	
CAPÍTULO 2 – A energia em transformação	321	
CAPÍTULO 3 – Saúde e qualidade de vida	338	
BIBLIOGRAFIA	366	

CIÊNCIAS NATURAIS		C
Unidade 1 • Meio ambiente, 319		
Capítulo 1	Haverá amanhã?, 319	
Capítulo 2	O que fazer?, 334	
Unidade 2 • Saúde e qualidade de vida, 355		
Capítulo 3	Quando a vida começa..., 355	
Capítulo 4	... e continua (a vida), 370	

Source: Prepared by the author (2024).

In this way, we observed the centrality of the notions of “health” and “quality of life” as recurring themes in the tables of contents, titles, and units of the textbooks approved by PNLD/EJA. This presence, evident in the compilation presented in Figure 1, inspired the development of this subsection, as these expressions remain foundational in discourses on health, guiding the approach to content related to HIV, aids, and sexuality.

In light of the preceding discussion, we began to identify the centrality of health whenever statements related to HIV, aids, and sexuality appeared. As an initial step, in textbook 7A, we observed on the opening page of Chapter 8 (entitled *Information, Health, and Citizenship*) an activity proposal that instructs the reader to observe an illustration (Figure 2), followed by open-ended questions, all located on page 177. Based on the analytical perspective previously developed from the examination of the tables of contents, we began our analysis with this illustration.

Figure 2

Page 177 of textbook 7A



Source: Bunzen et al. (2013).

It presents a poster on the rights of users of the Unified Health System (SUS), in which the symbolism of the stethoscope evokes medical knowledge. This poster is observed by a character who engages in reading as an act of seeking information. In addition, the visual composition suggests the festive context typical of Brazilian Carnival, as evidenced by the atmosphere of euphoria, dancing, and colorful, lightweight clothing.

At a more immediate level, two characters stand out: one reads the message printed on a cigarette package, referring to the issue of smoking, while the other looks at a leaflet bearing the phrase “Use a condom,” indicating an approach focused on sexual practices. This chapter primarily emphasizes the connections that students can establish, through teacher mediation, between information, health, and citizenship, dimensions that are intrinsically interrelated and prove productive within the school context.

From this perspective, we understand that the qualification and production of truthful information have a direct influence on individuals’ health, enabling them to exercise full citizenship, free from fallacies in an era of fake news.

From the perspective of health promotion, access to information on prevention and healthy habits, as well as warnings about the risks of certain diseases and infections, are fundamental aspects. This is evident both in the warnings displayed on cigarette packaging and in the widespread dissemination of health campaigns during Carnival (pamphlets, leaflets), especially those focused on the prevention of sexually transmitted infections (STIs). These communicational artifacts not only promote health education but also combat misinformation.

Drawing on the theoretical framework outlined earlier, the imperative use of the term “USE” in the campaign (highlighted in red in the leaflet depicted in the image) illustrates a normative orientation aimed at inducing healthy behaviors. Across all the collections analyzed, there is a proliferation of statements grounded in “[...] assumptions that sustain the prescription of behaviors technically justified as the only possible choices for achieving the well-being of all individuals” (Meyer et al., 2006). Notably, the most frequent formulation is the directive “use a condom.”

The issue of health, linked to the rights of the citizen and thus associated with citizenship, can also be observed, as suggested by the partially obscured SUS poster, in relation to the formulation of public policies. However, it is necessary to question: which populations, in fact, have real access to these services? Do textbooks reflect this reality, or do they merely suggest an idealized version of it? Is there any indication that certain segments of society, particularly those in more vulnerable situations, face inequalities in access? Is responsibility for health conceived as a collective commitment or an individualized one? These problematizations become increasingly salient as we advance in the analytical work of this section.

The questions posed immediately after the image, which structure the textbook page, further expand the scope of possible debates. The prompt “Do all people understand what is written in each of these informational materials?” (Bunzen et al., 2013, p. 177), which accompanies the image in Figure 2, is particularly significant from our perspective. By encouraging discussion among peers, as suggested by textbook 7A, it broadens concern for collective dimensions of ac-

cess to health information. In the terms proposed by Ayres et al. (2003, p. 136), this aligns with efforts to create forms of awareness capable of “[...] overcoming the material, cultural, and political obstacles that keep individuals vulnerable, even when they are individually informed.”

However, it is essential to consider the normative, at times incipient or even empty character that acts upon bodies, regulating behaviors and social practices in the field of health. Discourses on health teach not only about disease and prevention, but also about what it means to be, at different moments, a “healthy,” “good,” or “responsible” citizen, largely emphasizing self-care. Such conceptions, as prescriptions of what should be followed in order to achieve this status of being “healthy,” function to prevent individuals from being read through the lens of pathology, and, drawing on Foucault (2017), we might even say as immoral or sinful, particularly when considering Brazil’s socio-historical and cultural intersections. In this regard, Meyer et al. (2006) argue that:

[...] the assumption has been incorporated into our health culture that behaviors not ‘educated’ by these standards are insufficient, unhealthy, and inappropriate (both from a technical-health and a moral standpoint), constituting what is contemporarily referred to as ‘risk behaviors.’ Health risk is represented as a situation of potential harm, associated primarily with individual factors (Meyer et al., 2006, p. 1336).

In another textbook, identified as 5B, we located a section on “STDs.” In this book, within the specific section of the *Teacher’s Edition* (TE), we encountered a chart permeated with examples of STIs; however, notably, it does not include aids in this context. When we turn to another section within the Student Edition of textbook 5B, we observe a repetition of the same content presented in the chart, but without additions or further development. Considering the importance of using educational resources to disseminate more comprehensive information, as recommended by health education guidelines, this lack of expansion is concerning, especially given that textbooks occupy a privileged space before the eyes of the student audience.

The fragmentation and compartmentalization of knowledge about STIs, particularly regarding HIV and aids, represent a significant barrier to engaging with a topic that requires deeper exploration. Such a reduced approach may hinder the development of a form of sexual education, or education for sexuality, that is capable of fostering more meaningful reflections on prevention and care. Although the treatment of STIs prioritizes aids across different textbooks analyzed, the lack of integration with other infections may limit students’ understanding of the broader contexts of prevention and vulnerability — a central theme emphasized in the construction of the analyzed materials, given their nature as Science textbooks. These findings resonate with Reis and Pereira (2020), who, in analyzing the treatment of syphilis in Biology textbooks from the PNLD, identified its absence in certain works, suggesting a process of invisibilization of the infection within the scope of pathogenic microorganisms considered relevant.

Regarding the paragraph analyzed in textbook 5B on Acquired Immunodeficiency Syndrome (aids), we read the following excerpt: “[...] as the body loses its natural defenses, diseases that are considered mild in healthy individuals, such as candidiasis (commonly known as thrush), may be fatal for **AIDS victim**.” (Pifaia & Gonçalves, 2009, p. 228, emphasis added). This statement exemplifies the criti-

que advanced by Meyer et al. (2006) of the traditional model of health education, which, in our case, becomes evident in the Science textbook. According to Meyer et al. (2006), a form of health education that genuinely challenges such practices should promote critical reflection on the social contexts of disease and include the voices of affected subjects. However, in the example highlighted here, the discussion remains limited to the level of the organism and a universalized subject.

In the analyzed fragment, the information is presented in a unidirectional manner: it describes the clinical effects of the disease, the narrative surrounding aids, as observed throughout the text on pages 227 and 228 of textbook 5B, exemplifies this without creating space for problematization or for valuing other forms of knowledge and lived experience, despite being a material intended for young people, adults, and older adults.

Even if subtly, it is possible to observe that health discourse may imply that a person with aids is positioned as the opposite of the “healthy subject,” associating the disease with a deviant and degrading identity. This somewhat limited perspective may implicitly suggest a premature closure of the debate or a consolidation of previously presented information, reflecting how science and society interpret and respond to the condition of people living with aids.

It is essential that topics such as HIV and aids — long-standing and recurrent within Science/Biology education in relation to health — be addressed by teachers in an integrated and contextualized manner, rather than confined exclusively to a biomedical perspective. Such an approach would enable students in Youth and Adult Education (EJA), as well as others, to understand the interrelations and impacts of these issues across different dimensions of life. Ayres et al. (2003), for instance, argue that the social dimension of vulnerability is related to access to information, the ability to understand it, and the possibility of transforming it into practical changes in everyday life.

Turning to another line of analysis, we examined excerpts from two different textbooks (5B and 13E), which, although from the same publisher, correspond to different PNLD/EJA editions. Our investigation reveals a shift in how the absence of an effective cure for aids is presented. In textbook 5B, the statement reads: “[...] **the only option** we have is prevention.” (Pifaia & Gonçalves, 2009, p. 367, emphasis added), whereas in textbook 13E the wording was modified to: “[...] **the best option** is prevention.” (Pifaia & Gonçalves, 2013, p. 305, emphasis added). This change suggests a simplification and a restrictive framing of the discussion on aids, overlooking the historical development and use of antiretroviral therapies, which have been available since the 1980s for people living with HIV. Moreover, it is important to emphasize that combating stigma and misinformation surrounding HIV also constitutes essential and effective strategies, which were not adequately addressed in the analyzed material.

Furthermore, the more recent version of textbook 13E states: “Currently, in Brazil, the public health system offers treatment and care for people infected with HIV.” (Pifaia & Gonçalves, 2013, p. 305). However, this information is presented in a fragmented manner and is not further developed, limiting the reader’s understanding of the multiple dimensions of treatment, testing, and care related to HIV and aids. A critical analysis of this content points to the need for a

more comprehensive and informative approach in the educational context, one that takes into account the various dimensions involved in responding to the epidemic.

From a biomedical perspective, health is understood in contrast to disease, with priority given to the treatment and cure of the organism, while social, cultural, and psychological factors influencing health are relegated to a secondary role (Carvalho, Silva & Clément, 2007). We observe that the textbooks analyzed, particularly in their treatment of HIV and aids, tend to privilege biomedical approaches, as evidenced in the following excerpts from textbooks 5B, 7A, and 13E, respectively: “Many diseases present signs [...] we may observe the presence of warts, blisters, sores, and spots in the genital region.” (Pifaia & Gonçalves, 2009, p. 362); “Each sexually transmitted disease is caused by a different type of micro-organism [...]” (Bunzen et al., 2013, p. 367); “A person, when infected, may show no symptoms, or the symptoms may be mistaken for a common flu.” (Pifaia & Gonçalves, 2013, p. 305).

In textbook 15D, the perception of a fragmented approach and a sense of closure in the treatment of HIV and aids becomes even more evident. This perception arises from the limited number of direct and indirect excerpts addressing “HIV” and “aids,” as illustrated in the statement presented in Figure 3. In one instance, on page 342, the main content addresses different types of diseases, as follows: “Diseases can also be classified according to the organs affected, forming groups such as: sexually transmitted diseases (STDs), which affect the sexual organs; [...]” (Aguiar et al., 2013, p. 342). This represents a more general reference to STIs, presenting them as part of a broader classificatory framework in a predominantly theoretical manner.

Figure 3

Page 342 of textbook 15D

OS DIFERENTES TIPOS DE DOENÇAS

Há diferentes modos de classificar as doenças. Usando como critério o seu tempo médio de duração, as doenças podem ser classificadas em agudas (de evolução rápida, seja para a cura ou para a morte) ou crônicas (que persistem por muitos anos ou mesmo por toda a vida e não têm cura, mas podem ser controladas). As doenças também podem ser classificadas conforme os órgãos afetados, formando conjuntos como: doenças sexualmente transmissíveis (DST), que afetam os órgãos sexuais; doenças do aparelho respiratório, como bronquites e asma; doenças psiquiátricas, relacionadas ao funcionamento do cérebro e ao comportamento; doenças da pele; doenças que afetam o sistema de sustentação do corpo (o sistema musculoesquelético), como certos reumatismos, artrites e artroses; e assim por diante.

CONHECER MAIS

Como sabemos que estamos doentes?

Dor de cabeça, mal-estar ou colesterol elevado não são doenças; são sinais e sintomas que mostram que algo diferente está acontecendo no organismo. Os sinais são os modos como a doença se expressa no corpo. Eles podem ser visíveis (como inchaço), ou demonstrados por meio de exames (como elevação da taxa de glicose no sangue). Os sintomas, como o nome indica, incluem as alterações que a pessoa sente, como tontura, cansaço ou dor.

Muitos sinais e sintomas são comuns a várias doenças. Contudo, é bom ter em mente que diversas doenças evoluem sem sintomas ou sinais aparentes, sendo chamadas de doenças silenciosas. É o caso do diabetes, da hipertensão arterial e de vários tipos de câncer, que só podem ser desco-

Source: Aguiar et al. (2013)

On the following page (p. 343), within the box *Aplicar Conhecimentos I (Apply Knowledge I)*, we find an exercise focused on preventive measures and actions. The activity consists of identifying different types of health problems, namely infectious, parasitic, chronic, degenerative, and those caused by external factors. In this context, the textbook organizes the task into two columns and uses aids as an example, as follows: *Infectious disease – aids* (Column A) / *Actions for preventing diseases or their complications – Use a condom and get tested for HIV* (Column B).

The observations outlined regarding textbook 15D gain further significance as we seek to demonstrate how a reductionist approach to HIV, aids, and prevention permeates Science content in Youth and Adult Education (EJA), with important implications for health education and student formation. At a more immediate level, we observe that the fragmented way in which HIV and aids are mobilized to address health and quality of life reflects a certain reductionism in the treatment of prevention, as well as the presence of a normative discourse. The analysis of textbook 15D shows that HIV and aids prevention is addressed in a limited and isolated manner, highlighting only two actions: condom use and HIV testing, in a static way.

This perspective aligns with a biomedical model that prioritizes individual and physiological measures while overlooking broader public health approaches, such as *combination prevention*, which has been adopted in Brazil since 2013 (Clarisse de Gusmão Castro et al., 2024) and encompasses multiple harm-reduction strategies and educational actions. According to Castro et al. (2024), from 2014 onward, with its incorporation and subsequent implementation within the Unified Health System (SUS), Pre-Exposure Prophylaxis (PrEP) and Post-Exposure Prophylaxis (PEP) have become central strategies in the field of prevention. In this sense, it becomes urgent for future materials to incorporate updates that address these practices and their contemporary developments.

If we seek to account for the full set of elements that must be modified in order to achieve a sufficiently positive social response in controlling the HIV/aids epidemic, or any other condition approached through the lens of vulnerability, the outlook is unlikely to be encouraging. This task necessarily requires the coordinated action of a wide range of social forces. Moreover, we will never have complete knowledge of what must be done or of the outcomes of our actions (Ayres et al., 2003, p. 132).

In line with the reflections proposed by Ayres et al. (2003) on strategies for addressing such challenges, our analysis of EJA textbooks shows that, by privileging and making visible a narrowly centered approach to prevention, these materials often neglect key dimensions, such as the social dimension, as well as the promotion of autonomy and decision-making. The recurrent imperative “use a condom” and “get tested,” without encouraging students to critically reflect on choices, contexts, different prevention strategies, and ways of accessing information, ultimately reinforces a normative and prescriptive discourse as the most effective model of prevention.

Without overextending our analysis, and while remaining attentive to what remains unsaid, yet is also productive in Science textbooks for EJA, we can reflect at this point on the absence of discussion regarding intimate lubricants. Such products play an important role in promoting comfort during sexual activity. Although they are not considered a direct method for preventing sexually transmitted infections (STIs), water-based lubricants help reduce friction, minimizing the risk of condom breakage and, consequently, decreasing vulnerability to unintended exposure. Furthermore, by preserving the integrity of the skin barrier, which functions as a natural defense of the body, intimate lubricants may contribute to maintaining the physiological conditions of the skin and mucous membranes. Specifically, water-based lubricants may also aid in diluting infectious agents, reducing their concentration and potential for transmission, although this effect

does not replace evidence-based prevention methods, as emphasized in Science and Biology textbooks.

In our investigation, no mention of lubricants was identified, despite the frequent emphasis on condom use. Addressing intimate lubricants would require textbook authors to engage with language, symbolism, and imagination in ways that introduce notions related to desire and pleasure. The omission of references to lubricants not only reflects a gap, but also reveals the difficulty, or even reluctance, of authors to engage with themes related to sexual desire. This stance contributes to the maintenance of taboos and hegemonic norms surrounding sexuality in educational contexts, perpetuating a model of teaching that must be rethought in order to foster human development. As argued by Louro (1997) and Parker (2000), educational discourses on sexuality often reinforce moralizing perspectives, centered on the fear of disease rather than on a plural and emancipatory approach to sexual education.

The production of meaning as limitation, together with the lack of autonomy, carries significant educational implications by overlooking the social, political, emotional, and cultural dimensions associated with health. This brings into focus the role of the school as a space capable of enabling and generating conditions for thinking about health education and the promotion of sexuality education. Georges Canguilhem (2009) helps us reflect on the need to bring forth a new vital order, in which “[...] disease is not a variation in the dimension of health, but a new dimension of life” (Canguilhem, 2009, p. 60).

Considering the diversity of lives experiencing illness, disease, health, or well-being, conditions that, at some point, intersect with the school experience, and recognizing that the textbook articulates multiple “forms of information and knowledge of diverse natures: scientific, cultural, social, political, and ethical-moral [...] conveying ways of speaking and thinking about natural processes and phenomena that are not dissociated from sociocultural processes and phenomena” (Corrêa & Silva, 2022, p. 15), it becomes evident that the production of knowledge about disease in these materials is marked by terminologies, language, images, and discourses surrounding HIV and aids shaped by disgust, fear, guilt, and by information gaps and imprecision.

An effect of closure can be observed here in the treatment of aids and its potential educational implications. The recurrent use of aids as an example of prevention, even within discussions of public policy, tends to restrict reflection, leading the reader to associate it as the primary, or even the sole, infection to be avoided, linked to limited preventive measures. Although textbook 15D proposes, in the footer of page 344, an activity that could expand the debate — “Share your results with your classmates by creating a large chart with the diseases and prevention resources identified by everyone” (Aguilar et al., 2013, p. 344) — the conditions for the emergence of perspectives beyond the biomedical remain scarce or insufficiently encouraged. Over time, this may reduce student engagement and the effectiveness of collective preventive practices.

To further deepen the investigation, we identified in textbook 5B (Teacher’s Edition), on page 223 in the Science section, a set of objectives related to Chapter 3: *When Life Begins*. The Teacher’s Edition highlights the following:

- To understand **sexuality** as an integral and natural characteristic of every human being, and that **sexual health** is an important factor in maintaining both **individual and collective health**.

- To promote behavioral attitudes conducive to **a healthy sexual life**: involving respect for one's own body as well as that of one's partner, so **that the expression of sexuality** occurs in a responsible manner (Pifaia & Gonçalves, 2009, p. 223, emphasis added).

There is a mismatch in the articulation of the proposed objectives when sexuality is addressed in relation to the stated "conceptual contents" and "attitudinal dimensions." This perception emerged primarily from the fact that access to the Teacher's Edition occurred only after the complete analytical examination of the textbook unit in question (Figure 4).

Figure 4
Page 223 of textbook 5B

CONTEÚDOS CONCEITUAIS	CONTEÚDOS PROCEDIMENTAIS	CONTEÚDOS ATITUDINAIS
• Reprodução: sistema reprodutor (masculino e feminino); gravidez e parto. • Doenças sexualmente transmissíveis. • Métodos contraceptivos.	• Leitura e interpretação de textos diversos (imagens, didático, poema, gráfico, esquemas, tabelas). • Levantamento e comparação de dados.	• Promoção de atitudes que visem à manutenção da saúde pessoal e coletiva e de mudança de hábitos relacionados à vida sexual. • Respeito à diferença de crenças e valores.

Source: Pifaia & Gonçalves (2009).

In the Teacher's Edition, we observe an effort to address sexuality at the level of objectives; however, the conceptual framework remains predominantly biologist, thereby reinforcing a traditional approach within Science education to issues of sexuality. Sexuality itself is not treated as a concept to be explored. While "respect for differences in beliefs and values" is explicitly stated within the attitudinal dimension, it remains largely unexpressed in relation to topics such as gender and sexual diversity, and visual materials are not mobilized as a means of representing sexual plurality.

We identify the persistence of hegemonic values centered on a procreative and hygienist model of sexuality, structured around a notion of complementarity between bodies. Thus, when we examine discussions of human reproduction in EJA textbooks, the focus on the male and female reproductive systems, followed by pregnancy and childbirth, contributes to a narrative that reflects a restrictive understanding of sexual experience.

Still within the Teacher's Edition of textbook 5B, we identified the box "*Deepening the Topic*" on page 226. From our reading, this section reveals openings that may allow teachers, when guided by a problem-posing approach, to expand the teaching of sexuality beyond strictly biological aspects. We identified fragments addressing "emotions," "affective exchanges," and "romantic relationships," which are presented in the Teacher's Edition of the textbook under analysis. Notably, the following excerpt appears on page 226: "When we fall in love, our body changes: the way we look and smile shifts, and our mood is altered." (Pifaia & Gonçalves, 2009, p. 226).

However, the development of the topic is ultimately guided by the imperative of maintaining health, which, according to the Teacher's Edition, must be preserved in order to prevent disease. Although there initially appears to be an opening for discussing sex or sexuality, both the text and its placement on the page

steer the discussion toward the health of the organism, thereby narrowing its scope. To contextualize, the box *“Deepening the Topic”* concludes a thematic trajectory that presents sexual health through the lens of hygiene and traditional prevention, relegating the body to a secondary role while emphasizing specific organs, as indicated by the heading *“Maintaining the Health of the Reproductive Organs”* (Pifaia & Gonçalves, 2009, p. 362).

We identified an attempt to introduce the theme of romantic relationships; however, this approach ultimately falls back on a biological framework that limits other possible understandings, such as desire and pleasure. Returning to box 5B (p. 226) and the Teacher’s Edition, it becomes evident that the scientific knowledge valued in human romantic relationships is compared to that of certain insects, using the example of pheromones which are chemical molecules studied and measured within the biological sciences. Sexual attraction is addressed in greater depth, yet remains restricted to elements of animal biology, particularly those related to mating and reproduction. Human behavior, in turn, is only superficially explored, and there is no consideration of how relationships and sexual encounters evolve over time or are shaped by sociocultural influences.

Furthermore, the Teacher’s Edition signals a certain hesitation and difficulty in addressing topics such as sexuality in a broader sense, perhaps as a way of negotiating what is taught about health through the mediation of Science textbooks. These difficulties are attributed both to students (in learning) and to educators (in teaching). This challenge reflects not only cultural dynamics of embarrassment and taboo, but also a hierarchy of knowledge that marginalizes lived experience and privileges medical authority, even within the school context. It is common to find, within the textbooks, recommendations to seek out health professionals for discussions, as well as suggestions for supplementary reading materials.

For example, on page 225 of textbook 5B, when addressing prostate cancer without explicitly mentioning the digital rectal exam, both the textbook and the Teacher’s Edition circumvent an issue that, while central, is culturally charged and therefore treated as “sensitive.” As the text states, “perhaps most men feel embarrassed” (Pifaia & Gonçalves, 2009, p. 225). This choice reflects mechanisms through which certain topics are silenced or softened within the school space, while also revealing the fragility of pedagogical approaches in dealing with aspects of sexuality and the human body that are perceived as complex, in this case, men’s health.

We also identified the absence of an intersectional perspective across other dimensions. A critical point emerging from our analysis of textbooks 5B, 7A, 15D, and 13E is the lack of intersectional approaches to HIV and aids (what remains unsaid) across materials that aim to address health and quality of life. Márcia Alves da Silva and Renata Kabke Pinheiro (2019, p. 50), in conducting an intersectional analysis that considers gender, class, and race in EJA textbooks, identify in Science materials a “concern on the part of the authors to oppose sexism, thus demonstrating a commitment to combating gender prejudice,” particularly in chapters addressing sexuality. However, Silva and Pinheiro (2019) also highlight that, although such themes are mobilized, for instance, in discussions of women and labor, aging, and the distribution of roles within the family, important limitations persist. These include loose ends, invisibilities, and analytical gaps that fail

to deepen key aspects of the discussion, representing ongoing challenges, especially given that these materials are intended for EJA students.

Our analysis further indicates that, although biological sex and age are the most frequently addressed and identifiable markers in EJA textbooks, other markers, such as race, class, territory, generation, and ethnicity do not receive adequate attention. When they do appear, their treatment is limited and episodic. As a result, we found no explicit articulation, for example, between urbanization and sexual orientation, or between the world of work and class mobility, among other possible intersections. Yet such connections could, and arguably should be incorporated into textbooks, particularly when aligned with pedagogical practice, given the structural barriers to health and information access that these contexts and markers entail.

Drawing on the conceptual framework of vulnerability that underpins this study, we recognize that:

[...] it can significantly contribute to the renewal of health practices in general and, particularly, to health education practices, because it consists precisely in the search for a new horizon for situating and articulating risks, 'causalities,' and 'determinations,' bringing health, as well as the possibility of illness, into the realm of real life, into the world of subjects in relation, where these processes acquire singular meanings" (Meyer et al., 2006, p. 1341).

Thus, in real-world contexts, Science textbooks could open "windows" that allow for the articulation of such assumptions as part of scientific content, taking into account the impact of these issues on vulnerability to HIV and aids from an intersectional perspective. This leads us to ask: why does this not occur? Whom should a public policy such as the textbook program serve? What dynamics of knowledge and power are at play when certain forms of school knowledge are mobilized to the detriment of others within regimes of visibility? Rather than seeking definitive answers, what matters is to sustain the ongoing critical tension around these questions.

FINAL CONSIDERATIONS

The analysis brought to light key aspects related to HIV, aids, and sexuality in Science textbooks for Youth and Adult Education (EJA), as initially identified through the examination of tables of contents. This methodological strategy proved effective in mapping the discursive structure and understanding how themes, terms, notions, ideas, and images are introduced and distributed throughout the material. Such a critical and attentive perspective revealed that the organization of content can directly influence how readers access and interpret scientific knowledge about HIV, aids, and sexuality.

Regarding discourses on prevention and behavior, we observed a normative orientation aimed at constructing statements that regulate practices and bodies, particularly through the use of imperative language in campaigns. In addition, we identified a fragmented approach to HIV and STIs in the analyzed materials, which may hinder a more integrated understanding of these phenomena. The isolated emphasis on aids, to the detriment of other STIs, reflects a hierarchy of knowledge that limits a broader understanding of sexual health.

A degree of reductionism also stands out in the treatment of prevention across the textbooks, often restricted to condom use and testing. This limited perspective largely overlooks the social and cultural factors that shape health and well-being. Moreover, there is a predominance of a health discourse grounded in a biomedical perspective, frequently disconnected from the realities, needs, and diverse sociocultural contexts of students. This pattern recurs across the textbooks analyzed, particularly in how they construct teachings related to “quality of life” and “health” in their treatment of HIV, aids, and sexuality. Furthermore, the omission of references to intimate lubricants and the silencing of topics such as the digital rectal exam highlight the difficulty of addressing broader dimensions of sexuality, reinforcing taboos and hegemonic norms.

Finally, the absence of an intersectional perspective in the treatment of HIV and aids was evident, limiting the understanding of the multiple dimensions that shape these issues. The lack of representativeness and the omission of discussions on social inequalities, gender, and race, for example, point to the need for reformulations that embrace diversity and promote a more inclusive and contextualized educational approach within EJA.

Within the field of textbook studies, already well established and marked by diverse analytical approaches, it becomes increasingly necessary to deepen attention to the complex discursive dimensions that permeate these materials. In this regard, it is particularly important to adopt a sensitive perspective toward socioscientific content, especially that which directly engages with everyday life, well-being, and the relationships between human beings and the broader environment.

These findings highlight the urgency of problematizing the regimes of truth that shape the field of health, moving beyond approaches that merely prescribe behaviors. Rather than simply forming “prepared” subjects, the task is to investigate how sexuality and prevention are produced through biopolitical and pedagogical dispositifs that normalize bodies. In this sense, there is a need to strengthen educational practices that interrogate structural barriers and the knowledge-power dynamics that produce vulnerability. The school and the textbook thus reaffirm themselves as spaces of dispute and meaning-making, functioning as sites of experimentation where hegemonic ways of living health can be critically challenged.

ACKNOWLEDGMENTS

This study was supported by the Brazilian Coordination for the Improvement of Higher Education Personnel (CAPES) – Finance Code 001.

NOTES

1. HIV (Human Immunodeficiency Virus) affects the immune system by attacking and weakening CD4 lymphocytes, which are essential for the body's defense. Without treatment, the infection may progress to aids (Acquired Immunodeficiency Syndrome), an advanced stage characterized by severe immunosuppression and increased vulnerability to opportunistic infections and certain types of cancer. Understanding the distinction between HIV and aids helps to identify the misconception and prejudicial bias in expressions such as "So-and-so got aids!", since HIV is acquired and lived with, unlike transient infectious diseases such as the flu. In contrast to the influence of American usage, this article adopts the lowercase form "aids."
2. PNLD EJA is the branch of the National Textbook and Educational Materials Program dedicated to Youth and Adult Education. It is responsible for evaluating, selecting, and distributing textbooks specifically designed for this modality, taking into account its pedagogical and formative particularities.
3. <https://www.gov.br/aids/pt-br/assuntos/prevencao-combinada>
4. The concept of biopolitics, developed by Michel Foucault, refers to a technology of power that emerged in the eighteenth century, shifting the focus from the discipline of individual bodies to the management of population life. The State comes to intervene in biological processes such as birth rates, health, and longevity in order to ensure productivity and the normalization of the social body.
5. Translation by Marina Valle. E-mail: minavalle@gmail.com

REFERENCES

- Aguiar, C. A. de, Bazzoni, C., Onaga, D. S., Madeira, F., Ramos, H. C., Rodrigues, J. C. F., Mancatte, M. A., Cordeiro, M. C. G., Valadão, M. M., Cieto, M. L., Giansanti, R., Vieira, R. A., & Romaniw, S. A. (2013). *Identidades, 9º ano: Ensino fundamental: Educação de jovens e adultos* (2nd ed., pp. 338–366). Global. (Viver, Aprender).
- Almeida, A. I. S., Ribeiro, J. M., & Bastos, F. I. (2022). Analysis of the national STD/AIDS policy from the perspective of the advocacy coalition framework. *Ciência & Saúde Coletiva*, 27(3), 837–848. <https://doi.org/10.1590/1413-81232022273.45862020>
- Araujo, A. C. C. de. (2016). *A AIDS e a imprensa: as vozes e os silêncios nas reportagens do Dia Mundial da Luta contra Aids de 1988 a 2013* [Doctoral dissertation, Fundação Oswaldo Cruz]. Instituto de Comunicação e Informação Científica e Tecnológica em Saúde. <https://api.arca.fiocruz.br/api/core/bitstreams/d562543f-5ebe-4a41-899b-7947737ef9f5/content>

- Ayres, J. R. C. M. (1997). *Sobre o risco: Para compreender a epidemiologia*. Hucitec.
- Ayres, J. R. C. M., França Júnior, I., Calazans, G. J., & Saletti Filho, H. C. (2003). The concept of vulnerability and health practices: New perspectives and challenges. In D. Czeresnia & C. M. Freitas (Eds.), *Health promotion: Concepts, reflections, trends* (pp. 117–139). Fiocruz.
- Bunzen, C., Mendonça, M., Mansutti, M. A., Valadão, M. M., Castelo, R. Jr., & Giansanti, R. (2013). *Vivências e diversidade* (Vol. 2: Early years of elementary education) (2nd ed., pp. 169–187; 314–324; 367–400). Global. (Viver, Aprender).
- Brazil. Ministry of Education. (2010). *PNLD EJA 2011: Call for submission for the evaluation and selection of textbooks for the National Textbook Program for Youth and Adult Education*. Brasília, DF: MEC.
- Brazil. Ministry of Education. (2012). *PNLD EJA 2014: Call for submission for the evaluation and selection of textbooks for the National Textbook Program for Youth and Adult Education*. Brasília, DF: MEC.
- Canguilhem, G. (2009). *The normal and the pathological* (6th rev. ed.). Forense Universitária.
- Caponi, S. (2003). Health as openness to risk. In D. Czeresnia (Ed.), *Health promotion: Concepts, reflections, trends*. Fiocruz.
- Carvalho, G., Silva, R., & Clément, P. (2007). Historical analysis of Portuguese primary school textbooks (1920–2005): On the topic of digestion. *International Journal of Science Education*, 29(2), 173–193.
- Castro, C. G., Moritz, A. F. E., Chaves, L. A., & Oliveira, M. A. (2024). Incorporation of PrEP in Brazil according to Grounded Theory. *Physis: Revista de Saúde Coletiva*, 34(2). <https://doi.org/10.1590/S0103-7331202434010pt>
- Coelho, M. T. Á. D., & Almeida Filho, N. (2003). Analysis of the concept of health from the epistemology of Canguilhem and Foucault. In P. Goldenberg et al. (Eds.), *O clássico e o novo: Tendências, objetos e abordagens em ciências sociais e saúde*. Fiocruz.
- Corrêa, L. M. C., & Silva, E. P. Q. (2022). AIDS: Dialogue between science textbooks (PNLD 2017/2020), teachers, and students. *Revista de Educação PUC-Campinas*, 27, 1–17. <https://doi.org/10.24220/2318-0870v27e2022a5765>
- Couto, E. S. (2003). Modified bodies: The healthy and the ill in cyberculture. In G. L. Louro, J. Felipe, & S. V. Goellner (Eds.), *Corpo, gênero e sexualidade: Um debate contemporâneo na educação* (9th ed., pp. 172–186). Vozes.
- Czeresnia, D. (2003). The concept of health and the distinction between prevention and health promotion. In D. Czeresnia (Ed.), *Health promotion: Concepts, reflections, trends*. Fiocruz.
- Foucault, M. (1987). *Discipline and punish: The birth of the prison* (R. Ramallete, Trans.). Vozes.
- Foucault, M. (2001). *Abnormal: Lectures at the Collège de France (1974–1975)* (E. Brandão, Trans.). Martins Fontes.

- Foucault, M. (2006). *The order of discourse* (13th ed.). Loyola.
- Foucault, M. (2017). *The history of sexuality I: The will to knowledge* (6th ed.). Paz e Terra.
- Goffman, E. (1980). *Stigma: Notes on the management of spoiled identity*. Zahar.
- Louro, G. L. (1997). *Gender, sexuality, and education: A post-structuralist perspective*. Vozes.
- Meyer, D., Mello, D. F., Valadão, M. M., & Ayres, J. R. C. M. (2006). "Você aprende. A gente ensina?" Questioning relations between education and health from the perspective of vulnerability. *Cadernos de Saúde Pública*, 22(6), 1335–1342. <https://doi.org/10.1590/S0102-311X2006000600022>
- Meyer, D. E., & Paraíso, M. A. (Eds.). (2012). *Post-critical research methodologies in education*. Mazza Edições.
- Paraíso, M. A. (2012). Post-critical research methodologies in education and curriculum. In D. E. Meyer & M. A. Paraíso (Eds.), *Post-critical research methodologies in education* (pp. 23–45). Mazza Edições.
- Parker, R. (1997). *Policies, institutions, and AIDS: Confronting the epidemic in Brazil*. ABIA.
- Parker, R. (2000). *Reinventing sexuality: Discourses of AIDS prevention in Brazil*. Editora 34.
- Pifaia, C. M. L., & Gonçalves, S. A. (2013). *Tempo de aprender: Ciências – Teacher's manual (EJA, grades 6–9)* (3rd ed., pp. 186–189; 294–306). IBEP.
- Pifaia, C. M. L., & Gonçalves, S. A. (2009). *Tempo de aprender: Second segment of elementary education (EJA 7th grade, Vol. 2, pp. 355–369)*. IBEP.
- Quinalha, R. (2021). The meaning of the HIV/AIDS epidemic for the LGBTI+ community. Diadorim. <https://adiadorim.org/opiniao/2021/01/o-significado-da-epidemia-de-hiv-aids-para-a-comunidade-lgbti/>
- Reis, R. M., & Pereira, C. A. S. (2020). Approach to syphilis in biology textbooks approved by the National Textbook Program (PNLD 2018). *ACTIO*, 5(3), 1–23.
- Silva, A. C. da, Siqueira, V. H. F., & Lacerda, N. G. (2010). Literature and sexuality: Visibilities and silences in teaching practices. *Educação & Realidade*, 35(1), 233–251.
- Silva, M. A., & Pinheiro, R. K. A. (2019). Intersectionality of gender, race, and class in EJA textbooks. *Revista FAEEBA – Educação e Contemporaneidade*, 28(54), 43–58.
- Villarinho, M. V., Padilha, M. I., Berardinelli, L. M. M., Borenstein, M. S., Meirelles, B. H. S., & Andrade, S. R. (2013). Public health policies in response to the AIDS epidemic and care for people living with HIV/AIDS. *Revista Brasileira de Enfermagem*, 66(2), 271–277.

Received: Oct. 27, 2025

Approved: Apr. 8th, 2026

DOI: <https://doi.org/10.3895/actio.v11n2.21068>

How to cite:

Marques, Y. S. & Silva, A. C. da (2026). HIV, AIDS, Sexuality: health education in science textbooks. **ACTIO**, 11(2), 1-26. <https://doi.org/10.3895/actio.v11n2.21068>

Copyright: This article is licensed under the terms of the Creative Commons Attribution 4.0 International Licence.



Recebido: 27 out. 2025

Aprovado: 08 abr. 2026

DOI: <https://doi.org/10.3895/actio.v11n2.21068>

Como citar:

Marques, Y. S. & Silva, A. C. da (2026). HIV, AIDS, sexualidade: ensinamentos sobre saúde em livros didáticos de ciências. **ACTIO**, 11(2), 1-26. <https://doi.org/10.3895/actio.v11n2.21068>

Direito autoral: Este artigo está licenciado sob os termos da Licença Creative Commons-Atribuição 4.0 Internacional.

