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Reflections on health and human rights in the context of the Zika epidemic: an integrative review

Reflexões sobre saúde e direitos humanos em tempos de Zika: uma revisão integrativa

Reflexiones sobre salud y derechos humanos en tiempos de Zika: una revisión integrativa

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ABSTRACT

Objective: To analyze how health and human rights were interconnected during the early stages of the Zika virus epidemic. **Method:** This integrative literature review was conducted between 2015 and 2019 using the descriptors Zika virus, human rights, sexual and reproductive rights, right to health, socioeconomic rights, and persons with disabilities. The descriptors were combined in pairs, always using Zika virus as the primary descriptor and linking it to the others through the Boolean operator AND. Searches were performed in the LILACS, SciELO, PubMed, Scopus, and Web of Science databases. **Results:** A total of 16 articles were selected, addressing different dimensions of the epidemic response, including the protection of sexual and reproductive rights, care for children with disabilities resulting from congenital Zika syndrome, intersectoral action, communication in contexts of uncertainty, and public health and sanitation policies. The analyses showed that social, gender, and territorial inequalities intensified the impacts of the epidemic, disproportionately affecting socially vulnerable populations. **Conclusion:** The findings highlight the need for intersectoral public policies capable of ensuring comprehensive care for affected families, protecting sexual and reproductive rights, and guaranteeing access to information.

Descriptors: Zika virus; Human Rights; Sexual and reproductive rights; Right to health; People with disabilities.

RESUMO

Objetivo: *Analisar como a saúde e os direitos humanos se articularam durante o início da epidemia de Zika vírus.* ***Método:*** *Trata-se de uma revisão integrativa da literatura, realizada entre 2015 e 2019, com os descritores Zika vírus, direitos humanos, direitos sexuais e reprodutivos, direito à saúde, direitos socioeconômicos e pessoas com deficiência. As combinações foram feitas dois a dois, tendo sempre Zika vírus como descritor principal, associado aos demais por meio do operador booleano AND. As buscas foram conduzidas nas bases LILACS, SciELO, PubMed, Scopus e Web of Science.* ***Resultados:*** *Foram selecionados 16 artigos que abordaram diferentes dimensões da resposta à epidemia, incluindo a garantia dos direitos sexuais e reprodutivos, o cuidado às crianças com deficiência decorrente da Síndrome Congênita do Zika, a atuação intersetorial, a comunicação em contextos de incerteza e as políticas públicas de saúde e saneamento. As análises revelaram que desigualdades sociais, de gênero e territoriais potencializaram os impactos da epidemia, atingindo, de forma mais severa, as populações em situação de vulnerabilidade.* ***Conclusão:*** *Destaca-se a necessidade de políticas públicas intersetoriais que assegurem cuidado integral às famílias afetadas, proteção dos direitos sexuais e reprodutivos, bem como acesso à informação.*

Descritores: *Zika vírus; Direitos Humanos; Direitos sexuais e reprodutivos; Direito à saúde; Pessoas com deficiência.*

RESUMEN

Objetivo: *Analizar cómo la salud y los derechos humanos se articularon durante el inicio de la epidemia del virus del Zika.* ***Método:*** *Se trata de una revisión integrativa de la literatura, realizada entre 2015 y 2019, con los descriptores virus del Zika, derechos humanos, derechos sexuales y reproductivos, derecho a la salud, derechos socioeconómicos y personas con discapacidad. Las combinaciones se realizaron de dos en dos, teniendo siempre como descriptor principal el virus del Zika, asociado a los demás*

mediante el operador booleano AND. Las búsquedas se llevaron a cabo en las bases de datos LILACS, SciELO, PubMed, Scopus y Web of Science. ***Resultados:*** *Se seleccionaron 16 artículos que abordaron diferentes dimensiones de la respuesta a la epidemia, incluyendo la garantía de los derechos sexuales y reproductivos, la atención a niños con discapacidad derivada del Síndrome Congénito del Zika, la actuación intersectorial, la comunicación en contextos de incertidumbre y las políticas públicas de salud y saneamiento. Los análisis revelaron que las desigualdades sociales, de género y territoriales potenciaron los impactos de la epidemia, afectando de manera más severa a las poblaciones en situación de vulnerabilidad.* ***Conclusión:*** *Se destaca la necesidad de políticas públicas intersectoriales que garanticen la atención integral a las familias afectadas, la protección de los derechos sexuales y reproductivos, así como el acceso a la información.*

Descriptores: *Virus del Zika; Derechos Humanos; Derechos sexuales y reproductivos; Derecho a la salud; Personas con discapacidad.*

INTRODUCTION

In 2015, Brazil declared a Public Health Emergency of National Importance (PHENI) due to changes in the pattern of microcephaly cases among newborns associated with the Zika virus[1]. In 2016, the World Health Organization (WHO) declared a Public Health Emergency of International Concern (PHEIC) because of the increasing number of cases of microcephaly and other fetal malformations potentially associated with Zika virus infection. Between 2015 and 2016, Zika spread rapidly, particularly in Brazil, with more than 220,000 suspected cases and approximately 1,500 cases of microcephaly, mainly concentrated in the states of Pernambuco, Bahia, Paraíba, and Rio de Janeiro. In 2016, Colombia reported approximately 70,000 cases, while Mexico and the Dominican Republic each notified around 10,000 cases. Additional outbreaks were also reported in the Pacific region, particularly in French Polynesia and the United States, where local transmission occurred but with a lower incidence of microcephaly[2,4,5,6].

In Brazil, epidemiological data have shown a substantial decline since the peak of the epidemic (2015-2017); however, Zika virus continues to circulate, with reported cases occurring mainly in the Northeast and Southeast regions, alongside persistent concern regarding congenital Zika syndrome (CZS). Between 2015 and 2023, 22,251 suspected cases of CZS were reported to the Brazilian Ministry of Health, of which 3,742 (16.8%) were confirmed as congenital infections. Among the confirmed cases, 1,828 (48.9%) were classified as CZS, and 1,380 (75.5%) of these occurred in the Northeast region[3]. In 2024, 2,037 confirmed cases of Zika virus infection were reported in Brazil, and by epidemiological week 43 of 2025, the number of confirmed cases had reached 1,611[3].

Zika virus is a flavivirus belonging to the same family as dengue virus and can also be transmitted to humans by *Aedes aegypti*, primarily through the bite of an infected mosquito[6,7]. In addition, evidence of sexual transmission has been reported[8].

Zika virus infection during pregnancy may lead to CZS, which is characterized by intracranial calcifications, brain, ocular, and auditory abnormalities, multiple clinical manifestations, and microcephaly[8].

These findings required rapid responses and prompt public policy actions, as well as accelerated knowledge production regarding this emerging phenomenon. Consequently, the epidemic posed complex challenges to the Brazilian health care system, scientific research, and society as a whole, while also raising important issues related to maternal and child health, women's and infants' health care, human rights, sexual and reproductive rights, and broader social rights[10,11,12].

Nearly a decade after the declaration of the PHENI in Brazil due to the unusual increase in microcephaly cases, the impacts of Zika virus infection on affected children and their families, on the Brazilian Unified Health System (SUS), and on public policies have become increasingly invisible. Despite the substantial body of knowledge generated, responses to the challenges imposed by the epidemic have remained insufficient[5]. Affected children and their families continue to struggle for access to comprehensive and humanized health care, while uncertainties regarding CZS and its long-term consequences for child development persist[5].

In this context, we revisited the doctoral dissertation titled "Follow-up study of a group of mothers of children with microcephaly in Minas Gerais: from mobilization and organization to the claiming of rights in the context of Zika," developed during the Zika virus epidemic. Thus, this study aimed to analyze how health and human rights were interconnected during the early stages of the Zika virus epidemic[6].

METHODS

This study consisted of an integrative literature review guided by the following research question: "what knowledge has been produced regarding Zika and human rights?" This review approach was chosen because of the flexibility of

its methodological framework, which allows the inclusion of both experimental and nonexperimental studies, thereby enabling a broader understanding of how the phenomenon under analysis encompasses evidence derived from both theoretical and empirical literature[10].

The integrative review was conducted according to the following stages: formulation of the guiding question; definition of article inclusion and exclusion criteria; article selection; evaluation of the selected studies; discussion of the findings; and completion of the analysis[11].

Searches for relevant studies were conducted in LILACS, SciELO, PubMed, Scopus, and Web of Science. The search strategy used the following Health Sciences Descriptors (DeCS): “Zika virus,” “human rights,” “sexual and reproductive rights,” “right to health,” “socioeconomic rights,” and “persons with disabilities.” In addition, the following English-language descriptors, according to the Medical Subject Headings, were used for searches in PubMed, Scopus, and Web of Science: “Zika virus,” “Human Rights,” “Reproductive Rights,” “Right to Health,” “Disabled Persons,” and “Socioeconomic Rights.” Descriptors were combined in pairs, always using “Zika virus” as the primary descriptor and alternating the Boolean operator AND. Database searches were conducted between September 2019 and May 2021.

Filters related to publication language, according to the inclusion criteria, and full-text availability were also applied during the search process. Articles were published between 2015 and 2019, a timeframe defined to encompass the first years of the Zika epidemic in Brazil and its association with microcephaly, including the periods corresponding to the declaration of PHENI and PHEIC. Figure 1 presents the article selection process.

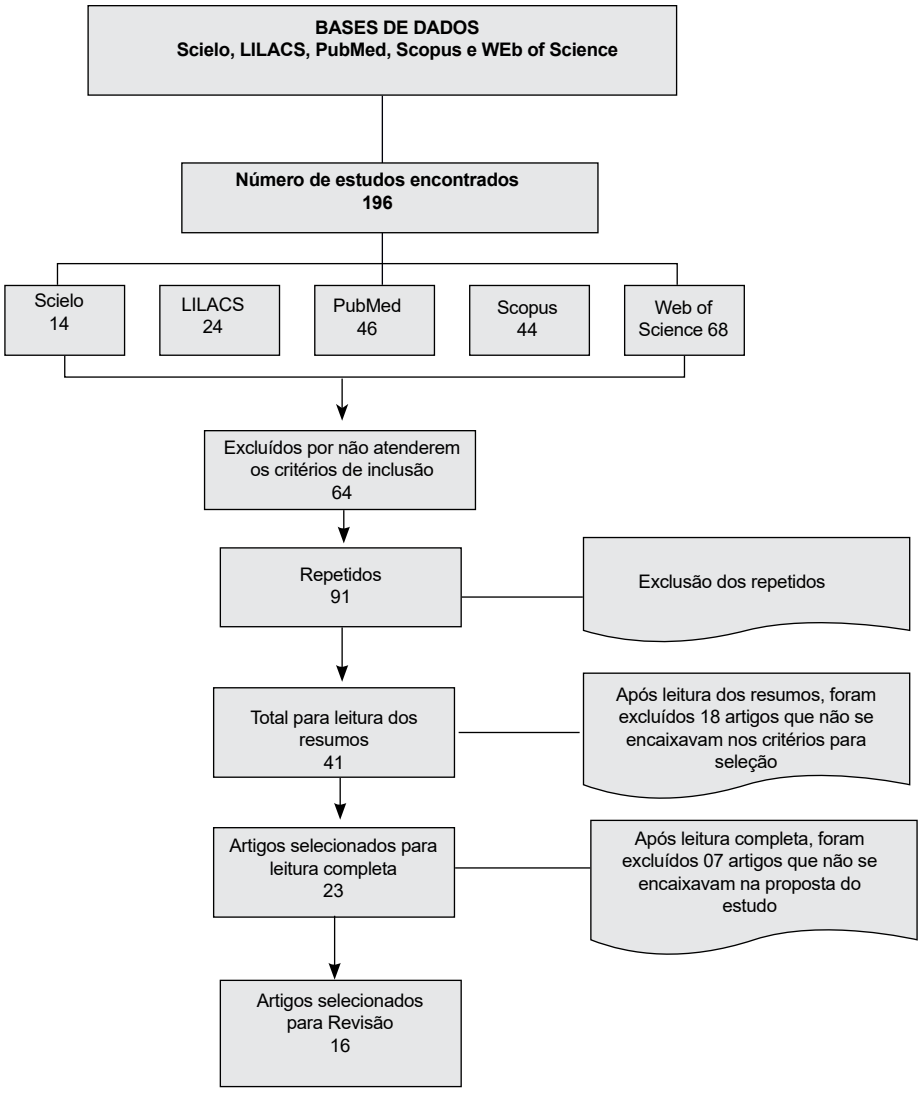

Figure 1. Flowchart of the search and selection process of articles identified in the SciELO, LILACS, PubMed, Scopus, and Web of Science databases.

Source: Prepared by the authors based on data obtained from the literature review search strategy.

Inclusion criteria comprised articles published within the timeframe established for the search, available in full text, and written in Portuguese, English, or Spanish. Exclusion criteria included technical documents, books, incomplete articles, opinion articles, journal editorials, theses, and dissertations. In cases of duplicate publications, only one version was retained and the others were excluded.

For the article selection stages, the search results were organized into Excel spreadsheets containing the number of studies identified in each database, as well as their respective titles, authors, journals, publication dates, and publication languages. Subsequently, the titles and authors were screened, allowing the identification of duplicate studies and the retention of a single version in a new spreadsheet for abstract screening.

Following this stage, 41 abstracts were reviewed, and 18 studies were excluded for not meeting the selection criteria established for this review.

In the subsequent stage, after a more detailed and comprehensive reading of the 23 selected studies, seven were found to address topics that diverged from the scope of the present review and did not answer its objective; therefore, they were excluded. Thus, after applying all selection criteria, 16 articles were ultimately included in this integrative review.

RESULTS

Among the 16 articles selected for review and analysis, seven (43.75%) were indexed in PubMed, four (25%) in LILACS, three (18.75%) exclusively in Web of Science, and two (12.5%) in both Scopus and Web of Science. Regarding the year of publication, two studies (12.5%) were published in 2016, five (31.25%) in 2017, five (31.25%) in 2018, and four (25%) in 2019. Articles were available in the following languages: 10 (62.5%) in English, three (18.75%) in Portuguese, two (12.5%) in both English and Portuguese, and one (6.25%) in English, Portuguese, and French.

With respect to methodological aspects, all studies were qualitative in nature. The following methodological approaches were identified: i) descriptive studies[15,16,17,18,19,20,21,22,23,24,25]; ii) semistructured interviews[26]; iii) document analysis[17,25,27,28]; iv) case studies[29]; and v) exploratory studies[30].

A description of the studies according to year of publication, authors, title, and objectives is presented in Box 1.

Quadro 01– Caracterização dos estudos incluídos nesta revisão integrativa, que abordam o campo dos direitos humanos e sua relação com a epidemia de Zika entre os anos de 2016 a 2019.

Year	Authors and Location	Title	Objectives
2016[15]	Rego, Sergio; Palácios, Marisa. Brazil	Ethics, global health, and Zika virus infection: a perspective from Brazil	To discuss ethical issues related to ZIKV infection and the PHEIC.
2016[16]	Vélez, Ana Cristina González; Diniz, Simone G. Brazil	Inequality, the Zika epidemic, and the lack of reproductive rights in Latin America	To examine the relationship between structural inequalities and reproductive health in the context of the Zika epidemic.
2017[19]	Pereira, Éverton Luís et al. Brazil	Profile of the demand for and BPC grants awarded to children diagnosed with microcephaly in Brazil	To identify the granting of BPC benefits to children diagnosed with microcephaly.
2017[20]	Rodriguez-Diaz et al. Puerto Rico	Zika virus epidemic in Puerto Rico: delayed sanitary justice	To discuss the Zika epidemic in Puerto Rico and issues related to sexual and reproductive health rights in the country.
2017[18]	Luna, Florencia. Argentina	Obligations of public health agencies and the Zika case	To discuss the role of international agencies regarding recommendations related to Zika, women's sexual and reproductive health, and the consequences of the epidemic.
2017[21]	Rasanathan, Jennifer J. K. et al. United States of America	Integrating human rights into the evolving Zika virus epidemic response	To describe four categories of Zika response, relating them to human rights principles in order to identify shortcomings and suggest future directions.
2017[18]	Diniz, Debora et al. Brazil	Zika virus infection in Brazil and human rights obligations	To discuss Zika virus infection in Brazil from a human rights perspective, highlighting women's sexual and reproductive rights, children's rights conventions, and the rights of persons with disabilities.

2018[22]	Ferreira, Haryelle Náryma Confessor et al. Brazil	Functioning and disability profile of children with microcephaly associated with congenital Zika virus infection	To describe the functional profile of children with microcephaly associated with Zika virus in two states in Northeastern Brazil.
2018[27]	Prata, Ana Rita Souza et al. Brazil	Legal perspectives on pregnancy termination in cases of Zika virus infection based on medical, emotional, and social consequences	To describe the legal perspectives on abortion for pregnant women infected with the Zika virus based on medical, emotional, and social consequences. Method: state regulation of abortion or eugenic practice.
2018[29]	Kuper, Hannah; Smythe, Tracey; Duttine, Antony. Brazil	Reflections on health promotion and disability in low- and middle-income countries: a case study of support programs for parents of children with CZS	To identify common challenges, opportunities, and examples for health promotion among people with disabilities.
2018[30]	Prado, Helena. Brazil	What the Zika virus epidemic reveals about reproductive and sexual rights in Brazil	The WHO statement establishing vertical transmission of the virus and the correlation between infection in pregnant women and congenital malformations in fetuses triggered emergency measures to contain the epidemic.
2018[28]	Maciel-Lima et al. Brazil	Fundamental right to health: microcephaly and health policies to combat the Zika virus	To analyze the National Coping Plan to Combat the Zika Virus from the perspective of the fundamental right to health and basic sanitation policies.
2019[25]	Rodrigues, Raphaela Rezende Nogueira; Grisotti, Márcia. Brazil	Communicating about Zika: prevention recommendations in contexts of uncertainty	To analyze the Ministry of Health recommendations published on the “Fight Against Aedes” website.
2019[26]	Sá, Miriam Ribeiro Calheiros de et al. Brazil	“In every way, they must walk together”: intersectoral actions between health and education for children living with congenital Zika virus syndrome	To explore findings from research conducted after the completion of an intervention program with professionals, and its possible contributions to building intersectoral relationships aimed at the school inclusion of children with disabilities.
2019[23]	Beare et al. United States	Rapid integration of Zika virus prevention into sexual and reproductive health services and beyond: programmatic lessons from Latin America and the Caribbean	To explore the complexities of sexual and reproductive health during the outbreak and the experience of the International Planned Parenthood Federation in the context of the Zika virus.
2019[24]	Globekner, Osmir Antonio; Cornell, Gabriele. Brazil	Ethical and legal recognition of family caregiving: the context of congenital Zika virus syndrome in Brazil	To discuss the ethical and legal recognition of caregiving relationships developed within the family sphere, based on the concrete care demands faced by families in the context of the CZS epidemic.

Source: Prepared by the authors, based on data obtained from the literature review search.

Regarding the central theme of each study, six articles (37.5%) addressed sexual and reproductive rights[17,20,30,23]; five (31.25%) discussed the rights and care of children with disabilities resulting from CZS as well as the experiences of their families and intersectoral actions[19,22,24,28,26]; three (18.75%) reflected on human rights and the role of multilateral agencies[15,21,18]; one (6.25%) discussed communication and public information in the context of uncertainties related to Zika[25]; and one (6.25%) examined the fundamental right to health and basic sanitation policies[28].

Beyond their central themes, the studies also developed discussions around related issues. Considering the thematic proximity among these contents, the results and discussion were organized into five thematic axes: i) Sexual and reproductive rights; ii) Rights and care of children with disabilities due to CZS and intersectoral actions; iii) Human rights and the role of multilateral agencies; iv) Right to information and health communication; and v) Fundamental right to health and basic sanitation policies. Based on such axes, a schematic framework was developed, as presented in Figure 2, summarizing the main discussions addressed within each thematic area.

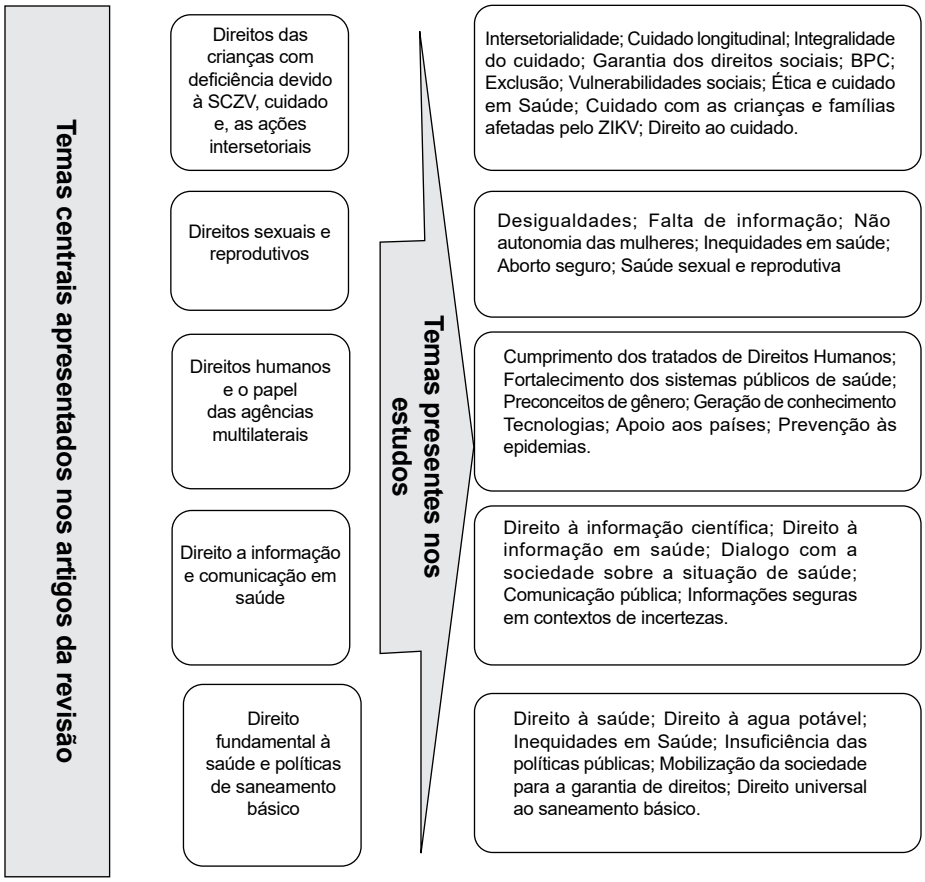

Figure 2. Schematic representation of the themes identified in the articles included in this integrative review addressing the field of human rights and its relationship with the Zika epidemic between 2016 and 2019.

Source: Prepared by the authors based on data from the 16 articles selected for the review.

DISCUSSION

Sexual and reproductive rights

Studies demonstrated the Zika epidemic exposed multiple inequalities related to sexual and reproductive rights, and particular emphasis was placed on access to health care services and information regarding sexual and reproductive health[15,16,17,18,20,21,27,30,23] as well as on women's autonomy.

Regarding access to health care services and information on sexual and reproductive health, the studies indicated that in Brazil sexual and reproductive rights are not implemented in a manner that ensures women and men receive the information necessary for family planning or are guaranteed the right to decide whether or not to become pregnant. Furthermore, during the Zika epidemic, the desire for pregnancy was experienced alongside fear and distress due to gaps in public policies and the uncertainties surrounding the epidemic[30].

The studies clearly demonstrated that women were held primarily responsible for pregnancy, childcare, and decisions related to the gestational period, as they were portrayed as solely accountable for preventing or postponing pregnancy. However, issuing such recommendations without investment in public policies represents an approach that shifts responsibility away from governments[17,18,30]. Sexual transmission of Zika virus was rarely addressed by Brazilian authorities[17,30].

The way sexual and reproductive health is approached contributes to health inequities. Consequently, public health crises continue to disproportionately affect poorer women, who often lack access to comprehensive sexual and reproductive health care services, including safe abortion services[15,16,17,20,27,30].

With respect to women's autonomy and sexual and reproductive rights, public actions remain largely centered on contraception and prenatal care during pregnancy. Brazilian legislation does not recognize abortion as a woman's autonomous right of decision, thereby reflecting an asymmetrical power relationship regarding women's control over their own bodies, as they are not free to decide about their lives independently[15,26]. Moreover, the lack of guaranteed

access to safe abortion in Brazil and in most Latin American countries places women's lives at risk, particularly among poorer women who resort to unsafe abortion practices[15,16].

According to Vélez et al.[17] and Prata et al.,[27] pregnant women infected with Zika virus may experience severe psychological distress because of the lack of knowledge and the uncertainties regarding the consequences of the infection for the fetus and, subsequently, for the future of their children. Therefore, the authors argued that pregnancy termination should be decriminalized, ensuring women safe conditions for this procedure.

In the study by Beare et al.,[23] the authors emphasized the need for epidemic responses that include the discussion and definition of sexual and reproductive health policies addressing gender-related issues, particularly those affecting women and girls, who are among the most impacted populations. The authors also highlighted the importance of involving both public and private sectors in responding to epidemics such as the Zika outbreak.

Rodríguez-Díaz et al.[20] reported that in Puerto Rico the population has limited access to sexual and reproductive health care, and persistent stigma surrounding the topic hinders governmental prevention efforts.

There was broad consensus among the studies that Brazil, as well as other countries in Latin America and the Caribbean, lacks comprehensive public policies focused on sexual education. Such policies should encompass all dimensions of care and engage both women and men, ensuring access to reliable information, clear guidance, and appropriate resources so that individuals may make informed decisions regarding their sexual and reproductive health[16,17,20,21,23,27,30].

Rights and care of children with disabilities due to congenital Zika syndrome and intersectoral actions

Studies addressing this theme emphasized the importance of discussions and actions focused on the longitudinal and comprehensive care of children with CZS and their families. Such care must be guaranteed through intersectoral actions that consider all dimensions of individuals and their specific needs[15,17,21,22,24,26,29].

Supporting this perspective, the study conducted by Ferreira et al.[22] involving children with microcephaly associated with Zika virus used the International Classification of Functioning, Disability and Health (ICF) to identify severe disabilities and impairments related to motor function, maintenance of body position, activity, and participation. The findings indicated areas of complete disability, including mental functions, language, and age-appropriate motor performance[22].

These characteristics observed among children with CZS may compromise several neurological functions, including hearing, vision, swallowing, and motor abilities, among others. Consequently, these conditions require continuous, complex, and multidimensional care, demanding systematic and frequent actions from health care services, particularly rehabilitation services, to ensure better quality of life[22,24,26]. Furthermore, the realities experienced by the families of these children differ substantially from those of families with typically developing children. This occurs because expenses increase due to the children's specific needs, including medications, specialized nutritional supplies, diapers, and continuous specialized care. In addition, families often need to seek health care services located in municipalities far from their place of residence[19,17,21,22,29,26].

Beyond health care services, these children require intersectoral and social actions to ensure their survival and well-being. In Brazil, the Continuous Cash Benefit (BPC) is granted to low-income older adults and persons with disabilities according to criteria established by ICF. Pereira et al.[17] identified an increase in BPC concessions following the birth of children with microcephaly associated with Zika virus, which may be considered an important guaranteed right. However, this finding also highlights the condition of social deprivation faced by these families since the benefit is not universal and eligibility depends on living in poverty.

Conversely, many low-income families were excluded from receiving the BPC because of restrictive eligibility criteria. Therefore, it becomes imperative to establish affirmative public policies that consider the broader social and family context in which these children are embedded[19,22,24,26].

Children with neurological impairments, particularly the most severe cases, require full-time and continuous care both at home and within health care services. Accordingly, the studies demonstrated that one parent, most commonly the mother, often needs to leave paid employment to provide full-time care, resulting in reduced family income and, consequently, further perpetuating poverty. Therefore, these families require a wide range of state-supported actions that extend beyond the provision of the BPC alone[15,18,19,22,24,26].

According to Globekner and Cornelli,[22] although the actions implemented by the Brazilian State during the epidemic were important, they failed to adequately address the real needs of children with CZS, women, and their families.

Families face multiple challenges in ensuring dignity and quality of life for children with disabilities. To mitigate this situation, social protection networks, family support systems, and community-based support must be strengthened.

Moreover, to promote the inclusion of these children, the issue should remain a permanent agenda item across institutions and among professionals and families, with the aim of fostering collective reflection and coordinated action among all stakeholders involved[19,21,23,26].

Thus, ensuring dignity for persons with disabilities must be understood as a human right. This perspective requires actions aimed at guaranteeing rights such as inclusive education, leisure opportunities, transportation accessibility, comprehensive health care, provision of orthotic and prosthetic devices, and access to technologies tailored to both individual and collective needs[15,17,21].

In addition, health care systems should be grounded in the principles of comprehensiveness and universality to ensure the effective continuity of care for persons with disabilities[26,29].

A gap identified in the discussions concerns the need for greater coordination and continuity of care throughout the Health Care Network as well as the expansion and strengthening of Specialized Rehabilitation Centers (CERs). These measures are necessary to ensure that such services are located closer to the territories where these children live and to prevent treatment and follow-up care from becoming a continuous burden, particularly due to the need to travel to large urban centers, where most specialized and high-complexity services of SUS are concentrated.

Furthermore, it is necessary to critically examine the concentration of caregiving responsibilities on mothers within the context of Zika and the consequences arising from this attribution. From the perspective of an equitable ethics of care, these reflections may contribute to a more collective approach to addressing this reality and, potentially, to transforming it within society[24].

Another relevant issue concerns the right to and full access to SUS services, ranging from specialized medical follow-up to guaranteed access to supplies, diagnostic tests, procedures, medications, orthotic and prosthetic devices, ensuring continuity of therapeutic interventions in a timely and appropriate manner.

Beyond rights already established in legal frameworks, Globekner and Cornelli[24] highlighted the need for the State to recognize care as extending beyond the private sphere of the family, understanding it instead as a public matter. In this sense, care should be legally protected and guaranteed to individuals who are unable to ensure their own temporary or permanent survival due to disabilities, thereby safeguarding a minimum standard of well-being within society.

In addition to guaranteeing rights, it is also essential to address and confront the social determinants of health. The objective is to reverse situations of social vulnerability, exclusion of persons with disabilities, and caregiver burden and suffering[29].

The need for effective inclusion policies and actions to combat discrimination and prejudice experienced by children with CZS and their families should also be emphasized.

Human rights and the role of multilateral agencies

Studies included in this integrative review addressed human rights from a broader perspective, encompassing the role of multilateral agencies and organizations[12,18,20]. Human rights were understood as rights that must be respected, protected, and fulfilled by countries that ratify international treaties. Their principles encompass indivisible and interrelated freedoms that must be guaranteed to both individuals and communities[28].

In the field of public health, international organizations such as WHO and the Pan American Health Organization are responsible for ensuring compliance with the International Health Regulations. In addition, they are expected to support countries according to their health situations, particularly in relation to emerging and reemerging diseases, outbreaks, and global health threats, while also contributing to the strengthening of health surveillance strategies, knowledge production, technological development, and health policies tailored to each country's needs[2].

During the PHEIC, the WHO worked alongside member states to strengthen surveillance systems, laboratory networks, and prenatal care services. However, less attention was devoted to restructuring health care services to address the diverse needs of children with CZS and their families[21].

The countries most affected by the Zika epidemic and its consequences are historically those with the greatest social inequalities. Because of the increasing frequency of public health crises, multilateral actions by organizations such as the United Nations and the WHO are required to support countries in strengthening their cultural frameworks and ways of life, while also challenging entrenched power structures and forms of knowledge, overcoming coloniality, and reducing social injustices through public policies[15].

The role of multilateral agencies was discussed by Rasanathan et al.,[20] who observed that countries initially focused their responses on sexual and reproductive rights while placing responsibility almost exclusively on women. However, the authors emphasized the need to incorporate vector control measures alongside sexual and reproductive

health actions, knowledge and technology production, and the reorganization of health care systems to address the long-term needs of children with CZS and their families.

Another issue identified was the attribution of responsibility to women regarding pregnancy and preventive measures against Zika virus infection. In the study by Luna,[17] the author argued that gender bias could be observed within international public health agencies, as these organizations frequently avoided issuing sexual and reproductive health recommendations that more strongly supported women's rights.

Therefore, actions aimed at addressing the consequences of Zika virus infection must be equitable and grounded in human rights principles, recognizing the collective responsibility to prevent epidemics and mitigate their consequences for individuals' lives. To achieve this, countries must receive adequate support and develop public policies that address social and demographic vulnerabilities, inequities in access to health care and sanitation services, and broader social determinants of health[15,21].

Multilateral agencies play a fundamental role in fostering further research on Zika diagnosis and its consequences, investing financial and technological resources, coordinating global responses related to the care of affected children and their families, especially mothers, and supporting epidemic prevention efforts. Although Zika is no longer considered a priority within the international public health agenda, its consequences remain and should not be forgotten.

Right to information and health communication

The studies grouped within this thematic axis addressed the right to information and the ways in which governments and health systems communicate with society regarding population health conditions[15,16,18,20,22,25]. To ensure this right, it is necessary to recognize individuals' entitlement to scientifically accurate and transparent information, to guarantee participation in the development and planning of public policies, and to prevent all forms of discrimination. These are responsibilities that the State and health care systems must fulfill for families affected by Zika virus infection, especially those raising children with CZS[15,21].

All women have the right to receive information regarding sexual and reproductive health in accordance with human rights principles and in consideration of their social vulnerabilities as well as to receive recommendations and guidance grounded in ethical principles[16,18].

Maintaining continuous dialogue with society regarding public health conditions is essential at all times, particularly in the context of Zika, which remains marked by significant uncertainties. Because it was a newly emerging disease, establishing public communication and information policies directed toward societal needs became even more strategic.

The studies demonstrated that, in Brazil, the communication strategies adopted by the Ministry of Health regarding health care measures shifted much of the responsibility onto the population itself. Sexual and reproductive rights were not discussed in a sufficiently clear manner for either women or men, particularly regarding the sexual transmission of Zika virus. Furthermore, the State was rarely mentioned as a responsible actor, thereby revealing a form of governmental negligence regarding the issue[24,25].

Educational materials produced by the Ministry of Health encouraged health care professionals to remain updated regarding CZS and its consequences for women and children. However, most scientific publications were available only in English, making access to updated knowledge unrealistic for many professionals working within health care services[25].

Other concerns involved insufficient and restrictive access to information related to health education and sexual and reproductive health care, including contraceptive methods. Low-income women were identified as the population most affected by these limitations, which may be considered a violation of human rights[17,20].

Within the context of the Zika epidemic, responsibility for deciding whether or not to become pregnant was largely assigned to women. Authorities in some Latin American countries even recommended that women postpone pregnancy, advising delays of up to 3 years[16,21].

Therefore, it is necessary to develop effective communication strategies that incorporate the voices of women and families affected by the health crisis, research institutions, governmental actions, multiple sectors of government, health professionals, and society as a whole. In addition, dialogue between science and society must be strengthened through public communication policies integrating health and science in order to confront the growing phenomenon of denialism, which places people's lives at risk.

Fundamental right to health and basic sanitation policies

The studies included in this integrative review highlighted the fundamental right to health, as established in the Brazilian Constitution, as well as the need to guarantee public sanitation policies[25,28,30].

Universal access to basic sanitation is a population right and should be recognized as indispensable for promoting human dignity. Therefore, access to potable water, sanitary sewage systems, urban drainage, and solid waste collection and management must be ensured[28].

Aedes aegypti proliferates primarily because of stagnant water; therefore, public policies that disregard the living conditions of populations, especially socially vulnerable groups, are ineffective. It is essential to guarantee the entire population adequate waste disposal systems, regular garbage collection, and reliable access to water supply and storage infrastructure[25,28,30].

The increase in microcephaly cases occurred predominantly in regions where access to public services was insufficient. Consequently, recommendations such as using insect repellents, installing window screens, and covering the body to avoid mosquito bites constitute merely palliative measures that fail to consider the realities of inadequate sanitation and health inequities affecting these populations. Moreover, such recommendations disregard the fundamental right to health, which should be guaranteed through public policies[28,30].

According to Maciel-Lima et al.[28], the proliferation of *Aedes aegypti*, with consequences extending beyond dengue, Zika, and chikungunya, results from decades of ineffective public policies. They emphasized that millions of Brazilians store water inadequately because they still lack access to safe drinking water, thereby creating favorable conditions for mosquito proliferation.

Thus, recognizing the social determinants of health is essential for promoting the implementation of public policies capable of ensuring structural changes that provide the population with improved health conditions and quality of life.

One limitation of this integrative review may be related to the recent emergence of the investigated phenomenon. Scientific production addressing the interrelationships between human rights, the disease, and its repercussions during the early stages of the epidemic was still at an initial stage of development.

Zika virus: current situation and challenges for health and social justice

In recent years, the epidemiological scenario of Zika virus infection in the Americas has remained characterized by low viral circulation, with sporadic notifications and a latent risk of reemergence sustained by the persistence of *Aedes aegypti* and favorable environmental conditions[28]. Although the epidemic outbreak was contained, the health and social consequences of CZS persist.

Studies have shown that CZS remains concentrated in socially vulnerable regions, with higher rates of low birth weight and prematurity, particularly in Northeastern Brazil[30]. A nationwide study revealed that children with CZS had an 11-fold higher risk of death during the first 3 years of life compared with children without it[29]. Furthermore, persistent inequalities in access to rehabilitation services remain evident, including transportation barriers, limited availability of physical therapy services, and a shortage of specialized multidisciplinary teams, especially in less structured regions[33].

In 2025, a nationwide study reported that only approximately 20% of affected families received specific social benefits, while access to health care networks still required long-distance travel and repeated displacements in the municipalities most severely affected[33,34]. These findings reinforce that the response to Zika virus infection must extend beyond the emergency phase and requires continuous intersectoral policies integrating health care, education, social assistance, and sanitation.

At the same time, the risk of viral reintroduction persists, driven by climatic factors and the continued presence of vector breeding sites. Therefore, strengthening arbovirus surveillance systems, integrating primary health care services with prenatal monitoring and environmental surveillance, and expanding preventive strategies constitute essential measures to mitigate future outbreaks. Public responses must be sustained and equitable, recognizing CZS as a chronic condition requiring comprehensive care and social justice-oriented policies[36].

CONCLUSION

The studies demonstrated how social inequalities and injustices contribute to the emergence of epidemics and how their consequences disproportionately affect the most vulnerable populations. They also highlighted the need for a broad set of public policies aimed at addressing structural societal issues.

To do so, public policies must ensure income protection and human dignity, while taking into account disabilities and their consequences for children and their families. In addition, such policies should guarantee longitudinal care and recognize sexual and reproductive health as a human right.

Regarding women's specific demands, it is essential to understand the vulnerabilities to which they are exposed during epidemics and, particularly, during the Zika epidemic. Beyond the uncertainties experienced during pregnancy, women disproportionately bear the burden of caregiving responsibilities and childcare.

The studies also emphasized the importance of social participation in the formulation and monitoring of public policies, including discussions about health conditions at all societal levels. To accomplish this, it is necessary to establish information and communication policies that recognize individuals as citizens and, therefore, as active participants throughout the entire social process.

Although the current epidemiological scenario demonstrates a reduction in the incidence of Zika virus infection, the consequences left by the epidemic will continue to affect families, women, and children, with important repercussions for health care services and public policies.

In this regard, particularly within the field of social sciences, numerous studies have been conducted addressing the different contexts and consequences of the Zika epidemic in the lives of affected individuals and populations.

From these reflections, it becomes evident that guaranteeing human rights in epidemic situations is an urgent necessity. During the COVID-19 pandemic, increases in domestic violence against women and children, as well as other severe manifestations of social vulnerability, such as hunger, revealed profound weaknesses in the protection of fundamental rights.

Within the Brazilian context, strengthening SUS is urgently required through adequate funding, structural organization, and management consistent with its complexity, enabling it to respond effectively to population health needs while upholding the defense of life and human dignity.

In epidemic scenarios, the need for stronger national policies must also be reinforced, integrating health care systems, research centers, governments, public policies, organized civil society, and multiple sectors of society in order to respond to demands, organize care, and minimize the effects and consequences on individuals and communities.

Finally, scientific investigations regarding the Zika epidemic and its association with microcephaly were still ongoing across multiple fields of knowledge, which to some extent limited the findings identified in this review.

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