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## Research Article

# Exposure of Children and Adolescents to Violence and Its Impacts on Health: A Systematic Review with Meta-Analysis

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## Abstract

The number of Brazilian children and adolescents' cases involved in violent events has been significantly increasing each year. The perverse character of social differentiation that several races suffer in the country becomes evident based on the numbers of violence against the white population. Methods: We conducted a systematic literature review with meta-analysis searching for original articles in the Scopus and Biblioteca Virtual em Saúde (Health Virtual Library, BVS) electronic databases, in which the latter hosts databases like MEDLINE and LILACS. We calculated ratio meta-analysis considering the model and method of random effects with the support of the Stata Program 14.0. We also used the metabias calculation and demonstration to verify the investigated effect, even in small samples. Results: The search resulted in studies developed in foreign countries and in Brazil, even though the number of articles found in Brazil (n=15) is rare compared with foreign countries (n=125). Results are a more faithful violence cut in the health of adolescents than of black children, considering that we only found a few studies focused on children about this theme. The most used age in the studies was 12 to 19 years. Evidence show that the violence effect in the health of African descent populations is significant even in small studies. Conclusion: Violence is a factor with important repercussions related to the health-disease process in the African descent population during the youth. Ethnic disparities regarding deaths of black adolescents due to violent causes are the extreme outcome of this factor. Being adolescent and black in Brazil implies a three times higher chance of evolving to death if compared with a white adolescent.

Keywords: Children, Adolescents, African descents, Violence, health

## Introduction

The number of Brazilian children and adolescents cases involved in violent events has been significantly increasing each year, especially in groups that are more subject to the process of socioeconomic vulnerability. Black young subjects represent most part of these cases and they many times identify their life opportunities connected with marginality or even being exposed to communities without better housing and security conditions [1]. Hence, Brazilian favelas [slums] and peripheral communities are spaces open for the reproduction of violent situations due to a historical process of social inequality and exclusion of these regions [2].

The perverse character of social differentiation that several races suffer in the country becomes evident based on the numbers of violence against the white population that has presented a decrease, whereas the black population statistically suffers increasingly more and faces themselves every day with sequelae due to a disproportional social that creates victims of a society that values the act of having assets, but that does not provide

their members with an equalitarian form of finding licit paths to achieve it [2,3]. Using information and creating a panorama with what scientific papers discuss on the theme become essential for trying to understand how these biopsychosocial processes deal with the presence of violent acts in their base communities.

Despite the alarming situational context that Brazil presents, this is not a problem that affects only this South American nation [1,4]. Consequently, comparing and using articles focused on the same thematic aspect in another region of the world, which despite its larger development, has also been through the same historical events related to slavery, to a cultural process of ethnic exclusion and miscegenation of a population that is essential derived from immigrants, becomes a coherent path to complete the information needed to perform a summary in the formats needed for the work [2-4]. It becomes important correlating the way how both societies got organized regarding exposure of the black young subject to violence as a public health problem that should be combated in an inter-sectorial way [4].

Evidence that demonstrate health consequences of violence against the black youth continue rare in Brazil, and the real impacts of ethnic disparities on the country still need to be better clarified by scientific studies. Hence, this study aimed to characterize relevant evidence for determining the effects of African descent children and adolescent's exposure to violence and its impacts on health, using the international protocol PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analyses).

## Methods

We conducted a systematic literature review with meta-analysis searching for original articles in the electronic databases scopus and biblioteca virtual em saúde (health virtual library, bvs), which hosts databases like medline and lilacs, using the keywords (mesh) african continental ancestry group (1) african americans (2) violence (3) adolescent (4), and child (5). in scopus, we searched for the words 2 and 3 and 4 and 5 with limitation to document type (article) and study area (medicine). in bvs, however, the search for 1 and 3 and 4 or 5 was conducted without data filters or restrictions.

Analysis of results was based on the following inclusion criteria that had been previously determined (1) studies related to violence in African descent children and adolescents; (2) studies with approach of relevant aspects to the health of black young subjects exposed to violence (3) original texts with full text available online (4) analytical, descriptive or experimental studies, except for case reports. In addition to these, we used the following exclusion criteria (1) articles out of the theme, among them studies without ethnical focus or with a sample of a different age range compared with the studied objective; (2) reports; (3) Systematic or integrative literature reviews; (4) grey literature; (5) free online unavailable text.

We calculated ratio meta-analysis considering the model and method of random effects with the support of the Stata Program 14.0. We also used the metabias calculation and demonstration to verify the investigated effect, even in small samples.

## Results

The search resulted in studies developed in foreign countries and in Brazil, even though the number of articles found in Brazil (n=15) is rare compared with foreign countries (n=125). Results are a more faithful violence cut in the health of adolescents than of black children, considering that we only found a few studies focused on children about this theme. The most used age in the studies was 12 to 19 years. Thus, the review was developed from profiles of national and international health of children and adolescents suffering or who suffered any kind of violence (Figure 1).

According to the explained method, the first result was 149 articles. After the identification of repeated papers (n=09), we removed 96 articles during the screening phase. In the final selection, we determined that 30 of the 44 remaining articles, based on the mentioned eligibility criteria, would form the review results (Figure 2). All the chosen articles are distributed in a spreadsheet that provides information of the authors, database, detailed sampling, and main findings used for the analysis (Table 1).

Figure 3 contains the meta-analysis of study proportion.

The same or close effects are expected to happen for equal or similar samples. We found a significant general effect ( $p=0.00$ ) for the analysis purpose in the context of violence directed to black people. In addition, the weight attributed to each study was homogeneous; therefore, the expected effect regarding violence in the studied population occurs in different contexts, thus decreasing the chances of randomness.(Figure 4) provides the meta-bias analysis for estimating the effect even in small studies and samples. Metabias evidence show that the violence effect in the health of African descent populations is significant even in small studies.

## Discussion

Results found in Brazil are associated with more prevalent death risks that are lived by black adolescents, indicating fatality due to external causes as the main indicator of violence that assails this population. We did not find studies involving Brazilian children.

Black and male adolescents were the largest group at risk of dying due to external causes, such as homicides, transportation accidents, and suicide. In homicide cases, most of the victims were aged 15 to 18 years[1,2]. In some demographic regions of Brazil, we noticed that the largest population density of these individuals is associated with higher numbers of homicides, and the opposite is also true. Based on such analysis, we concluded that this population is found in socioeconomic vulnerability conditions resulting in a situation of exposure to some kinds of exemplified violence [5].

In addition, violence associated with ethnic and age condition of these individuals shows the selectivity of the truculence that mainly affects black adolescents of lower income and lower educational level [6]. Thus, studies converge on considering the ethnic question as a marker of social inequality, and a black adolescent has 3 times more chances of dying in comparison with a white adolescent [7].

Internationally speaking, death of children and adolescents was pointed out as a consequence of legal community interventions mediated by fire guns. Relevance of the result is given by the increasing number of cases that victimize pediatric patients, especially black children, considering that the lethality in these cases increases in almost 4 times [8].

## Impacts on the physiology of black children and adolescents exposed to community violence

Exposure to violence may be a predictor of the appearance of several physiological mechanisms related to stress. Some studies have reported their direct effects in homeostasis of the organisms from black children and adolescents.

The community and domestic violence may influence alterations in the organism of victims exposed to violence, such as: decrease of the telomer length and more reactivity in the cortisol release, in which increase in the number of convenience stores close the victims' house, more contact with drinks derived from ethanol and high rate of violent crimes are factors that directly interact. Such findings suggest that adverse effects related to the community where African American children and adolescents live result in biological stress able to influence their long-term growth and development [8].The increase of incidence and prev-

Table 1. Representative matrix chart of data synthesis

Authors	Databases	Sample	Main Findings
Joudi et al.	Journal of Surgical Research	Kids' Inpatient Database (KID) is a sample of pediatric hospital inpatient databases maintained by the Agency for Healthcare Research and Quality. Every three years, data sets are released with data regarding up to 7.5 million weighted cases.	In total, we identified 275 cases with a 7.5% mortality rate. The incidence reached 1.0 per 100 thousand inpatient databases in 2006, and significantly increased from 0.2 per 100 thousand inpatient databases in 1997. African-Americans (44%) represented the largest race group, followed by Hispanic (30%) and Caucasian (20%). The average age was $17.5 \pm 20.8$ y. Most of the patients presented non-children hospitals (97%). Cases happened mainly in states of indulging gun laws (56%), whereas the others happened in strict (41%) and neutral (3%) states. When they were analyzed by race, Caucasian (16%) had a significantly higher mortality rate compared with African-Americans (5%).
Theall et al	JAMA Pediatrics	Children between 5-16 years old and their families from New Orleans, Louisiana, were recruited using street disclosure techniques between January 1st of 2012 and July 31st of 2013. The participants were geographically connected with their census sector and located in 51 of 177 census sectors.	Among the 85 black children of the study, significant variation in the length of telomer and functioning of cortisol were observed in the neighboring level, with a 6% intra-class correlation coefficient for telomer length, 3.4% for cortisol levels when awake and 5.5% for maximum levels of cortisol after a stressor. The density of convenience stores was associated with decrease of the average length of telomer in 0.004 for each drinking store or additional convenience store. The domestic violence rate was significantly and inversely associated with decrease of the average length of telomers in 0.007 for each additional report of domestic violence in a 500 m radius from the child's house. The rate of violent crimes was significantly associated with decrease of the average length of telomers in 0.006 for each additional report of violent crimes in a 500 m radius from the child's house. Children exposed to more convenience stores in less than 500 m from their houses were significantly less inclined to decreasing their cortisol levels after a reactivity test, as well as children exposed to high rates of domestic violence and violent crime.
Rosas-Salazar et al.	Chest	747 Puerto Rican children aged 9 to 14 years, living in San Juan, Puerto Rico (n = 472) and Hartford, Connecticut (n = 275).	There was a significant interaction in multivariate analyses between exposure to armed violence and African ascendency in asthma and serum total IgE. Among children exposed to armed violence, each increase of quartile in the percentage of African ascendency was associated with around 45% higher probability of asthma and increase of around 19% in the total IgE. In contrast, there was no significant association between African ascendency and asthma or total IgE in children who were not exposed to armed violence.
Richards, et al.	Journal of Child and Adolescent Trauma	82 African-American urban adolescents of low-income (Male age = 12.92, SD = 0.80, 53.7% female).	The severe stress of growing in an extremely poor and very violent community in Chicago Southside may be understood as toxic stress. This study suggests that a high burden of stress may seem to damage the benefits of interventions destined to improving the youth welfare. Although the leadership has been improved for adolescents in this study in all conditions, many other results were limited by the quality of neighborhood and/or reinforced by the ethnic identity.
Harford et al.	Journal of Studies on Alcohol and Drugs	Data were obtained from the National Survey on the Use of Drugs and Health in 2008-2013 with a combined sample of 108,560 respondents aged between 12 and 17.	The multivariable model indicates that the increase in the number of criteria of substance use disorder (SUD) confers significantly higher quotas for each category of violence versus no violence. For combined violence versus self-directed violence, male sex, black and non-Hispanic mixed race (with non-Hispanic white subject as the referent), nicotine dependence, increase in the number of criteria of the alcohol use disorder and other criteria of the drug use disorder have significantly higher probabilities, while native Hawaiian/insular of Pacific and age have significantly lower probabilities.
Reboussin et al.	Journal of Urban Health	799 first-grade students were recruited in nine public elementary schools from the city of Baltimore. Data used for this study were restricted to black adolescents (n = 341) to reflect more accurately the nature of marijuana use in black adolescence in the context of the neighborhoods where they live. The number of non-black adolescents (n = 30) was too small for making significant comparisons between black and non-black people. 52% of the analytical sample are male and 67% were receiving free meals or at reduced prices in the eighth grade (a proxy for low socioeconomic level). The average age was 13.7 years (range from 12.4 to 15.3).	The use of marijuana is focused on neighborhoods with higher rates of childhood crime, abuse and negligence and percentage of families who live in poverty. The largest effects in grouping were for adult crimes and non-violent youth. Marijuana consumption coincided twice more frequently in neighborhoods with higher rates of adult non-violent crimes and 1.5 times more frequently in neighborhoods with higher rates of non-violent youth crime than would be expected if the use of marijuana had been distributed randomly into neighborhoods. In comparison, the use of marijuana happened around 1.3 times more frequently in neighborhoods with higher rates of adult violent crimes, child's abuse and negligence and percentage of single-parent families.
Mrug et al.	Journal of Adolescence	African-American and European adolescents who took part in the Youth Violence Study of Birmingham (N = 594, average age = 13.2 years)	African-American adolescents presented more depressive symptoms than American European participants. Family socioeconomic factors reduced this difference 29%; all risk factors decreased 88%.

Andrews et al.	Social Psychiatry and Psychiatric Epidemiology	Data extracted from the National Survey of Adolescents-Replication (NSA-R). Data of the present study were extracted from the first study wave, which was concluded in 2005. 3614 adolescents and their parents agreed to take part and were included in the study (52.2% of participation).	For a first model, most of the indicators suggested good adjustment ( $\chi^2 = 186.35$ , $df = 20$ , $p < .001$ , $CFI = 0.97$ , $RMSEA = 0.05$ , $SRMR = 0.03$ ). Race/ethnicity were predictors of trauma-related mental health symptoms, in a way that young people who identified themselves as non-Hispanic Black ( $\beta = 0.04$ , $p = .018$ ) and Hispanic ( $\beta = 0.07$ , $p < .001$ ) reported more trauma-related mental health symptoms when compared with non-Hispanic whites. For the non-Hispanic black youth, differences in the polyvictimization seem to fully explain differences in mental health symptoms in comparison with non-Hispanic white adolescents ( $\beta < 0.01$ after control of polyvictimization).
Kohl et al.	Journal of Child and Adolescent Trauma	A sample of 320 6th grade urban students from South America (60% of the female sex) were recruited in six public schools from Mid-town Chicago and followed-up for 2 years in the 8th grade.	Feelings of numbness and hyperexcitability partially mediated the relation between ECV (Exposure to Community Violence) and depressive symptoms from the 6th to 7th grade and 7th to 8th grade. The result was consistent not only in the cross-sectional study but also in the longitudinal study and therefore exposure to community violence may be associated with more complex symptoms, which are initially posttraumatic stress symptoms that later become depressive symptoms.
Williams et al.	American Journal of Public Health	1,522 black men who had sex with other men (MSM) recruited from 6 cities in the USA between July 2009 and December 2011.	Among HIV-positive MSM ( $n = 337$ ), children's sexual abuse between the ages of 12 and 16 was significantly associated with having more than 3 male partners in the last 6 months.
Fagan et al.	Journal of youth and adolescence	1,661 to 1,718 adolescents, among them white, African-American and Latin in the Project on Human Development in Chicago Neighborhoods.	Exposure to violence was associated with higher probability of tobacco, alcohol and marijuana use, as well as with the act of committing violence.
Leff et al.	Development and Psychopathology	108 adolescents aged 9-19 were interviewed, chosen in schools, summer camps, and rehabilitation centers. Data were also obtained with relatives or guardians of the adolescents.	Series of data correlating the presence of violent incidents in the history of adolescents with the presence of more hostile personalities.
Wilson et al.	Journal of behavioral medicine	African-American girls ( $N = 177$ ) from low-income communities in Chicago that completed a longitudinal study of 2 years about the HIV risk behavior.	Children's exposure to violence (CEV) is a covariable of sexual experience, number of sexual partners and inconsistent trajectories of condom use. In a sample including African-American young girls of low income searching treatment for mental health conditions, the exposure to community violence was associated with increased sexual risk behaviors, a relation that has been kept throughout time.
Taillieu et al.	Child Abuse and Neglect	Data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) collected in 2004 and 2005 ( $n = 34,653$ ).	Results suggest race and gender differences for severe physical punishments in children that, in general, appear in a falling curve. The intensity of this fall seems higher for boys than for girls. Regarding race, this fall is only perceptible among white subjects.
Farrell et al.	Child Development	Participants were two cohorts of students from 37 schools in four communities. The participating schools included 8 in Durham, North Carolina; eight in Richmond, Virginia; 9 in Northeastern Georgia; and 12 in Chicago.	African-American students reported higher frequency of witnessing violence. Disadvantage situations concentrated in the neighborhood might have a quite stable influence on the development, in a way that its effects might be evident in adolescence. The strong relation between concentrated disadvantage situations and levels of exposure to situations where the adolescent witnesses violence, victimization experiences and physical aggression involvement, supports this hypothesis. The analyses supported the hypothesis that high-risk adolescents living in neighborhoods with high levels of concentrated disadvantage, reflected by high rates of poverty, women-based families, public support, renting and unemployment properties and low levels of education and per capita income are exposed to higher levels of violence both as witnesses and as victims.
Dinizulu et al.	Journal of Prevention and Intervention in the Community	151 African-American urban adolescents of low income.	Surprisingly, an unexpected pattern for the subscale of relationship problems arose. For adolescents who opened themselves more frequently, the association between exposure to violence and internalizing suffering was stronger.
Carey et al.	Journal of Adolescence	267 African-American students from Chicago public schools in communities with high levels of criminality.	The transactional results revealed certain periods of development in which being more socially misadjusted may put an adolescent at risk of being more exposed to violence. However, the relation between exposure to community violence and being socially misadjusted happened contrarily to that expected in hypothesis, in a way that children who had more experiences with exposure to violence were less socially misadjusted, especially in the eighth grade.
Sterrett et al.	Journal of Adolescent Health	Data from the longitudinal mobile youth survey (MYS, $N = 11,838$ , 49% female, 93% male African-Americans) to examine trajectories of sleep problems per age (10-18 years old) among poor adolescents.	We found an association between sleep disorders and exposure to violence. Both in the longitudinal and cross-sectional analyses, feeling of despair, exposure to violence and exposure despair of violence interference negatively affect sleep. In addition, a significant three-way interaction was evident between age, sex and exposure to violence in the longitudinal analysis, suggesting that sleep trajectories of women were more negatively affected by exposure to violence than that of men, especially during the first years in adolescence.

Voison et al.	Journal of youth and adolescence	563 (61% women) African-American young boys from High School.	For boys, the relation between exposure to community violence and behaviors of sexual risk and sexual debut were connected by aggression. For girls, the relation between exposure to community violence and sexual debut was connected by aggression and by negative perceptions of attitudes from friends regarding safe sex.
Schuster et al.	New England Journal of Medicine	5,119 fifth-grade students from public schools randomly chosen and their parents from three metropolitan regions in the United States, analyzing the differences between black, Latin and white children.	In a first analysis without statistical adjustments for covariables, the rate of witnessing a threat or an injury with gun was higher among Black (20%) and Latin (11%) subjects than among white subjects (5%). After the adjustment for covariables, disparities between Black and White subjects remained significant.
McMahon et al.	American Journal of Community Psychology	266 African-Americans urban young subjects who had self-reported violence cases, reported by friends or teachers.	In general, the results suggest that higher levels of exposure to violence are associated with a more aggressive and less prosocial behavior reported by friends, whereas higher self-efficacy to solve conflicts more peacefully is associated with less aggressions and more prosocial behavior.
Howard et al.	Journal of Abnormal Child Psychology	88 arrested adolescents, mainly adolescents of ethnic minorities (M age = 15.57; SD = 1.28).	Boys with high insensitivity marks, especially defined as Callous-unemotional (restricted affect) had higher tendency of committing violent acts if they had witnessed violence in their environment. Findings suggest that adolescents with more marks of restricted affect are more inclined to engaging themselves in drug-related situations. This association is entirely attributed to exposure to violence and direct victimization. In the present study, we found an association between sexual delinquency and exposure to situations where the adolescent witnessed violence ( $r=0.35$ , $p<0.05$ ), but without direct victimization.
Lee et al.	Journal of Adolescent Health	A total of 1,633 investigations were collected; 1,118 (68.5%) participants were females and 514 (31.5%) were males. Ages varied between 12 and 19 years. Respondents described themselves as European descents (45.9%), African descents (26.2%) or mixed (17.7%).	Prevalence of childhood mistreatments was higher for black boys than for white boys; however, there were no race differences in time, kind, severity and chronicity of mistreatments. When the socioeconomic condition and cohort were controlled, childhood mistreatment significantly predicted depressive symptoms and violence in adolescence, but none of the outcomes in young adult age.
Spano et al.	American Journal of Community Psychology	Five stages of longitudinal data collected from 349 young African-Americans that live in extreme poverty conditions were used for examining the inter-relation between exposure to violence and parenthood during adolescence.	(1) a trajectory of decrease in parents' monitoring for 48% of the adolescents; and (2) four different trajectories of exposure to violence. Multivariate findings were in great part consistent with the transactional-ecological model of community violence.
Valentino et al.	Child Maltreatment	70 mothers aged 18 and their children who were followed-up longitudinally since the third trimester of pregnancy of adolescent mothers.	Results revealed that among mothers with history of children's abuse, higher exposure to community violence and smaller attitudes of authoritarian education were associated with increase of risk of inter-generational abuse continuity.
Lambert et al.	American Journal of Orthopsychiatry	Urban adolescents and mainly African-Americans (N = 501) that witnessed community violence.	Watching violence against a family member and close friend was associated with more depressive symptoms. Important consideration was found for gender differences in these associations for the kind of relationship. Witnessing community violence against a close friend was associated with anxiety for men, but not for women. Witnessing community violence against outsider was associated with increased aggression for men. In addition, witnessing community violence against a friend or acquaintance was associated with increase of aggressive behavior for men and women, and watching violence against a family member was associated with more aggression for women.
Fothergill et al.	Journal of urban health bulletin of the New York-Academy of Medicine	Data from a 35-year-study of an African-American community population to analyze the relations between homeless and structural, family, school and behavioral previous influences.	The bivariate analysis of results revealed that, for both genders, smaller bonds with school, depressive humor, violence and running away from home were significant factors related to later situation of lack of housing. Adolescence parenthood was a unique influencer factor for the female gender, whereas first-grade classroom management and use of substances was uniquely significant for the male sex.
Araújo et al.	Revista Brasileira de Epidemiologia	Secondary data from 5,250 individuals from Salvador, Bahia	Overall and local Moran I tests were significant. The CAR regression showed that the predicting rate of mortality by homicide increases in the event of an increase in the rate of the black male population aged 15 to 49. Geographically weighted regression (GWR) showed a small variation of the local coefficients for all the predictors.
Costa et al.	Ciência e Saúde coletiva	Deaths by violence that happened in adolescents living in Recife from 1998 to 2004 in the ages of 10 to 19 years, obtained from the Recife Mortality Information System (SIM).	The rate of mortality by violent deaths against adolescents for the city was 88.24 per 100 thousand adolescents, in which 46.93 were in stratum I, of "the best life condition", and 95.00 in stratum III, of "the worst life condition". Of the violent deaths, 92.45% assailed black adolescents and 7.55%, white adolescents.

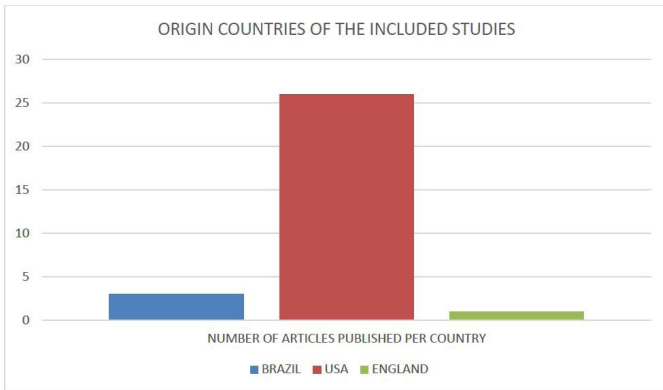


Figure 1. Number of articles per origin countries of the studies included in the review.

Source: Author's ownership

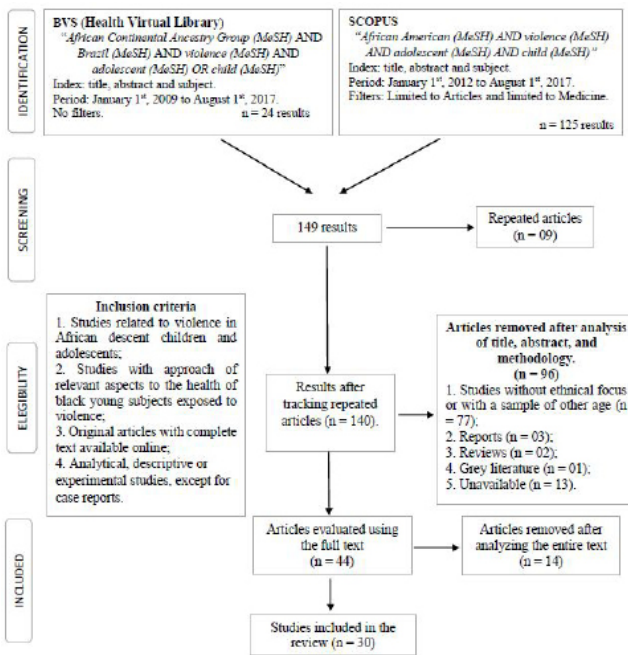


Figure 2. Flowchart showing the selection of studies for the review. Source: Schematic representation of the studies included in the systematic review using a checklist and flow diagram of the PRISMA Protocol.

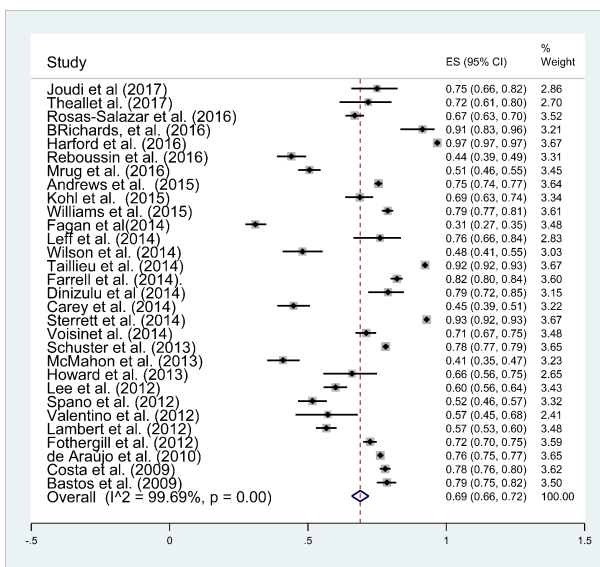
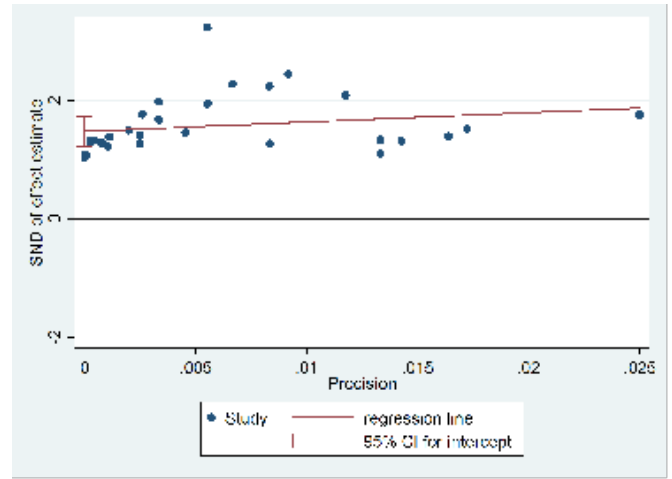


Figure 3. Meta-analysis of the proportion of the selected studies. Source: Author's ownership



Std_Eff	Coef.	Std. Err.	t	P> t	[95% Conf. Intervall]
slope	15.88243	14.1135	1.13	0.278	-13.02777 44.79263
bias	1.47649	.1232543	11.98	0.008	1.224815 1.728965

Number of studies = 38      Root MSE = .4892

Figure 4. Meta-bias of the selected studies. Source: Author's ownership

absence of asthma and total serum IgE rates may be justified on the ethnic question and interaction with gun violence [9]. In adolescence case, the main correspondence found was between sleep disorders and stress in the poorest neighborhoods. We found a three-way interaction (age, gender and exposure to violence) that suggests sleep alteration of the women who were mostly affected by exposure to violence, especially during the first years of adolescence. Results conclude that such associations may have a connection with low income of African American children and lower access to health services, which once more expose the vulnerability of these individuals [9,10].

**Consequences of living with community violence and its association with substance use**

There is a great agreement in the articles regarding the environmental issue when the consequences caused by violent experiences are worsened. The way the environment prepares the individual is extremely important for the occurrence of these acts and more and more adolescents are exposed both as victims and as witnesses [11], however it is not a determiner [12]. The absence of great social interaction is extremely harmful for young minds being developed. It also affects the efficiency of social works that are being developed in the region for trying to change bad levels. The presence of violence cases in their communities, especially when it affects one of its family members, is the origin of problems involving anxiety disorder, depression and posttraumatic stress. In a study where students from the sixth to the eighth grade were followed-up by psychologists to assess their conditions, we found that if a child suffers any traumatic violent event in a year, he/she will usually present psychiatric syndromes in the next years of learning [13-16].

When violence includes the sexual area, a cyclic phenomenon happens, in which mothers who experience sexual violence in the youth present more chances of their daughters experiencing this occasion [13-17]. In a study where women were separated by their races in the connection with risk factors, black women were more associated with power abuse of guardians

than other races; in addition, there is a higher propensity to continuing sexual abuse cases without an intervention [13]. Black girls are more exposed to sexual violence, whereas young African-American male subjects are more inclined to gang fights, and these factors even influence the initiation of the youngster's sexual life and in safe sex practices due to larger relation with breaking the rules, lower exposure to information or even no hope regarding the future. Violence is unquestionably a great source of low self-esteem in young black subjects [11,12,14,17].

It is extremely important to emphasize that some factors might subtract the negative effects of exposure to traumatic violent events[11,14,18], including presence of proper social interaction, well-structured family that can provide the adolescent a great quality of life both financially and psychologically speaking, quality school that provides refuge to the victim and new meaning of the occurrences with a better perspective of the future [18]. Therefore, the lack of social engagement provides the individual a determinism that makes him/her search for meaning by spreading more violence acts. These young subjects are usually more inclined to developing depressive and anxiety disorder[12,18, 19]. These factors might be associated with several occurrences: from non-exposure to such events in a recurrent way due to more care for prevention to the opening of different ways of suppressing the violent and depressive trends that may arise. The young black subject is deeply associated with all these statistics because he/she historically populates most of the population residing in violent areas due to a historical process of social segregation and inequality [18].

The association of chemical substance abuse with the attempt of dealing with syndromes caused by posttraumatic stress related to violent events is widely diffused in medicine, and the black population suffers even more with these factors, because they comprise, as mentioned, the greatest part of the population residing in dangerous areas with lower economical levels, which also provides cheaper drugs and, as a consequence, more dangerous drugs [20]. If, for girls, the presence of undesired labors and rapes are relevant components of addiction causes, black young subjects are more inclined to associate violence acts with the use of licit and illicit drugs. The explained factors, which promote improvement of the perspective for a better future as a way to prevent cases of psychologic crises, are also necessary to prevent the use of substances [20-23]. This is the case of marijuana, which use is 1.3 times higher in neighborhoods of lower income with lower government support and with history of violent cases[21,11]. The lack of a fix home is also pointed out as one of the greatest causes of exposure of adolescents to wild acts. Such population is mostly formed by black people, especially in poorer regions, who end up being the origin of several non-positive data [22,23].

### Exposure to violence and impacts on mental health

Results found an association for young black subjects between being victim of violence, as well as being exposed to community violence situations, and mental health disorders. Hence, the strongest related condition, especially with exposure to community violence, were posttraumatic stress – PTS [24,25] and depression symptoms [12,14,18,23].

Exposure of the young person to community violence is

initially related to PTS development. Numbness and hyperexcitability symptoms were specially found as participants of relations between exposure to violence, disorders and symptoms, in such a way that these are the posttraumatic stress symptoms that may partially measure its relation with depression, mainly in young people from the sixth, seventh, and eighth grades [24]. Hyperexcitability is characterized by the American Psychiatric Association as persistent manifestations of excitability, such as difficulty to sleep, irritability, concentration problems, and exaggerated response to scare [22-24]. But numbness of general responsivity, otherwise, reveals as a decreased interest in activities, affect restrictions and shortened future sensation, which is commonly associated with evasion from the stimulus associated with trauma [24]. From this study, several other aspects relating violence in African American descents and development of depressive symptoms also became evident, respecting some differences and particularities, such as gender. In addition to exposure to community violence situations and trauma, childhood mistreatment was another factor that significantly predicted depressive symptoms and violence during adolescence. It therefore worsens the context in which the prevalence of childhood mistreatments is higher for black boys than for white boys [14].

Witnessing a violence incident against a family member or close friend is also associated with the development of depressive symptoms, although important considerations regarding gender and proximity to victim should be made. Thus, witnessing violence against a close friend was associated with anxiety for men, but not for women. In addition, when the witnessed incident occurred with outsiders, the demonstrated relation was behavioral alterations, more specifically problems with aggression for men [12].

Another factor in the subscale of relationship problems influences the relations analyzed in this section. Results revealed association between internalization symptoms of depression or anxiety and African descent young people of low income who did not trust their intimacies for adults. In a counterintuitive manner, young people who trust more frequently in adults and maintain less questions of private character had a more shocking association between exposure to violence and internalizing suffering [26].

### Risk behaviors related to community violence exposure

Results suggest ethnic differences for changes in severe punishments applied by guardians that although present in general lines as a falling curve, such fall is only significant for families of young white people [27]. Furthermore, young black people have more chances of witnessing threat or injury due to gun fire [13]. These results bring ethnic disparities into question again regarding exposure to violence and victimization, but they do not remain without meaning, considering they also show their relevant consequences.

Sexual risk behavior was the main behavioral outcome associated with exposure to violence[13,28,29]. Sexual risk behavior, sexual debut, number of partners and inconsistency in condom use were mediated by violence-related factors with peculiarities according to gender and sexual orientation. Based on this view, aggression situations establish a relation between exposure to community violence and sexual debut for both genders. More

specifically for young girls exposed to violence, negative perceptions of their friends' attitudes regarding safe sex was also related to the way how the sexual debut happens. Regarding sexual risk, otherwise, the most relevant connection happened between male young black boys and exposure to community violence [13].

Other results analyzed young African-American girls of low income searching treatment for mental health conditions, in a way that exposure to community violence was associated with a trend of developing increased sexual risk behaviors, a relation that has been kept throughout time [29]. On the sphere of victimization by violence, especially children's abuse, a sample of HIV-positive men who had sexual intercourse with other men, showed that abuse between the ages of 12 and 16 may be associated with having more than 3 sexual partners of the male sex in the last 6 months [28].

Besides sexual risk, another important outcome was the relation with development of aggressive behaviors[12,14,19,30]. Series of results discussed the development of less pro-social behaviors and more hostile and aggressive personalities as questions related to violence. Young people who have history of violent incidents, were exposed to violence in some way or were even victims of violence may develop behavioral problems with aggressiveness, after the respective exceptions have been made for differences of sex and level of closeness with the victim. Within this perspective, and similarly to exposure to violence, mistreatment during childhood is associated with violence in adolescence [14].

Witnessing violence against outsiders was associated with more aggressive behavior specifically for men, an outcome found for both genders in a situation of violence directed to a friend or acquaintance. In addition, witnessing a violence incident against a family member was more associated with aggression only for females. Aggressive reactions are the outcome of situations where the young person witnesses violent incidents and that may be understood by the threatening feeling noticed by witnesses in that moment, who then start to project a risk of also becoming victims [12].

Other social relations were specially related with exposure to violence, such as being in a street situation and being socially misadjusted. Results highlight a discrete association between being socially misadjusted and at higher risk of being exposed to violence. It is noteworthy that this relation is established in a more intense way when revealing young people who had more community experiences of exposure to violence as less inclined to being socially misadjusted [31,32]. Regarding the later lack of housing, violence has been an important influencing factor for both genders, as well as for smaller bonds with school, depressive humor and running away from home. Adolescence parenthood was a significant factor only for the female gender, whereas the use of substances was a factor only for the male gender [23].

High insensitivity marks found in boys, condition still obscure and defined as Callous-unemotional (or restricted affect) were associated with some risk behaviors analyzed up to now. Results suggest that young people with high-level restricted affect were not only more inclined to committing violent acts if they had been exposed to violence, but also had a higher trend of sexual delinquency [33].

## Conclusion

Violence is a factor with important repercussions related to the health-disease process in the African descent population during the youth. Ethnic disparities regarding deaths of black adolescents due to violent causes are the extreme outcome of this factor. Being adolescent and black in Brazil implies a three times higher chance of evolving to death if compared with a white adolescent. However, other direct impacts of exposure to violence are similarly relevant, evidenced mainly in African American adolescents due to the unavailability of studies in Brazil.

The possible negative outcomes for black children and adolescent's health who are victims of violent situations or have been exposed to violent contexts in their communities are diverse. Nevertheless, we must highlight that the existence of full health policies and the prevision of rights do not necessarily ensure their full exercise. Understanding these outcomes and, therefore, their real impacts is vital for effectuating the insertion of violence against the black youth in Brazil with a problematic regarding the health area, but that requires multi-sector efforts for their resolution.

## Authors contributions

MLRN designed the review, developed the inclusion criteria, screened titles and abstracts, appraised the quality of included papers, and drafted the manuscript. JDQF reviewed the study protocol and inclusion criteria and provided substantial input to the manuscript. VBN and MLRN reviewed the study protocol. JDQF read and screened articles for inclusion. All authors critically reviewed drafts and approved the final manuscript.

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