

# SOCIAL DETERMINATION OF HIV/AIDS: INTEGRATIVE REVIEW

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## DETERMINAÇÃO SOCIAL DO HIV/AIDS: REVISÃO INTEGRATIVA

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## DETERMINACIÓN SOCIAL DEL VIH/SIDA: REVISIÓN INTEGRATIVA

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**How to cite this article:** Maranhão TA, Pereira MLD. Social determination of HIV/aids: integrative review. Rev baiana enferm. 2018;32:e20636.

**Objective:** investigate the scientific production on the social determination of HIV/aids published between 2009 and 2015. **Method:** integrative review in the databases SciELO and Medline via PubMed, using the descriptors “Síndrome da Imunodeficiência Adquirida” (*Acquired Immunodeficiency Syndrome*); “HIV” (*VHI*); “Determinantes Sociais da Saúde” (*Social Determinants of Health*); “Desigualdades em saúde” (*Health Inequalities*). **Results:** the sample consisted of 22 manuscripts, revealing five thematic categories based on Whitehead and Dahlgren’s social determination model: Individual determinants of HIV/aids, Behavioral determinants of HIV/aids, Influence of social networks on HIV/aids, Intermediary determinants of HIV/aids and Distal determinants of HIV/aids. **Conclusion:** the study permitted understanding the extensive causal chain involved in HIV/aids infection, which overarches the merely biological aspect. Knowledge on the social determinants of the disease can support articulated interventions in the different sectors of society, beyond the health sector.

**Descriptors:** Acquired Immunodeficiency Syndrome. HIV. Social Determinants of Health. Health inequalities.

*Objetivo: investigar a produção científica sobre a determinação social do HIV/aids publicada no período de 2009 a 2015. Método: revisão integrativa realizada nas bases de dados SciELO e Medline via PubMed empregando-se os descritores “Síndrome da Imunodeficiência Adquirida” (Acquired Immunodeficiency Syndrome); “HIV” (VHI); “Determinantes Sociais da Saúde” (Social Determinants of Health); “Desigualdades em saúde” (Health Inequalities). Resultados: a amostra constituiu-se de 22 manuscritos, dos quais emergiram 5 categorias temáticas baseadas no modelo de determinação social de Whitehead e Dahlgren: Determinantes individuais do HIV/aids, Determinantes comportamentais do HIV/aids, Influência das redes sociais sobre o HIV/aids, Determinantes intermediários do HIV/aids e Determinantes distais do HIV/aids. Conclusão: o estudo possibilitou compreender a extensa cadeia causal envolvida na infecção pelo HIV/aids, os quais perpassam o aspecto meramente biologicista. O conhecimento dos determinantes sociais da doença poderá subsidiar intervenções articuladas nos diversos setores da sociedade, além do setor saúde.*

**Descritores:** Síndrome da Imunodeficiência Adquirida. HIV. Determinantes Sociais da Saúde. Desigualdades em saúde.

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*Objetivo: investigar la producción científica sobre determinación social del VIH/sida publicada de 2009 a 2015. Método: revisión integrativa, en las bases de datos SciELO y Medline vía PubMed, empleándose los descriptores “Síndrome de Inmunodeficiencia Adquirida” (Acquired Immunodeficiency Syndrome); “HIV” (VIH); “Determinantes Sociales de la Salud” (Social Determinants of Health); “Desigualdades en salud” (Health Inequalities). Resultados: muestra de 22 manuscritos, de los cuales surgieron cinco categorías temáticas basadas en el modelo de determinación social de Whitehead y Dahlgren: Determinantes individuales del VIH/sida, Determinantes conductuales del VIH/sida, Influencia de las redes sociales sobre VIH/sida, Determinantes intermediarios del VIH/sida y Determinantes distales del VIH/sida. Conclusión: el estudio permitió comprender la extensa cadena causal involucrada en la infección por VIH/sida, los cuales atraviesan el aspecto meramente biologicista. El conocimiento de los determinantes sociales de la enfermedad podrá subsidiar intervenciones articuladas en los diversos sectores de la sociedad, además del sector salud.*

**Descriptores:** Síndrome de Inmunodeficiencia Adquirida. VIH. Determinantes Sociales de la Salud. Desigualdades en salud.

## Introduction

Each year, a considerable expressive number of individuals contract the Acquired Immunodeficiency Virus (HIV). At the same time, the life expectancy of the infected has increased considerably in the past two decades, following the availability of antiretroviral therapy (ART)<sup>(1)</sup>. In this context of the increased number of people living with HIV and aids (PLHA), knowing these people's conditions and ways of life is fundamental, which can significantly affect their health situation<sup>(2)</sup>.

In this perspective, starting from the premise that there are multiple factors for the occurrence or not of health problems, the analysis of aspects that result in both illness and death by HIV/aids is of great relevance, as it takes into account not only the biological factors, but also the social aspects involved in the dynamics of the disease. Therefore, it is necessary to go deeper into the Social Determinants of Health (SDH), which raise individual behaviors, social, economic, cultural, ethnic/racial, psychological and behavioral factors as important influencers of living and working conditions and, consequently, of the occurrence of diseases in the population<sup>(3)</sup>.

Although several countries, including Brazil, have consolidated and organized national programs of Sexually Transmissible Infections (STIs) and aids, the economic and political aspects that are peculiar to each population that

lives with the epidemic should be taken into account, which may interfere significantly in the disease picture<sup>(4,5)</sup>. Thus, in order to better understand the factors and mechanisms through which the social aspects interfere in the dynamics of illness and deaths by aids, in this study, we chose to adopt Whitehead and Dahlgren's social determination of health model<sup>(6)</sup>.

This model organizes SDH in different concentric layers, the most proximal being related to determinants related to genetic inheritance, lifestyle and community support networks, progressively evolving to an intermediate layer that portrays determinants related to living and working conditions, until arriving at a more distal layer, where social macrodeterminants of health are located, such as socioeconomic, environmental and cultural conditions. Although these layers show distinct SDH though, they are closely interrelated and the interaction among several of these determinants influences the manifestation or not of diseases<sup>(6)</sup>.

Thus, based on the assumption that HIV infection as well as AIDS-related illness and deaths have a much broader meaning than a simple virus that affects the body's immune system, the objective was to investigate the scientific production on the social determination of HIV/aids published in the period from 2009 till 2015.

## Method

An integrative review of the literature was undertaken to understand the social determinants of HIV/AIDS in diverse cultural and socioeconomic contexts. To do so, the six steps for the elaboration of the integrative review were followed<sup>(7)</sup>: Elaboration of the guiding question; Search or sampling in the literature; Data collect; Critical analysis of included studies; Discussion of results; Presentation of the integrative review.

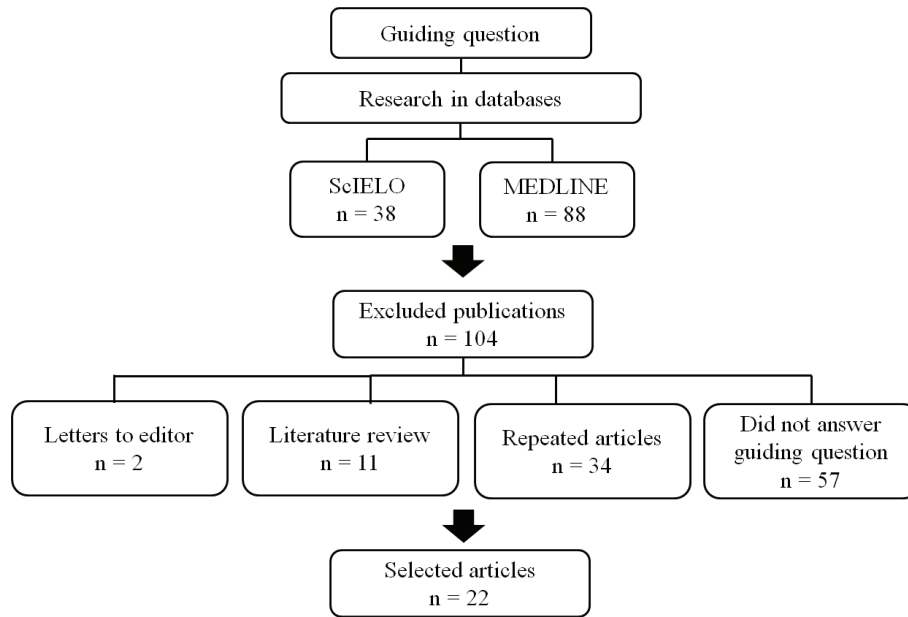
The research was driven by the following guiding question: What are the social determinants of HIV/aids described in studies published between 2009 and 2015? The guiding question was formulated comprehensively so as to include the social determinants of HIV / AIDS cases, deaths, co-infections with other diseases, such as tuberculosis, and vertical transmission of HIV.

In order to identify the publications to be included the sample of this review, online searches were conducted in February 2016 in the Scientific Electronic Library Online (SciELO) and Medline via PubMed databases. In the search for the manuscripts, we used the Health Sciences Descriptors (DeCS) and their English correspondents that make up the Medical Subject Headings (MeSH): “Síndrome da Imunodeficiência Adquirida” (Acquired

Immunodeficiency Syndrome); “HIV” (VHI); “Determinantes Sociais da Saúde” (Social Determinants of Health) and “Desigualdades em saúde” (Health Inequalities). All descriptors were combined with the Boolean operator AND.

The inclusion criteria were: manuscripts in Portuguese, English or Spanish, fully available and published in the past seven years (2009 to 2015), in order to obtain the most relevant and recent research on the subject. To select the manuscripts, two independent researchers evaluated the abstracts of the previously identified studies. In case of doubts or disagreements, a third researcher was consulted to decide on whether or not to include the publication in the sample. Articles that did not meet the inclusion criteria were excluded, as well as literature reviews, letters to the editor, articles repeated in the two databases searched and manuscripts that did not meet the objectives proposed for this study after prior reading their abstracts.

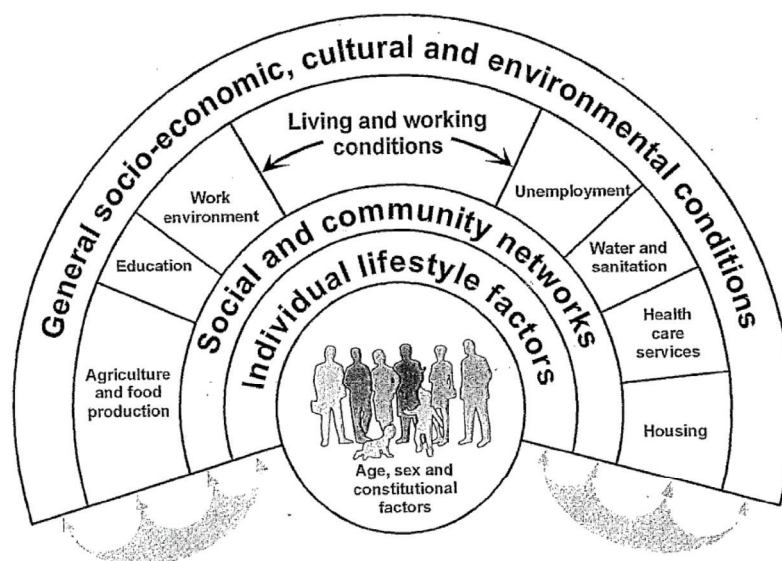
In total, 38 articles were found in SciELO and 88 manuscripts in the Medline database via PubMed, totaling 126 publications. After applying the inclusion and exclusion criteria, a final sample of 22 articles was obtained, being 10 from the SciELO database and 12 from Medline. Figure 1 shows the flowchart of the manuscript selection process.

**Figure 1** – Flowchart of article selection process. Fortaleza, Ceará, Brazil – 2016

Source: Created by the authors.

To extract the most relevant information from the selected articles, a data collection instrument validated by Ursi<sup>(8)</sup> was used. After the critical analysis of the investigations and the completion of this instrument, the results of each study that answered the guiding question were inserted in a table prepared by the authors, divided into five parts based on the layers of Whitehead and

Dahlgren's social determination model<sup>(6)</sup> (Figure 2). From this framework of social determination, the five categories of this review were derived, namely: Individual determinants of HIV/aids, Behavioral determinants of HIV/AIDS, Influence of social networks on HIV/aids, Intermediary determinants of HIV and AIDS and Distal determinants of HIV/aids.

**Figure 2** – Social Determinants of Health according to the Whitehead and Dahlgren model

Source: National Commission on Social Determinants of Health<sup>6</sup>.

## Results

Of the 22 selected manuscripts, six were published in the year 2011 (27.3%), followed by the year 2014, with five publications (22.7%). As to the place of origin of the studies, half of the investigations were conducted in Brazil (50.0%) and five were developed in African countries (22.7%) (Table 1). With respect to the design of the studies included in the review,

ecological designs represented the majority, with 15 publications (68.2%), followed by the cross-sectional design with five publications (22.7%). It was also observed that four studies were published in the *Revista de Saúde Pública* (18.2%) and three in the *Cadernos de Saúde Pública* (13.6%) (Data not shown). In Chart 1, the characteristics of the selected articles are displayed, considering authors, title, place of study and main results/conclusions.

**Chart 1** – Characteristics of studies included in the integrative review on the theme *Social Determinants of HIV/aids* by authors, manuscript title, place of study and main results/conclusions. Fortaleza, Ceará, Brazil – 2016 (to be continued)

Authors	Title	Place of study	Main results/conclusions
Fede AL, Stewart JE, Hardin JW, Mayfield-Smith K, Sudduth D <sup>(9)</sup>	Spatial Visualization of Multivariate Datasets: An Analysis of STD and HIV/ AIDS Diagnosis Rates and Socioeconomic Context Using Ring Maps	South Carolina	The HIV/aids diagnosis rates were higher among men and African-Americans when compared to women and white persons. A significant and positive association was found between the HIV/aids diagnosis rates and the Townsend social deprivation index.
Brunello MEF, Chiaravalloti Neto F, Arcêncio RA, Andrade RLP, Magnabosco GT, Villa TCS <sup>(10)</sup>	Áreas de vulnerabilidade para co-infecção HIV-aids/TB em Ribeirão Preto, SP	Ribeirão Preto	A strong relation was found between the cases of HIV/TB coinfection and the most socially vulnerable areas in the city, in view of higher incidence rates in areas with intermediary and lower socioeconomic levels.
Tovar-Cuevas LM, Arrivillaga-Quintero M <sup>(11)</sup>	VIH/SIDA y determinantes sociales estructurales en municipios del Valle del Cauca-Colombia	Colombia	Illiteracy, living in low-quality housing without tap water and absence of health care services are determinants that increase the probability of HIV/aids in the population.
Nagata JM, Magerenge RO, Young SL, Oguta JO, Weiser SD, Cohen CR <sup>(12)</sup>	Social determinants, lived experiences, and consequences of household food insecurity among persons living with HIV/ AIDS on the shore of Lake Victoria, Kenya	Kenya	The food insecurity of families contributes to the increase of hunger and gastrointestinal side effects after the start of ART. The recommendation to take some antiretroviral drugs with food in the context of food insecurity can contribute to the reduced compliance with ART.
Hajizadeh M, Gracie R, Malta MS, Bastos FI <sup>(13)</sup>	Socioeconomic inequalities in HIV/ AIDS prevalence in sub-Saharan African countries: evidence from the Demographic Health Surveys	24 countries from Sub-Saharan Africa	The prevalence of HIV/aids is higher among the richest countries and individuals in Sub-Saharan Africa. The sense of the association between wealth and HIV/aids was not consistent in all countries studied though, in view of the negative association between wealth and HIV/aids in Swaziland and Zimbabwe.

**Chart 1** – Characteristics of studies included in the integrative review on the theme *Social Determinants of HIV/aids* by authors, manuscript title, place of study and main results/conclusions. Fortaleza, Ceará, Brazil – 2016 (to be continued)

Authors	Title	Place of study	Main results/conclusions
Lakew Y, Benedict S, Haile D <sup>(14)</sup>	Social determinants of HIV infection, hotspot areas and subpopulation groups in Ethiopia: evidence from the National Demographic and Health Survey in 2011	Ethiopia	The probability of HIV infection was higher among women, as well as among richer persons in the age range between 25 and 39 years, living in urban areas and with several sexual partners in life.
Pascom ARP, Szwarcwald CL <sup>(15)</sup>	Sex inequalities in HIV-related practices in the Brazilian population aged 15 to 64 years old, 2008	Brazil	When compared to men, women are less sexually active, start their sexual life later and have less casual partners, but use condoms less, making them more vulnerable to unsafe sexual practices and HIV/aids.
Vieira ACBC, Miranda AE, Vargas PRM, Maciel ELN <sup>(16)</sup>	Prevalência de HIV em gestantes e transmissão vertical segundo perfil socioeconômico, Vitória, ES	Vitória	The prevalence of HIV in pregnant women and vertical transmission are associated with the urban characteristics of the neighborhood where they lived. Hence, neighborhoods with less urban characteristics should be prioritized in interventions intended to reduce vertical HIV transmission.
Rodrigues-Júnior AL, Ruffino-Netto, A, Castilho EA <sup>(17)</sup>	Distribuição espacial do índice de desenvolvimento humano, da infecção pelo HIV e da comorbidade AIDS-tuberculose: Brasil, 1982-2007	Brazil	The higher the regional Human Development Index (HDI), the higher the incidence of HIV and vice-versa. Hence, the South and Southeast of Brazil present the highest HDI and the highest HIV/aids rates.
Mee P, Collinson MA, Madhavan S, Kabudula C, Gómez-Olivé FX, Kahn K, et al <sup>(18)</sup>	Determinants of the risk of dying of HIV/AIDS in a rural South African community over the period of the decentralised roll-out of antiretroviral therapy: a longitudinal study	South Africa	The risk of mortality due to aids was lower among women, young adults, richer persons, with higher education levels and individuals of Mozambican origin (when compared to those of South-African origin).
Cunha GH, Fiuza MLT, Gir E, Aquino PS, Pinheiro AKB, Galvão MTG <sup>(19)</sup>	Qualidade de vida de homens com AIDS e o modelo da determinação social da saúde	Fortaleza	The perceived quality of life (QoL) among individuals with aids was lower among homosexuals and married individuals gaining less than one minimum wage. Hence, the social determinants influence the QoL of men with aids.



**Chart 1** – Characteristics of studies included in the integrative review on the theme *Social Determinants of HIV/aids* by authors, manuscript title, place of study and main results/conclusions. Fortaleza, Ceará, Brazil – 2016 (to be continued)

Authors	Title	Place of study	Main results/conclusions
Song R, Hall HI, Harrison KM, Sharpe TT, Lin LS, Dean HD <sup>(20)</sup>	Identifying the Impact of Social Determinants of Health on Disease Rates Using Correlation Analysis of Area-Based Summary Information	USA	The variables most strongly correlated with aids diagnosis rates were: proportion in black population, proportion of people from minority racial/ethnic origins, proportion of unmarried people and population density.
Grangeiro A, Escuder MML, Castilho EA <sup>(21)</sup>	A epidemia de AIDS no Brasil e as desigualdades regionais e de oferta de serviço	Brazil	The cities with the largest epidemics were more associated with risk contexts, such as gender differences and/or unprotected sexual practices among women. A higher degree of implementation of the response to HIV was also found in these cities though.
Ma Y, Qin X, Chen R, Li N, Chen R, Hu Z <sup>(22)</sup>	Impact of Individual-Level Social Capital on Quality of Life among AIDS Patients in China	China	The study results indicate that social equity is a promising route to develop strategies that improve the quality of life of people with aids in China.
Arrivillaga M, Ross M, Useche B, Alzate ML, Correa D <sup>(23)</sup>	Social position, gender role, and treatment adherence among Colombian women living with HIV/AIDS: social determinants of health approach	Colombia	Women with HIV/aids, particularly the poorest women, face difficulties to comply with treatment due to the not-free characteristic of the Colombian health system. In addition, mothers of also seropositive children were also more prone to low ART adherence.
Vendramini, SHF, Santos NSGM, Santos MLSG, Chiaravalloti-Neto F, Ponce MAZ, Gazetta CE, et al. <sup>(24)</sup>	Análise espacial da co-infecção tuberculose/HIV: relação com níveis socioeconômicos em município do sudeste do Brasil	São José do Rio Preto	The areas with the lowest socioeconomic levels presented higher incidence rates of TB/HIV coinfection in São José do Rio Preto.
Parkhurst JO <sup>(25)</sup>	Understanding the correlations between wealth, poverty and human immunodeficiency virus infection in African countries	12 African countries	The relation between the prevalence of HIV infection and family wealth did not show consistent trends in all countries studied. The HIV rates in higher-income countries did not increase with wealth.
Barcellos C, Acosta LMW, Lisboa E, Bastos FI <sup>(26)</sup>	Surveillance of mother to child HIV transmission: socioeconomic and health care coverage indicators	Porto Alegre	The highest HIV infection rates in pregnant women were found in areas with worse socioeconomic conditions and difficulties to access health services.

**Chart 1** – Characteristics of studies included in the integrative review on the theme *Social Determinants of HIV/aids* by authors, manuscript title, place of study and main results/conclusions. Fortaleza, Ceará, Brazil – 2016 (conclusion)

Authors	Title	Place of study	Main results/conclusions
Stephan C, Henn CA, Donalísio MR <sup>(27)</sup>	Geographic expression of AIDS epidemic in Campinas, Southeastern Brazil, between 1980 and 2005	Campinas	A trend towards the feminization and pauperization of the aids epidemic was found in Campinas, in view of the reduced case ratio between men and women, especially in the poorest and most vulnerable populations.
Escobar-Leguízamo, DN, Prieto-Suárez, E, Estrada-Montoya JH <sup>(28)</sup>	Determinantes estructurales de países con decrecimiento en la prevalencia por la infección VIH/SIDA en el periodo 2001-2011	22 countries in South and Central America, Africa and Asia	The increased GDP per capita and Gini coefficient led to the decrease in the prevalence of HIV. The structural determinants and inequities can influence the HIV rates.
Holanda ER, Galvão MTG, Pedrosa NL, Paiva SS, Almeida RLF <sup>(29)</sup>	Análise espacial da infecção pelo vírus da imunodeficiência humana entre gestantes	Recife	Illiteracy, absence of prenatal care and poverty were associated with the risk of vertical HIV transmission. The highest infection rates were found particularly in socially more disadvantaged regions of Recife.
Teixeira TRA, Gracie R, Malta MS, Bastos FI <sup>(30)</sup>	Social geography of AIDS in Brazil: identifying patterns of regional inequalities	Brazil	Many Brazilian cities with high aids rates are located along federal highways. These roads can lead to different changes in the social environment and play distinct roles in the dissemination and maintenance of diseases and problems, as they link isolated places.

Source: Created by the authors.

## Discussion

The following are the social determinants of HIV/aids described in the studies included in the sample according to the category in Dahlgren and Whitehead's model of social determination of health<sup>(6)</sup>.

### *Category 1: Individual determinants of HIV/aids*

This category deals with the individual determinants of HIV/aids, which are related to the personal characteristics considered as non-modifiable and which receive little influence from health policies, such as sex, ethnicity and age. Studies generally point to distinct patterns in the distribution of HIV between genders,

depending on where they were developed. For example, in research conducted in the USA<sup>(9)</sup> and in Latin American countries such as Brazil<sup>(10)</sup> and Colombia<sup>(11)</sup>, aids cases were more prevalent among males, especially among those of productive age.

On the other hand, studies in Sub-Saharan African countries, where the epidemic is most prevalent, indicate that the probability of HIV infection is higher among women compared to men<sup>(12-14)</sup>. One example is Ethiopia, where the prevalence of HIV/aids among women is 1.9%, as opposed to the prevalence of 1.1% among men<sup>(14)</sup>, as well as Kenya, where 73.1% of the seropositive individuals are female<sup>(12)</sup>.

Research in 24 countries in Sub-Saharan Africa highlighted the feminization of the



epidemic as a reflection of a range of biological, socioeconomic and cultural risk factors that increase the vulnerability of women to HIV. First, the biological disadvantage of the anatomy of the female reproductive system leaves women vulnerable, as they have a larger surface area of the mucosa exposed to pathogens contained in the sperm fluid and are more likely to experience tissue injury during sex. Other possible explanations relate to the fact that, in many countries, women engage in sex work because of extreme poverty, in addition to the common occurrence of gender-based violence, which predisposes them to a higher risk of HIV infection<sup>(14)</sup>.

Age was another determinant of HIV/aids, cited in six of the 22 studies analyzed<sup>(14-19)</sup>. Interestingly, they all converged on the same point in stating that HIV/aids infection occurs most often among adults aged 20 to 49 years, to the detriment of the child, adolescent, and elderly populations. With regard to deaths by HIV/TB coinfection in South Africa, children under the age of five and those between five and 14 years of age died significantly less than those aged 15-49 years. For the older age groups though, death rates were more than twice as high as in the group aged 15-49 years<sup>(18)</sup>. The study also showed that condom use declines as age increases, which could explain the occurrence of HIV/aids among the elderly, as many of them believe they are immune to HIV and other STIs<sup>(15)</sup>.

Four studies pointed to the black and brown races as strongly related to the diagnosis of HIV/aids<sup>(9,16,19-20)</sup>. In Brazilian studies, it is indicated that most infected individuals are mulatto. As this is the most prevalent breed in the country, in view of Brazil's highly mixed characteristics, it affects the most prevalent color of seropositive people<sup>(16,19)</sup>. On the other hand, US surveys speak of racial disparities in HIV/aids rates, with the infection being more prevalent among African Americans compared to whites<sup>(9,20)</sup>. In the US state of South Carolina, for example, HIV/aids rates were higher among black people in 42 of the state's 43 counties. While the average infection rate among African-Americans was

34.8 per 100,000 inhabitants, among the white-skinned individuals, the average was only 5.2 per 100,000 inhabitants<sup>(9)</sup>.

### *Category 2: Behavioral determinants of HIV/aids*

This category portrays the lifestyles of individuals that may interfere positively or negatively in their health situation. As a result, the most cited behavioral determinants of HIV/aids are those related to risky sexual, such as multiple partners, sex work, and non-use of barrier contraceptive methods<sup>(13-15)</sup>.

The likelihood of having HIV infection is higher among individuals who initiate sexual intercourse earlier, as well as among adults who report several sexual partners in life compared to those who report only one lifetime partner<sup>(13-14)</sup>. An unusual finding was found in research conducted in Sub-Saharan Africa, where the concentration of HIV/aids among richer men and women was explained by the distinct behavioral differences among populations of different socioeconomic strata, given that individuals with higher purchasing power had more sexual partners than the poorest<sup>(13)</sup>.

Brazilian research has found that, in many cases, men end up being the most vulnerable to infection because sex with casual or even unknown partners, such as sex workers, is more common in males. The female population is more vulnerable to unsafe sexual practices though, as they tend to use a condom less often than men. Decision-making power over methods for preventing sexually transmitted diseases is generally unfavorable towards women and reflects the social role women play and the imbalance of male-centered power<sup>(15)</sup>.

According to the same research, approximately 21.0% of men and 11.0% of women had extramarital affairs. Condom use with casual partners was significantly higher among those who did not live with a partner when compared to those living with a partner. Thus, the use of condoms during extramarital intercourse was low and, considering that their consistent use

with a fixed partner is not common practice, lack of protection with casual partners significantly increases the chances of transmitting HIV and other STIs between couples<sup>(15)</sup>.

The category of exposure to HIV constitutes another behavioral determinant, cited in three Brazilian investigations that refer to the sexual route as the most important transmission in all Brazilian macroregions, with special emphasis on heterosexual relations<sup>(17,19,21)</sup>.

It is worth noting that HIV transmission among injection drug users (IDUs) is very relevant in the South and Southeast of Brazil. The greater economic infrastructure in the Southeast, for example, enables contact between people and serves as support for drug trafficking. In the state of São Paulo, HIV infection among IDUs is due to the low cost of the drug, which facilitates its dissemination among cities and increasingly attracts users<sup>(17)</sup>. In addition, the use of illicit drugs is particularly important for the transmission cycle of HIV/aids, as their consumption decreases the use of condoms in sexual relations. In contrast, not using drugs is associated with increased condom use<sup>(15)</sup>.

### *Category 3: Influence of social networks on HIV/aids*

This category refers to the influence of social and community support networks on the health-disease process. In this perspective, the PLHA's marital status becomes an important variable, considering that the spouse is an important provider of both emotional and material support<sup>(12,19)</sup>. It was verified that the infected persons' marital situation diverges according to where the research was carried out. Brazilian and North American investigations report a higher percentage of seropositive individuals who did not live with a partner<sup>(19-20)</sup>. On the other hand, research conducted in Sub-Saharan Africa shows a high proportion of married people among seropositive persons<sup>(12,14)</sup>. In a study conducted in Kenya, for example, more than three out of four infected individuals were married (77.6%)<sup>(12)</sup>.

In Ethiopia, divorced or widowed individuals were more likely to have HIV compared to those who never married. This situation was especially common among women who, when they get divorced or lose their husband, suffer more often from the lack of economic resources, which leads them to resort to prostitution. In addition, divorced adults are more likely to consume large quantities of alcohol, which predispose them to unprotected sex and greater vulnerability to HIV infection<sup>(14)</sup>.

On the opposite, the presence of a partner can be a source of support for people living with HIV. In Kenya, infected individuals who were married had greater help from the spouse to provide food for the family as opposed to HIV-positive widowed or single persons who had to feed their children alone. Married men and their families suffered less food insecurity, even though they were unable to work because of the disease<sup>(12)</sup>.

Chinese research found that the presence of social support networks was a significant predictor of the mental health status of patients living with HIV. According to the authors, infected patients can receive economic and emotional support from their social networks, resulting in increased hope, reduced stress, treatment adherence and, consequently, improved quality of life (QoL) and lower mortality rates. Thus, it has been suggested that interventions aimed at improving the QoL of aids patients can be intensified through the use and expansion of existing social networks<sup>(22)</sup>.

### *Category 4: Intermediary determinants of HIV/aids*

The social determinants that translate the living and working conditions are part of this category and involve opportunities to get access to food, education, employment, social health services, housing and sanitation. The living conditions of people living with HIV differ consistently between studies that indicate a higher or lower prevalence of the disease according to the socioeconomic group.

Research conducted with seropositive Colombian women showed that 80.0% of them were classified as members of a low social position. The socioeconomic level was relevant in this study, as the poorest women had a fivefold increased risk of low ART adherence, also leading to a higher risk of aids mortality<sup>(23)</sup>. African studies have shown that the highest prevalence of HIV/aids occurs among individuals with a better socioeconomic status though<sup>(13-14)</sup>. These included research in 24 countries in Sub-Saharan Africa that showed a higher concentration of HIV/aids, generally, among the socioeconomically most favored (based on family wealth) in most countries, except Guinea, Senegal, Swaziland and Zimbabwe<sup>(13)</sup>. Similarly, two Brazilian studies indicated that most of the seropositive patients interviewed belonged to the middle class, as their per capita income was higher than two minimum wages<sup>(19,24)</sup>.

In contrast to both aspects, research conducted in 12 countries in Sub-Saharan Africa found that the relationship between HIV prevalence and household wealth did not show consistent trends in all countries. HIV/aids rates in richer populations were more prominent in countries with lower incomes, and the prevalence of the disease in higher-income countries did not increase with wealth. Thus, the author argues that the relationship between wealth and HIV infection is not direct and does not always act in the same sense in all places. Poor people can engage in risky practices, such as initiating sexual life earlier or relying on sex work, while the rich tend to engage in wider social and sexual networks or have more partners. Hence, both wealth and poverty can lead to potentially risky or protective behaviors<sup>(25)</sup>.

Low education was associated with HIV/aids infection in several studies<sup>(11-13,16,18,24)</sup>. In Colombia, illiteracy is considered a determinant that increases the probability of HIV infection<sup>(11)</sup>. In São José do Rio Preto (SP), the variable with the greatest explanatory power of the incidence of HIV/TB coinfection in the city was the percentage of family heads with up to three years of education<sup>(24)</sup>. On the other hand, in South

Africa, the reduction in the risk of Aids mortality was observed only among individuals who had ten or more years of study. Thus, education acts actively as a protective effect against deaths among seropositive persons<sup>(18)</sup>.

Unemployment is another intermediary determinant that is related to higher rates of HIV/aids<sup>(9,14)</sup>. In Ethiopia, workers were less likely to be infected with HIV compared to unemployed individuals<sup>(14)</sup>. Similarly, in the state of South Carolina (USA), of the 11 counties with the highest HIV/aids rates, four had the highest rate of individuals out of the job market and the chances of having an HIV diagnosis increased by 1.68 times for each increase in the unemployment rate<sup>(9)</sup>.

Research conducted in Kenya found that 79.1% of HIV-positive respondents had severe food insecurity due to lack of financial resources. Medications used to treat AIDS caused unpleasant gastrointestinal effects such as nausea, vomiting and diarrhea, which were often exacerbated by lack of food, as most were forced to take the medication on an empty stomach. As a result, nearly one-third of participants reported not taking at least one dose of ART, as some medications should be swallowed with food to avoid bad gastrointestinal symptoms. In this sense, in low-income countries, food insecurity is a serious determinant of the reduced ART adherence and, therefore, contributes to the increase of mortality rates among seropositive people<sup>(12)</sup>.

Access to health services has been demonstrated in several studies as a significant determinant of HIV/aids in different populations<sup>(11,15,18,21,23,26)</sup>. It has been shown that the various magnitudes of the aids epidemic in the Brazilian regions results from inequalities in the supply of health services, as the highest implementation degree of the response to HIV was more concentrated in the cities where the epidemic showed high rates, but with a downward/stabilizing trend. On the opposite, in 74.9% of the cities where the epidemic showed high rates, but with an upward trend in the cases, the HIV response was restricted, as there were no specific outpatient

clinics for aids treatment and most of them had not received resources from the Ministry of Health to control the epidemic<sup>(21)</sup>.

Another study carried out in Porto Alegre (RS) revealed an association between HIV infection in pregnant women and the lack of prenatal care, considering that the attendance to the consultations was lower among seropositive pregnant women compared to the other pregnant women. Also, the highest rates of HIV infection in pregnant women were observed in areas where access to health services was limited, probably because the greatest capacity for the early diagnosis of HIV was observed in areas with better basic care services<sup>(26)</sup>.

#### *Category 5: Distal determinants of HIV/aids*

This category deals with the structural determinants of HIV/aids, including general socioeconomic, cultural and environmental conditions that have a significant impact on health and well-being. Of the 22 studies selected, nine focused on the socioeconomic conditions of the place where HIV-infected people lived<sup>(9-10,13,17,24,26-29)</sup>.

Five ecological studies carried out in different places in Brazil conclusively point out that the highest rates of HIV infection are found in poorer regions with worse living conditions<sup>(10,24,26-27,29)</sup>. In Ribeirão Preto (SP), for example, HIV/TB incidence rates in the areas of lower or intermediary socioeconomic levels were, respectively, 140% and 73% higher than the coinfection rates observed in areas with a higher socioeconomic level<sup>(10)</sup>. In Porto Alegre (RS), rates of HIV infection in pregnant women were observed in areas with worse socioeconomic conditions<sup>(26)</sup>.

Research has also shown correlations between HIV prevalence and various indices that measure the living conditions of a population or country, such as the Gross Domestic Product (GDP), Human Development Index (HDI) and Townsend index of social deprivation<sup>(9,13,17,25)</sup>. Research developed in Sub-Saharan Africa showed a strong positive correlation between

per capita GDP and HIV/aids prevalence. This means that, as GDP increases, HIV rates also increase. Thus, the richest countries in Sub-Saharan Africa (based on GDP) had a higher prevalence of HIV/aids compared to the poorest countries<sup>(13)</sup>.

Similarly, in Brazil, regions with a high HDI have a high incidence of HIV/aids and HIV/TB coinfection. The concentration of greater human development is found in the South and Southeast of the country (HDI > 0.80) and in some areas of the Center-West but, in the Southeast, the epidemic is more prominent, also being the most populous region with greater intensity of social contacts. On the other hand, the Northeast and North have the lowest HDI (HDI < 0.60) and the incidence of HIV / AIDS is lower<sup>(17)</sup>.

Urbanization is also part of the social macrodeterminants of health, as it refers to the infrastructure, organization and planning conditions of a given territory that can interfere in the health-disease process. In this perspective, research found that the probability of having HIV was higher among residents of urban areas compared to rural residents. Brazilian cities, where the magnitude of the epidemic is high, have demographic characteristics that are in line with the most important urban centers of the federation. The cities with a downward/stabilization trend in the epidemic have a larger population<sup>(21)</sup>.

With the urbanization and development of large cities, HIV infection spreads and tends to cross borders. In view of this problem, research on the social geography of aids in Brazil pointed to areas with a higher incidence of HIV along the main federal highways linking the cities of the Southeast with those of the Midwest and North. This is particularly relevant in view of the fact that, in making connections between isolated locations, roads end up contributing to different changes in the social environment and play an important role in the spread of diseases and threats to health, such as HIV infection and violence<sup>(30)</sup>.

Cultural aspects can also be determinants of HIV transmissibility. Especially in Brazil,

festivities such as carnival attract visitors from several locations, such as Recife, the capital of Pernambuco, where two districts are identified as of high risk for virus transmission, which are located in the most central and urban part of the city. One of them is the neighborhood of Recife, characterized as a tourist, port and commercial region; and the other is the neighborhood Guarabira, bordering on the city of Olinda. Both of them harbor thousands of people in the carnival season, thus promoting the intense flow of people and a high density of floating population, which hampers preventive actions and infection control<sup>(29)</sup>.

Some limitations of this research should be emphasized. Firstly, relevant manuscripts that would have contributed to the study of the theme may have been excluded in the first selection stage, when the researchers read only titles and abstracts, considering that only the well-structured abstracts that complied with the inclusion criteria were selected. Secondly, surveys published in other languages besides Portuguese, English and Spanish were not included, limiting the scope of the search.

## Conclusion

Based on the analysis of the selected studies, some social determinants could be identified that influence the dynamics of HIV/aids. It should be emphasized, however, that the populations investigated in the studies analyzed are heterogeneous. Thus, some social determinants observed in one place were not observed in others.

The identified determinants were appropriate for the layers of the social determination model Whitehead and Dahlgren proposed, as it permitted an extended view of the various conditioning factors. In general, category 1 pointed to differentials of gender, age and race as influencers of the infection; Category 2 portrayed risk behaviors for contamination, such as multiplicity of sexual partners and non-use of condoms; Category 3 pointed to the importance of supporting social networks, especially

the family, to PLHA; Category 4 emphasized divergences among studies regarding the socioeconomic level of those infected, as well as the interference of low level of education, unemployment and food insecurity; and Category 5 demonstrated the importance of economic and cultural macrodeterminants in the dynamics of the epidemic.

Thus, in this context of broadening the look beyond the biological aspect, we insert the nursing professionals who, in their training, are instructed to be altruistic, to guide their practices by the precepts of humanization and to perceive their patients holistically. These competences are essential for care to people living with HIV/aids, considering that this should not be decontextualized from the social reality the individual lives in. In addition, knowledge of the various social determinants of the disease may support risk analysis, as well as articulated and coordinated interventions in a wide range of social sectors, not exclusively the health sector, with special emphasis on those sectors that act on the macrodeterminants or structural determinants of HIV/aids.

## Funding

Piauí Research Foundation (FAPEPI).

## Collaborations:

1. conception, design, analysis and interpretation of data: Thatiana Araújo Maranhão and Maria Lúcia Duarte Pereira;
2. writing of the article and relevant critical review of the intellectual content: Thatiana Araújo Maranhão;
3. final approval of the version to be published: Thatiana Araújo Maranhão and Maria Lúcia Duarte Pereira.

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Received: January 5, 2017

Approved: January 23, 2018

Published: March 19, 2018



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