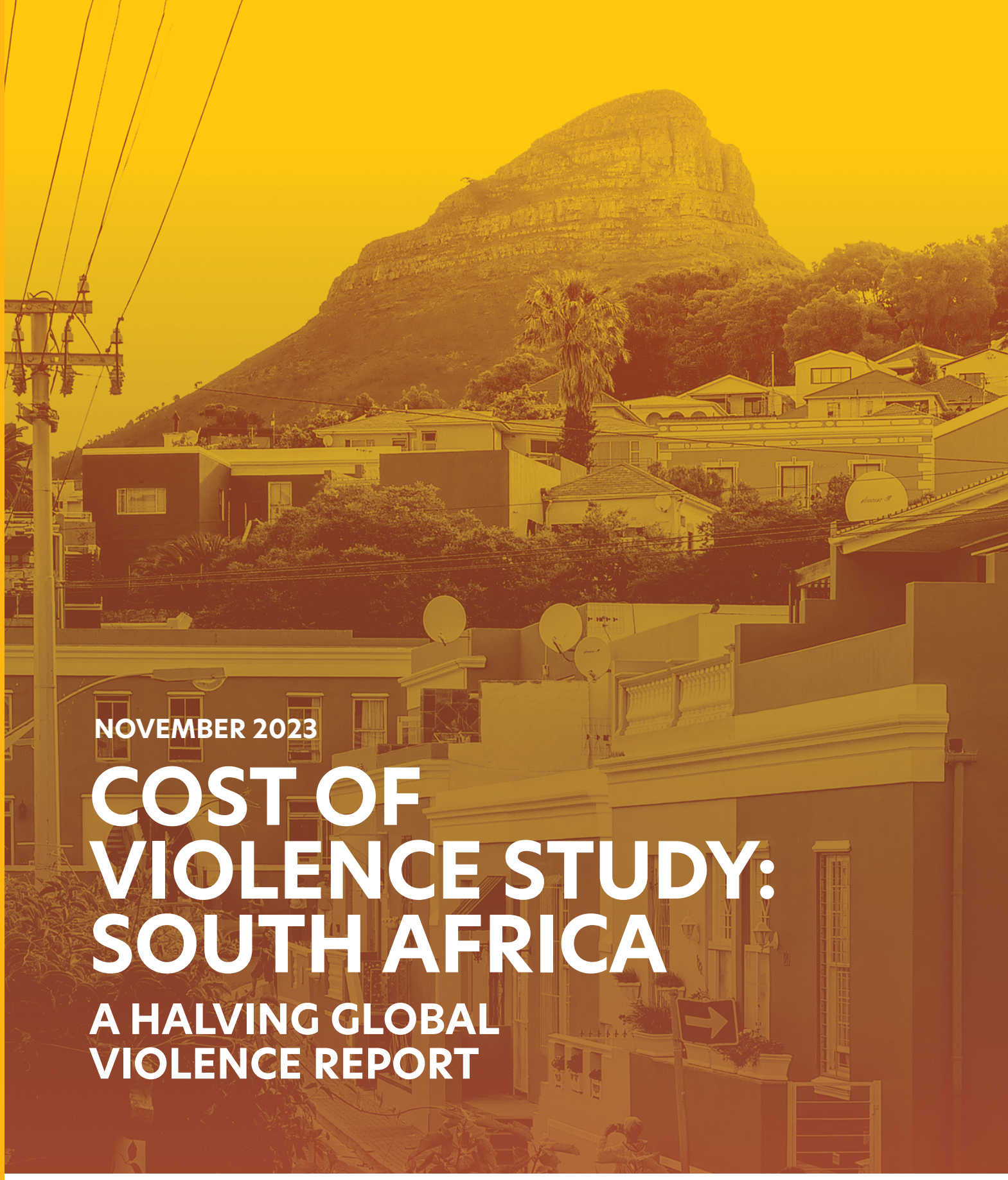

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COST OF VIOLENCE STUDY: SOUTH AFRICA

A HALVING GLOBAL VIOLENCE REPORT

PATHFINDERS
FOR PEACEFUL, JUST AND INCLUSIVE SOCIETIES
HOSTED BY THE NYU CENTER ON INTERNATIONAL COOPERATION

ACCORD
THE AFRICAN CENTRE FOR THE CONSTRUCTIVE RESOLUTION OF DISPUTES

This report was prepared by Richard Matzopoulos, Sarah Truen, and Ian Neethling, and commissioned by **African Centre for the Constructive Resolution of Disputes (ACCORD)**, with the support of **Pathfinders for Peaceful, Just and Inclusive Societies**, based at the **Center on International Cooperation** at New York University.

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About the Program

The **Grand Challenge on Halving Global Violence** **(HGV)** is creating a movement to achieve the Sustainable Development Goals targets for peace. It brings together communities of practice working on different forms of violence in order to highlight interlinkages and amplify impact on the ground. While most international attention concentrates on armed conflicts, evidence shows that it is interpersonal violence, especially interpersonal violence occurring in urban zones, that has the most impact on people's daily lives and has a direct effect on other sustainable development indicators. For this reason, Halving Global Violence largely focuses on interpersonal violence and seeks to better understand how to address, in part through studies like this.

The movement is spearheaded by the high-level **Halving Global Violence Task Force**, a coalition of world leaders and experts committed to leveraging their knowledge, expertise, and networks to identify and disseminate evidence-based solutions to significantly reduce global violence.

HGV is an initiative of the Pathfinders for Peaceful, Just and Inclusive Societies, a cross-regional impact hub of 46 member states, as well as partners across international organizations, civil society, and the private sector committed to advancing the Sustainable Development Goal targets for peace, justice, inclusion, and equality (SDG16+). Pathfinders is hosted at New York University's Center on International Cooperation.

About this Publication

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Executive Summary

Introduction

Violence as a health priority impacts low- to middle-income countries (LMICs) disproportionately, which experience mortality rates almost 2.5 times greater than in high-income countries. South Africa (SA) is among the LMICs most affected by violence with homicide rates six times global averages and among the world's highest rates of gender-based violence, including rape and intimate partner violence. Several historical drivers have contributed, including colonialism, apartheid race-based social control policies, civil unrest and armed struggle, and the violent oppression of social justice movements. Some social drivers have endured, and income inequality—which still largely follows the apartheid-era race profiles and geography—has continued to be entrenched within society.

Within this milieu certain progressive policies such as the *1996 National Crime Prevention Strategy* and the *2020 National Strategic Plan on Gender-Based Violence and Femicide* have sought to holistically address SA's problem. However, uptake has been sub-optimal and violence has become so normalized that the extent of its harm to society is no longer fully recognized. This report (1) presents evidence for the prevention of violence including examples from SA, and (2) document the enormous toll of violence in terms of both its health impact on mortality and morbidity, and its economic cost. In doing so, **the study illustrates the costs of prevention are not prohibitive and emphasize the urgent need to implement effective policies and interventions.**

Prevalence and Drivers of Violence

We describe the prevalence and drivers of violence particularly on direct and measurable forms—homicide (murder), assaults and intimate partner violence—to gain a more complete understanding of the nature of violence, how it manifests, and its gendered nature. We standardized numerical estimates to 2019 as we considered this year, just prior to COVID-19, to be more reflective of typical conditions. Using the SA Medical Research Council (SAMRC) injury mortality surveys and police murder trends we estimated a total of 20,529 homicides in SA in 2019—of which 19,065 were male and 1463 were female.

To take into account the non-fatal component alongside violence-related deaths we applied the burden of disease method that measures population health using a single metric, i.e., the disability-adjusted life-year or DALY. We included a wide range of violence risks—all forms of child maltreatment (including physical, sexual, emotional abuse, neglect, and witnessing family violence) and community violence (including sexual violence by partners and non-partners and bullying victimization), as well as outcomes that arise from violence such as injuries, self-harm, depressive disorders, anxiety disorders, HIV/AIDS, maternal abortion, miscarriage and ectopic pregnancy, and alcohol use disorders. This study found that the direct impact of interpersonal violence injuries in males was notably higher, but

the burden of other health outcomes associated with interpersonal violence, like anxiety disorders, depressive disorders, and alcohol use disorders are more pronounced in females. **This underscored the importance of comprehensive analysis that encompasses diverse health outcomes.**

We noted the wide range of risk factors for interpersonal violence presenting in SA and that it was the confluence of risks rather than any unique risk factor that drives the high rates of violence in SA. For example, age and sex are among the individual risk and protective factors that increase or decrease the risk of aggression and exposure to violence, which is not unique to SA. However, the risk is amplified by the demographic structure of SAn cities with a high concentration of youths and young adults, and compromised child development due to malnutrition and fetal alcohol syndrome, which increases the risk of delinquent behavior. The situation is additionally exacerbated by upstream/distal societal risks further up the causal chain, such as employment, poverty and income inequality, and access to housing, education and other public infrastructure that provide the context that enables or inhibits interpersonal violence. Some are legacies of systemic violence in SA's post-colonial past and recent history of racial segregation, as well as the rapid social change that followed democracy.

Cost of Violence

We estimated the annual cost of violence in South African rand—at the time of writing approximately ZAR 19.30 to USD 1—to facilitate comparison to gross domestic product (GDP). The first cost category comprised tangible costs—defined as being financial in nature with direct economic impact and orders of magnitude smaller than intangible costs of trauma and psychological injury. These comprised of first order tangible costs that arise immediately and directly after a violent incident and second order costs that followed months or years later. We included first order tangible costs accruing to the healthcare system and criminal justice sector, across which approximately 10 percent of costs were attributable to interpersonal violence at ZAR 15.7 and ZAR 35.2 billion respectively in 2019 rands. We included two dimensions of second order tangible costs that imposed longer term deleterious impacts on the economy. The costs of absenteeism, presenteeism, and early retirement were estimated at ZAR 35.8 billion and the impact on human capital formation and lifetime earnings even higher at ZAR 42.3 billion.

These costs, which are summarized below, are likely to represent a significant underestimation of true total costs as a number of second order tangible costs could not be quantified including the risk perception effect on business activity, increased security spending, and the cost of emigration. While the tangible costs are estimated to be approximately ZAR 129 billion, or 2.3 percent of 2019 GDP, the intangible costs were extremely high and amounted to more than twice 2019 GDP. **While the tangible costs are estimated to be approximately ZAR 129 billion, or 2.3 percent of 2019 GDP, the intangible costs were extremely high and amounted to more than three times tangible costs at 7.1 percent of 2019**

Summary of cost estimates, 2019 ZAR million

	2019 cost estimate, ZAR million	As a % of 2019 GDP
Tangible costs		
Healthcare costs	ZAR 15,687	0.3%
Criminal justice system	ZAR 35,175	0.6%
Absenteeism, presenteeism, and early retirement	ZAR 35,824	0.6%
Human capital formation and lifetime earnings	ZAR 42,277	0.8%
Total tangible costs	*ZAR 128,963*	*2.3%*
Intangible costs*[1]	ZAR 398,114	7.1%

While the tangible costs are estimated to be approximately ZAR 129 billion, or 2.3 percent of 2019 GDP, the intangible costs were extremely high and amounted to more than three times tangible costs at 7.1 percent of 2019.

Interventions and Reforms to Prevent Violence, and Associated Costs

Early childhood development programs are considered key interventions to reduce violence and aggressive behavior directly and to address triggers for the onset of aggressive behavior across the life course. There are several South African interventions that have been tested in the domestic setting with favorable results, including several parenting interventions arising from the "*Parenting for Lifelong Health*" and programs implemented in primary health care settings including antenatal clinics, and in emergency units to address hazardous and harmful drinking like *Project STRIVE*.

At the community level there are several effective SAn initiatives to reduce interpersonal violence. *Stepping Stones and Creating Futures* is a combined programmatic intervention to reduce intimate partner violence and HIV-risks through peer-led, interactive sessions with young adults in informal settlements. The *Intervention with Microfinance for AIDS and Gender Equity (IMAGE)* study in rural Limpopo combined a microfinance program with a gender and HIV training curriculum. *Men as Partners (MAP)* in Johannesburg provided group education, community workshops, and activities for young men focused on gender equality, heathy relationship dynamics, and HIV/AIDS. *Violence Prevention through Urban Upgrading (VPUU)* is a second generation crime prevention through environmental design (CPTED) intervention that included built environment interventions alongside social programs and community participation initiatives in Khayelitsha, Western Cape.

[1] Please note that an earlier version of this study cited a different figure for intangible costs. The authors updated their methodology and recalculated this figure accordingly to offer a more accurate representation of the intangible costs of violence in South Africa The authors apologise for this error and state that this does not change the scientific conclusions of the report in any way.

There have also been several important policy developments. The 1996 *National Crime Prevention Strategy* adopted social crime prevention, which included strategies and measures either carried out by organizations outside the justice system with the aim of reducing risks or, if within the criminal justice system, focused on reducing recidivism by perpetrators. The 2016 *White Paper on Safety and Security* advocates for a developmental approach to crime prevention and includes aspects of the built environment as an important contributor to improved safety. For intimate partner violence, the 2020 *National Strategic Plan (NSP) on Gender-Based Violence and Femicide* presents a comprehensive framework for implementation by a range of government departments and draws on extensive evidence-based literature. Unfortunately implementation of other key violence prevention strategies has been less successful. South Africa has an influential domestic alcohol production industry and has struggled to implement progressive alcohol control policies informed by international best practices. Another implementation failure relates to firearm control, which was instrumental in significant reductions in homicide following the adoption of the provisions of the Firearms Control Act (FCA) of 2000. However, poor adherence to the FCA provisions thereafter has prompted a recent surge in firearm homicide.

Finally, despite the limited evidence supporting standalone media campaigns in reducing the interpersonal violence seems sparse, these remain a popular rallying point for activism. This is also the case in SA, where *16 Days of Activism for No Violence against Women and Children Campaign* culminates annually with International Human Rights Day (December 10). South Africa's acclaimed primetime educational weekly drama series, *Soul City,* also including domestic violence prevention in its content.

Recommendations

There is an urgent need to provide financial and technical support for intersectoral collaboration, multilateral research cooperation and research capacity to address violence, which in South Africa imposes a significant threat to development. Key aspects to support this agenda include: an integrated violence prevention approach to prevent violence at a societal level; and research to improve the evidence-base for violence prevention and the quality of future costing studies.

1 Introduction

Violence as a health priority impacts low- to middle-income countries (LMICs) disproportionately. These countries experience mortality rates almost 2.5 times that of high-income countries. In addition to the direct effects of death and physical injuries, victims are also susceptible to chronic mental and physical health problems that further compromise their quality of life. Treating health issues caused by violence is expensive and utilizes scarce resources, straining healthcare budgets and compromising the treatment of other conditions while further eroding health and reducing life expectancy.[1] Violence exerts a further social toll through its economic effects on growth and development.[2]

In recognition of the considerable economic burden violence places on already stressed state systems and overall development, violence has been included as an explicit prevention priority across several Sustainable Development Goals. For example, SDG5, which seeks to "achieve gender equality and empower all women and girls," includes targets to eliminate all forms of violence against women and girls, including trafficking and sexual and other types of exploitation (Target 5.2). SDG16, which promotes peace, justice, and strong institutions for sustainable development, calls for the reduction of "all forms of violence everywhere" (Target 16.1), and specifically for an end to all forms of violence against children (Target 16.2).[3] Consequently, the Prevention of Violence Unit (PVL) at the World Health Organization (WHO) is located within the organization's Social Determinants of Health Department. While the PVL emphasizes preventing violence against children through implementation of *INSPIRE: seven strategies for preventing violence against children,* the program of work includes several initiatives to address social determinants of health and violence: implementation and enforcement of laws; norms and values; safe environments; and income and economic strengthening.[4]

These strategies have particular relevance for South Africa (SA). The country is among the LMICs most affected by violence. The Global Burden of Disease study indicates that interpersonal violence ranked as the fourth leading cause of death among all injuries worldwide in 2019; in SA, interpersonal violence is the leading cause of injury death, with rates six times global averages.[5,6] SA has among the world's highest rates of gender-based violence, including rape[7,8] and intimate partner violence.[8-10] A number of historical drivers have contributed to this, including colonialism, subsequent apartheid race-based social control policies, civil unrest and armed struggle, and the violent oppression of these social justice movements. Levels of violence immediately post-democracy in 1994 were particularly alarming, with a homicide rate soaring to more than 25,000 murders per annum in the late 1990s. The homicide rate abated following the inception of stricter firearm controls in the early 2000s. However, the social drivers of violence have endured and income inequality, which still largely follows apartheid-era race profiles and geography, has continued to be entrenched. Internationally, urban violence tends

to be associated with economic and social deprivation. In SA, democratic elections were followed by rapid urbanization, which in the context of rising inequality increases the risks of violence.[11]

Within this milieu, certain progressive policies have sought to address SA's problem holistically. Examples include the *1996 National Crime Prevention Strategy* and the *2020 National Strategic Plan on Gender-Based Violence and Femicide*. However, uptake and implementation has been suboptimal, as evinced by increasing homicide rates over the last decade. Violence has arguably become so normalized that the extent of its harm to society is no longer fully recognized, and too little is being done to break the cycle of violence. In this report we challenge these notions by (1) presenting evidence for prevention including examples from SA, and (2) documenting the enormous toll of violence in terms of both its health impact on mortality and morbidity, and its economic cost. In so doing, we illustrate that the costs of prevention are not prohibitive, and emphasize the urgent need to implement effective policies and interventions.

2 Prevalence and Drivers of Violence

In this section we describe the prevalence and drivers of violence in South Africa in order to gain a more complete understanding of the nature of violence in the country, how it manifests, and its gendered nature. This provides the key measures and dimensions to inform the costing of violence that follows in Section 3.

In presenting these data we consider the broad definition of violence, which is defined by the WHO as "the intentional use of physical force or power, threatened or actual, against oneself, another person or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation."[12] The inclusion of the term "power" and suggestion of collective impacts on groups and communities allows us to consider some of the historical and current macrostructural drivers that create the conditions within which violence flourishes. In illustrating the extent of the burden, we focus particularly on some of the more direct and measurable forms of interpersonal violence prevalent in South Africa: physical trauma across age and gender. We also focus on specific forms of violence, namely homicide (murder) and nonfatal injuries (i.e., assaults and intimate partner violence).

Sections 2.1 to 2.3 describe methods to derive core data elements for the economic costing of violence in Section 3. Section 2.1 and 2.2 review the available homicide data and nonfatal injury data. In 2.3 we consider the application of burden of disease metrics, e.g., years of life lost and years lived, with a disability to measure the impact on violence across a broader range of health conditions. In Section 2.4 we provide a summary of the data from the preceding subsections that we then utilize to undertake economic costing of violence. Section 2.5 summarizes some of the major risks for interpersonal violence in South Africa.

As a methodological note, numerical estimates of the prevalence of interpersonal violence have been standardized to 2019 for the annual costing exercise in Section 3. We have considered data for 2022, but these are not widely available across data sources. We have not considered estimates for 2020 and 2021 due to various features of the management of the COVID-19 shutdown in South Africa, particularly prohibitions on the sale of alcohol, which substantially affected the prevalence of violence during this period. We consider 2019 data to be more reflective of typical conditions.

2.1 Overview of South African homicide data

Homicide is the most widely used international measure to compare interpersonal violence both across and within countries. Nonfatal events—from injuries through acts of sexual violence, emotional, and psychological abuse—certainly contribute substantially to the disease burden; however, they are considerably more difficult to define and compare consistently across cultures. In contrast, homicides are recorded routinely across several systems: e.g., in police crime statistics, in civil registration and vital statistics, and within health services.[13] These mortality data therefore provide the cornerstone for burden of

disease approximation from which nonfatal outcomes can be estimated, as set out in Section 2.3. Nevertheless, limitations and definitional issues pertaining to each data source must be considered. In this section we examine issues pertaining to intentional homicide data from the UNODC dataset utilized by the Pathfinders for Peaceful, Just and Inclusive Societies initiative, hosted at the NYU Center on International Cooperation (hereinafter known as "Pathfinders"), for international benchmarking, and compare these with other available SAn data.

An important limitation of the UNODC (and the police data) is that they are not age-standardized, which limits their comparability with data from populations with different age structures. This applies to comparisons across countries, and in some cases the comparability of data within countries, if there has been irregular mortality in different age categories. This was the case in SA in the 2000s when the HIV/AIDS epidemic caused a major demographic shift, particularly among the young adult age category, which is most affected by violence. The limitation is not easily addressed because the police do not routinely disaggregate homicide data by age.

If we limit our comparison to homicide counts, we note that the UNODC homicide data correspond almost exactly with official police murder statistics, but there is a slight mismatch with the reporting period. The UNODC data report the police data for a calendar year even though they relate to a financial year. For example, the 19,016 intentional homicides reported by the UNODC for 2017 (calendar year) coincide with the 19,016 murders reported by the South African Police Service for the period April 1, 2017 to March 31, 2018. This compromises the validity of these estimates against other South African data sources that are delineated by calendar years, and against similar international data. In the sections that follow we apply a crude adjustment by weighting the UNODC data as comprising 3/4 of the deaths for the year specified and 1/4 from the preceding year.

The other widely used data source for mortality reporting is civil registration of vital statistics (CRVS). In South Africa these data are subject to extensive misclassification and are likely to overestimate unintentional injuries and underestimate homicide and suicide, which renders them unsuitable for the monitoring of mortality patterns.[14,15]

To address the shortcomings in police and CRVS homicide data, the SA Medical Research Council (SAMRC) undertakes occasional nationally representative injury mortality surveys. These are based on postmortem investigations at state mortuaries and have been conducted for 2009,[5] 2017,[16] and 2020 to 2021 (forthcoming). As well as providing accurate age and sex disaggregated injury mortality profiles for all causes, which informs the SAMRC's burden of disease estimate work, these surveys provide a useful benchmark against which to measure the accuracy/completeness of police homicide data (Table 1).

From our comparison of two data points for 2009 and 2017 (the IMS surveys) against the adjusted UNODC, we observe the following:

- the data are broadly comparable. Even though there is a noticeable difference in estimated homicide counts for 2009 (13 percent), this is considerably smaller than any discrepancy with CRVS data; and
- the very small discrepancy for 2017 (1 percent) may suggest improvement in police reporting. For this reason, using the police data as a basis for extrapolating homicide counts and rates for later years is reasonable. We describe this in detail in Section 2.3.

Table 1: Comparison of police (UNODC) and mortuary-based survey (IMS) data, 1999-2020

	UNODC[17]			(1)	IMS[5,16]			(2)	Percent diff (2) / (1)
Year	**Male**	**Female**	**Person**	**Adjusted***	**Male (95 percent CI)**	**Female (95 percent CI)**	**Person (95 percent CI)**	**Adjusted****	
2008	15538	2546	18084	18163					
2009	14171	2596	16767	17096	16245 (14339, 18151)	2740 (2440, 3041	19028 (16852, 21204)	19336	13%
2010	13151	2742	15893	16112					
2011	13154	2400	15554	15639					
2012			**16213**	**16048**					
2013			17023	16821					
2014			17805	17610					
2015			18673	18456					
2016	16377	2639	19016	18930					
2017	**17425**	**2930**	**20336**	**20006**	**16835 (15735, 17936)**	**2583 (2351, 2814)**	**19477 (18086, 20750)**	**20227**	1%
2018	18251	2771	21022	20851					
2019	18630	2695	**21325**	**21249**					
2020			19972						
2021			24865						

* Revised totals are calculated by including 3/4 of the count for each calendar year and 1/4 of the count for the preceding year.
** For each IMS survey undetermined/ill-defined causes of injury mortality have been proportionally reallocated to defined injury categories (homicide, suicide, road injury, etc.), as is customary with burden of disease estimation.

For **intimate partner violence,** research in South Africa has focused almost exclusively on the burden born by females. This includes the nationally representative surveys of female homicide in 1999, 2009, 2017,[18,19] and 2020 to 2021 (forthcoming) that distinguished between intimate partner and nonintimate partner violence. These studies were able to explore the victim/perpetrator relationships for female homicide by including information from police investigations. A subsequent study phase following the initial survey was conducted at forensic pathology laboratories (state mortuaries). Intimate partners were the perpetrators of more than half of all female homicides in which the victim/perpetrator relationship was recorded across all study years: 50 percent, 57 percent, and 52 percent in 1999, 2009, and 2017 respectively.[19]

The three female homicide studies report a decreasing trend in age standardized female homicide rates from 24.7 per hundred thousand population in 1999 to 12.9 in 2009, and to 11.2 in 2017. Significant decreases were recorded for both intimate partner and nonintimate partner homicide between 1999 and 2017.[19] This research has been influential in formulating interventions, activism, and policies aimed at reducing gender-based violence, or GBV (see section 4). These actions have been credited with effecting a decrease in female homicide, specifically the share attributable to intimate partners.[19]

For 2017, the SAMRC funded the first study exploring victim/perpetrator relationships and situational contexts of male homicides (forthcoming), which outnumber female homicides by seven to one.[16] Females bear a greater share of the burden of nonfatal outcomes of assaults and intimate partner violence in particular, two categories earmarked in the Pathfinders initiative for international comparison. We explore this in the following section.

2.2 Overview of nonfatal data describing interpersonal violence in South Africa

While South Africa does not have routine reliable hospital-based injury surveillance, what data there are confirm that males account for a significantly greater share of **assaults** as measured by cases of physical trauma. This is true among adults at all levels of care in the public sector,[20–22] which accounts for the bulk of the national trauma caseload.[23] For example, in Cape Town's tertiary Groote Schuur Hospital the male/female ratio was 2.5:1,[20] compared to 2.3:1 in selected primary facilities across the city.[22] Among children, a study of patient profiles at Cape Town's Red Cross Children's Hospital over twenty years from 1997 to 2016 found that although boys overall experienced significantly more violence (boy/girl ratio of 1.18 [95 percent CI: 1.13–1.22]), girls younger than seven years experienced significantly more physical trauma than boys. This was attributable to the significantly higher rates of sexual assault of girls in this age category, as with all other age categories, coinciding with the lower rates of sharp and blunt force assault in younger boys.[24] Despite the utility of hospital-based data for describing the profile of injuries, there is as yet no national injury surveillance system to provide these data on an ongoing basis. Currently, the most advanced system is based in the Western Cape province, where the electronic HECTIS health record registry[25] includes an expanding number of sentinel sites.

In addition to hospital and police data on assault, occasional national surveys provide additional perspectives. Examples include the Victims of Crime Survey (VoCS) conducted by Statistics South Africa (StatsSA), and the South Africa Demographic and Health Survey (SADHS) conducted in collaboration with the worldwide Demographic and Health Surveys Program that interviewed adult females in 1998, 2003, and 2016. However, results vary considerably. For example, the latest VoCS[26] reported 355,739 assaults, just 4 percent fewer than the total of 341,828 reported by the police in 2017 and 2018 for the three major police categories for nonfatal assault: attempted murder, common assault, and assault with the intent to cause grievous bodily harm.[27] This suggested an overall assault rate of 635 per 100,000 population, which is considerably higher than figures that were reported in the SADHS just a year previously.[28] One reason for the lower SADHS estimates is that the questionnaire referred specifically to injuries severe enough to require medical attention, a severity threshold not applicable to either the police or the VoCS data. This shortcoming—and the utility of health data compared to police data—was recently shown in a matching study that explored trauma cases reported to the police and captured by the health system, replicating the Cardiff model.[29,30] The study found that only 14 percent of records in Cape Town's Khayelitsha health subdistrict could be matched to police records.[31] The implication is that the police record very few of the cases of the more severe forms of trauma that require medical treatment in their crime data.

In addition, the Gallup World Poll provides a resource for international comparison that is widely utilized by international agencies such as UNESCO and Pathfinders. However, we noted considerable variability year-on-year in Gallup surveys, and annual estimates for assaults were higher than from other sources. For example, estimates range from 4.1 percent in 2010 to 20 percent in 2020. Assuming an adult population of 40 million, this equates to between 1.6 and 8 million assaults in these years respectively. Furthermore, no confidence intervals are provided for the point estimates to indicate the level of uncertainty.

Over and above the high rates of intimate femicide described in 2.1, it is widely acknowledged that SA has among the world's highest rates of GBV, including rape[7,8] and intimate partner violence.[8-10] However, there is an absence of routine measures for reliable comparison across settings. For **intimate partner violence,** the Pathfinders initiative draws on the SDG indicators available from the UN database,[3] namely:

> *Target 5.2.1. Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual, or psychological violence by a current or former intimate partner in the previous 12 months, by form of violence and by age*

For this indicator, a measure of 18.4 percent is provided for 2018 for the whole of Sub-Saharan Africa. The process by which these data are aggregated across the region is unclear, but it seems that they are compiled occasionally by the WHO. National data sources for this target vary from country to country, which immediately limits comparability and complicates the aggregation process. The source indicated in South Africa is the "National Statistics Office," which we understand to be StatsSA.

It is not clear whether a national estimate for South Africa is available (which has then informed the Sub-Saharan Africa estimate), nor is it clear which sources might have been used by StatsSA. Nevertheless, it is worthwhile revisiting the VoCS that was carried out by StatsSA in 2018 as a potential data source. The 2017–18 VoCS does not report intimate partner violence *per se*, but it is assumed that these data can be identified among the sexual offences reported in the VoCS. However, there has been considerable variation in the estimated number of sexual offences across VoCS surveys:

- 2017 to 2018 VoCS sexual offences (described as rape, grabbing, or touching without consent) represented 57 percent of the sexual offenses reported to police in that period;[26,27] but previously the
- 2016 to 2017 VoCS reported 140 percent more cases than the police.[32,33]

Although the police data may appear more regular/reliable, it is worth noting that police data have limited utility for pinpointing intimate partner violence. There is no specific crime category for domestic violence, and the police do not publish data recorded in the Domestic Violence Register. Furthermore, crime statistics rely on the reporting of crimes, sexual violence by an intimate partner is typically underreported,[7,34] and police data on sexual offences, domestic, and intimate partner violence may instead be more reflective of women's access to the criminal justice system.[9] All this aside, if we were to consider all sexual offense cases reported in the 2017 to 2018 VoCS and the police data as intimate partner violence, this would still equate to a twelve-month prevalence of less than 1 percent. The VoCS and police data are both therefore unlikely to inform the SDG Sub-Saharan Africa prevalence estimates for Target 5.2.1.

An alternative data source utilizing StatsSA is the 2016 SADHS, which included a special module on domestic violence and reported a much higher prevalence. Among ever-partnered women aged 18–49 years, the 2016 SADHS reported that 2.9 percent had experienced sexual violence by a partner in the past 12 months (and lifetime prevalence of 6.2 percent).[28] The low reported prevalence may be a reflection of the limited suitability of general household surveys for asking sensitive questions about sexual violence. Questionnaire design, fieldworker profiles, and training need to be carefully considered to optimize disclosure in these types of surveys.[35,36] We note that a more specialized survey instrument deployed in South Africa's Gauteng province found that 18.8 percent of women experienced partner rape[7] (lifetime prevalence). Similarly, in Cape Town, perpetration of sexual violence against intimate partners in the past ten years was reported by 15.3 percent of men,[37] which is comparable to the past year's prevalence (ranging from 2.0 to 3.3 percent) reported by women in a three-province study.[34,38] Nevertheless, all these South African sources provide annual prevalence estimates considerably lower than the SDG estimate of 18.4 percent from Sub-Saharan Africa,[3] which seems implausibly high.

In summary, the divergence in assault and intimate partner violence estimates for nonfatal outcomes, the different thresholds and definitions for inclusion, and the erratic timing of surveys makes national-level estimates for these outcomes unreliable. With the Gallup World Poll data utilized by Pathfinders, we were unable to find a country-specific

description of the methods employed in South Africa—e.g, the questionnaire, sampling size, sampling frame, sample size realization, details of the fieldwork and interview, interviewer profiles, interviewer training, or definitions for violence categorization—or other factors that could influence the reliability of this instrument. Many of these factors are not specific to Gallup, but pertain to surveys more generally. This is why survey data should typically be subject to further interrogation and meta-analysis, including an independent risk of bias assessment. Such analysis is beyond the scope of the current project. For this reason, we suggest applying more widely-accepted and robust methods to measure the morbidity component for health conditions.

In Section 2.3 we describe the application of the burden of disease research by the SA Medical Research Council for this purpose.

2.3 Burden of disease synthesis describing the impact of violence on multiple health outcomes

This section describes the application of burden of disease methods to measure the impact of violence on various health outcomes, by estimating the disability adjusted life years (DALYs) attributable to interpersonal violence.

Burden of disease analysis is an approach to measure population health using a single metric. The DALY is a commonly used summary metric that assesses the impact of diseases and injuries by estimating the difference between a population's actual health and ideal health.[39] The DALY represents a year of healthy life lost due to disease or injury, and is ideal for prioritizing resource allocation,[40] identifying cost-effective interventions,[41] and even estimating the loss of Gross Domestic Product (GDP) from a human capital perspective.[42] The primary objective of this section is to estimate DALYs that can be attributed to interpersonal violence, setting the stage for the subsequent estimation of the financial cost of interpersonal violence in Section 3.

To address the comprehensive scope of interpersonal violence, we included a range of categories covering all forms of child maltreatment (physical, sexual, emotional abuse, neglect, and witnessing family violence), as well as community violence that includes sexual violence by nonpartners and bullying victimization. To estimate the DALY attributable to interpersonal violence requires interpersonal violence to be treated as a risk factor with associated health outcomes. The health outcomes were identified as interpersonal violence injuries, self-harm injuries, intimate femicides, depressive disorders, anxiety disorders, HIV/AIDS, maternal abortion, miscarriage and ectopic pregnancy, and alcohol use disorders, mirroring methods used by Prinsloo et al. (2022).[43] However, the first step is to calculate a DALY for each outcome of interpersonal violence, which is described below.

The calculation of a DALY for any condition is the sum of Years of Life Lost (YLL) due to premature mortality plus Years Lived with Disability (YLD) due to nonfatal health outcomes, weighted according to the severity of the health condition:

$$DALY = YLL + YLD$$

The DALY for each outcome of interpersonal violence was estimated by firstly estimating the YLL. The estimates are based on the most recent year of available data sources as described below.

Years of Life Lost

The YLL for interpersonal violence and suicide was calculated for 2017 and 2019 using IMS 2017 mortality data.[15] The IMS data was adjusted by proportionally redistributing unknown injuries across all injury categories, including interpersonal violence and suicide. Unknown sex and age were also proportionally redistributed. The 2017 YLLs for interpersonal violence were projected to 2019 by using the percentage change between the SAPS 2017 and 2019 homicide data.[39] SAPS provides annual statistics for the financial year between April 1 and March 30; we therefore used an average weighted by the number of months in the reporting year to estimate SAPS homicide estimates for the 2017 and 2019 calendar years. Suicide was projected to 2019 using the annual percentage change between 2017 and 2019 self-harm estimates from the latest GBD iteration.[44] 2020–21 IMS data are available for analysis, but were impacted by COVID-19 and the resultant lockdown related measures.[24,40,41]

The YLL for all other outcomes for 2017 and 2019 are based on the mortality estimates sourced from the latest GBD 2019.[44]

The calculation of a YLL requires various value choices; i.e., whether to apply a discounting rate and the level of discounting, which normative life expectancy to use, and whether to apply age weighting. The social value choices used to calculate YLLs were based on the decisions made for the 2nd South African National Burden of Disease Study (SANBD2).[42] In short, the Level 26 of the West model life table was used as the normative standard[43] and discounting was applied at 1.5 percent, while the YLL was not age weighted, as indicated in the formula below.

$$YLL_{as} = \frac{N_{as}}{0.015} x(1-e^{-0.015L_{as}})$$

where N is the number of deaths at specific age(a) and sex(s), 0.015 is the discounting rate, e is the mathematics constant base to the natural logarithm, and L is the life expectancy at specific age(a) and sex(s)

To complete the calculation of a DALY for the different outcomes of interpersonal violence, a YLD was estimated and summed with the YLL estimates described above.

Years Lived with Disability

Nonfatal outcomes account for the majority of the global injury burden and need to be included in a burden of disease synthesis to ensure appropriate policy targeting. A global burden of injury study showed an injury rate of 8,718 per 100,000, compared to an estimated mortality rate of 67 per 100,000 population in 2013.[44]

As previously discussed, local nonfatal outcomes for interpersonal violence are sparse and unreliable and do not provide the detail required to estimate YLDs. The estimation of a YLD is challenging and requires information on incidence or prevalence of the nature of injury, such as fractures, muscle or tendon injuries, and the severity of the injury. Therefore, a YLD calculation requires the epidemiology of each disease or injury and its sequelae, in addition to the severity distribution and its different values, which is further complicated by comorbidities.[45]

The calculation of a YLD is a 2-step process.[45] First, a YLD is calculated for each nature of injury related to a specific cause as indicated in the formula below.

$$YLD_{nature} = Incidence_{nature} \times Duration_{nature} \times Disability\ weight_{nature}$$

Second, the YLD for each nature of injury is added together to calculate the YLD for a specific cause and case as indicated in the formula below.

$$YLD_{injury} = YLD_{nature1} + YLD_{nature2} + \ldots\ldots + YLD_{n}$$

To calculate a YLD for interpersonal violence thus requires information on the various categories related to each case of interpersonal violence. Information on nonfatal injuries both by cause and nature of injury are not commonly recorded in the South African setting. Estimates on nonfatal health outcomes such as the prevalence of common assault and intimate partner violence as discussed in Section 2.2 are available, but lack information on the nature of injuries, which precludes the calculation of a YLD.

Given the relative reliability of homicide data, we make the case that YLD for interpersonal violence can reasonably be estimated by assuming a ratio of nonfatal outcomes for every fatal outcome. The YLD/YLL ratio method is commonly used to estimate YLDs in countries where data on disease sequalae are absent.[46,47] For example, the SANBD study estimated YLDs for 140 health conditions including interpersonal violence by applying YLD/YLL ratios from the GBD 2010 study representative of SA to SA YLLs,[45] illustrated by the following relationship:

$$YLD_{SA} = YLL_{SA} \times \frac{YLD_{GBD}}{YLL_{GBD}}$$

YLDs for interpersonal violence and suicide were similarly calculated by applying the interpersonal violence and suicide ratios from the SANBD study to the 2017 and 2019 YLLs. For all other outcomes of interpersonal violence, the YLDs were sourced from the GBD 2019 study for 2017 and 2019, respectively. The YLLs and YLDs for all interpersonal violence health outcomes were summed to calculate a DALY, which were used to calculate the DALY attributable to interpersonal violence as described below.

Attributable burden

The DALYs attributable to interpersonal violence for 2017 and 2019 were calculated by using the method of a recent comparative risk assessment (CRA) study for South Africa.[46] This method determines the population attributable fraction (PAF) for interpersonal violence, which requires inputs on the prevalence rates of different forms of interpersonal violence, the relative risks (RRs) of developing an associated health outcome, and the theoretical minimum risk exposure level of the different forms of interpersonal violence. Prevalence estimates associated with each outcome were taken directly from the Prinsloo et al. 2022 CRA study. The attributable burden of each health outcome of interpersonal violence was calculated by multiplying the PAF with deaths, YLLs, YLDs, and DALYs by age, sex, and year category. It is important to note that exposure estimates applied by Prinsloo et al. were derived from a meta-regression of all suitable estimates following rigorous quality and risk-of-bias assessment for all relevant survey data.[48] The exposure to intimate partner violence (female

victims only) and community violence (equivalent to assault in Section 2.2) was sourced from the Gauteng GBV study[7] and community violence among children from the Optimus Study.[49,50]

Table 2 shows the deaths, YLLs, YLDs, and DALYs attributable to interpersonal violence, sorted by health outcome, year, and sex. In 2012, interpersonal violence (including the direct injury burden from interpersonal violence, as well as mental, behavioral, and reproductive health, HIV/AIDS, and self-harm injury consequences) accounted for an estimated 1.75 million DALYs. For 2017, this increased to 1.9 million DALYs and decreased thereafter to 1.85 million DALYs by 2019.

Table 2: Attributable burden of interpersonal violence for various outcomes in South Africa for males and females measured in DALYs, YLLs and YLDs for 2012, 2017, and 2019

	Males					Females					Persons				
	AF, percent	Deaths, n	DALYS, n	YLDs, n	YLLs, n	AF, percent	Deaths, n	DALYS, n	YLDs, n	YLLs, n	AF, percent	Deaths, n	DALYS, n	YLDs, n	YLLs, n
2012*															
Interpersonal violence injuries**	100	15 854	556802	26888	529914	100	1416	54445	11301	43144	100	17269	611248	38189	573058
Self-harm injuries	34	1 719	56656	614	56041	57	590	21194	271	20923	39	2309	77850	885	76964
Intimate femicides	N/A	N/A	N/A	N/A	N/A	54	1472	51039	0	51039	54	1472	51039	0	51039
Depressive disorders	53	0	79067	79067	0	65	0	204345	204345	0	61	0	283412	283412	0
Anxiety disorders	70	0	56794	56794	0	71	0	93899	93899	0	70	0	150693	150693	0
HIV/AIDS	N/A	N/A	N/A	N/A	N/A	21	15585	578734	66492	512242	21	15585	578734	66492	512242
Maternal abortion, miscarriage, and ectopic pregnancy	N/A	N/A	N/A	N/A	N/A	14	16	602	1	601	14	16	602	1	601
Alcohol use disorders	5	16	984	639	345	33	35	2308	1506	802	13	51	3292	2145	1146
Total attributable burden		0	17590	750302	164002	586300		19113	1006567	377816	628751		36703	1756869	541818	1215051
2017***															
Interpersonal violence injuries**	100	17991	629892	29556	600336	100	1384	52418	10260	42158	100	19374	682310	39816	642494
Self-harm injuries	34	1775	57784	647	57137	54	683	23087	362	22725	38	2457	80871	1009	79862
Intimate femicides	N/A	N/A	N/A	N/A	N/A	55	1493	52250	0	52250	55	1493	52250	0	52250
Depressive disorders	55	0	64381	64381	0	66	0	141249	141249	0	62	0	205631	205631	0
Anxiety disorders	73	0	57397	57397	0	71	0	86675	86675	0	72	0	144072	144072	0
HIV/AIDS	N/A	N/A	N/A	N/A	N/A	22	18978	724918	106870	618049	22	18978	724918	106870	618049
Maternal abortion, miscarriage, and ectopic pregnancy	N/A	N/A	N/A	N/A	N/A	14	5	264	75	189	14	5	264	75	189
Alcohol use disorders	7	29	6298	5648	650	37	43	7104	6144	960	12	73	13402	11792	1610
Total attributable burden		19794	815752	157630	658123		22587	1087966	351635	736331	Total	42381	1903718	509264	1394454
2019****															
Interpersonal violence injuries**	100	19065	667569	31306	636264	100	1463	55435	10858	44577	100	20529	723004	42163	680841
Self-harm injuries	34	1853	60340	675	59665	54	713	24097	378	23720	38	2566	84437	1053	83384
Intimate femicides	N/A	N/A	N/A	N/A	N/A	55	1580	55301	0	55301	55	1580	55301	0	55301
Depressive disorders	55	0	65762	65762	0	66	0	142152	142152	0	62	0	207914	207914	0
Anxiety disorders	73	0	58816	58816	0	71	0	87662	87662	0	72	0	146478	146478	0
HIV/AIDS	N/A	N/A	N/A	N/A	N/A	22	15984	620359	104901	515459	22	15984	620359	104901	515459
Maternal abortion, miscarriage, and ectopic pregnancy	N/A	N/A	N/A	N/A	N/A	14	8	352	74	278	14	8	352	74	278
Alcohol use disorders	7	29	6657	5976	681	37	41	7312	6378	934	12	70	13970	12355	1615
Total attributable burden		20948	859144	162535	696609		19788	992670	352402	640268	Total	40736	1851814	514937	1336877

* 2012 estimates are sourced directly from Prinsloo et al. (2022)[46]
** As per Prinsloo et al. (2022): "Interpersonal violence injuries" are unspecified community and family interpersonal violence injuries categorically attributable to interpersonal violence as a risk factor. Please note that in this table the interpersonal violence injuries plus intimate femicides need to be added to match the total interpersonal violence injury category estimates in the South African National Burden of Disease studies for 2000, 2006 and 2012.[46]

*** 2017 death estimates for interpersonal violence and self-harm are derived directly from Prinsloo et al. (2021) adjusted for undetermined injuries. Intimate femicides were calculated as the PAF of femicides multiplied by all female homicides using the 2012 method.[15] All other outcomes were sourced from the GBD 2019 study.[47]

**** 2019 death estimates for interpersonal violence are derived from the increase in the SAPS murder rate between 2017 and 2019 and applied to the 2017 death estimates for interpersonal violence from Prinsloo et al. (2021).[15] Self harm are derived from the increase in GBD 2019 self-harm estimates between 2017 and 2019 applied to IMS 2017. For intimate femicides we replicated the method described for the 2017 analysis. All other conditions were sourced from the GBD 2019.[47]

Interpersonal violence injuries for males (directly attributable to interpersonal violence as a risk factor) were ~13 times higher than for females in 2019. The self-harm injury burden attributable to interpersonal violence for males was 2.6–2.9 times higher than for females

between 2012 and 2019. DALYs attributable to depressive disorders and anxiety disorders were respectively 2.6 and 1.5 times higher for females across the three time periods. DALYs attributable to alcohol use disorders were 2.1 and 3.3 times higher for females in 2012 and 2019, respectively.

As discussed in Section 2.1, intimate partner violence accounts for just over half of all femicides. This provides some guidance regarding the likely attributable fraction of interpersonal violence for women associated with intimate partner violence. At present, no estimate is available of the attributable fraction from this cause for males. Table 3 illustrates where interpersonal violence ranks in comparison to other major risks. According to the SANBD study,[51] interpersonal violence ranked second among the major risk factors for South Africa in 2012, but only contributed to 8.5 percent of the DALY burden. The proportion of DALYs attributable to interpersonal violence were three times lower than unsafe sex, which was the leading risk factor.[51]

Table 3: Proportion of DALYs attributable to the leading risk factors in South Africa for 2012

Rank	Risk factor	% total DALYs
1	Unsafe sex	26.6
2	Interpersonal violence	8.5
3	High body mass index	6.9
4	High systolic blood pressure	5.8
5	Alcohol	5.6
6	High fasting plasma glucose	4.7
7	Tobacco smoking	3.6
8	Childhood undernutrition	2.6
9	Water, sanitation, and hygiene	2.4
10	Ambient air: PM2.5	2.4
11	Low fruit intake	1.9
12	High LDL cholesterol	1.3
13	Iron deficiency	1.2
14	Low physical activity	1.1
15	Household air pollution	1.0
16	Low vegetable intake	0.9
17	High sodium intake	0.7
18	Ambient air: ozone	0.3

Source: Bradshaw et al., 2022[51]

In summary, the attributable burden of interpersonal violence is relatively high, and while the burden is notably higher in males owing to the direct impact of interpersonal violence injuries, the burden of other health outcomes associated with interpersonal violence (e.g., anxiety disorders, depressive disorders, and alcohol use disorders) are more pronounced in females. This underscores the need for a comprehensive analysis of interpersonal violence that encompasses diverse health outcomes for a more nuanced understanding. In Section 3, the DALYs attributable to the different outcomes associated with interpersonal violence will be used to analyze the financial cost involved for each health outcome.[47]

2.4 Summary of violence prevalence measures

This section provides a summary (Table 4) of key prevalence data discussed and derived from Sections 2.1 to 2.3 that we apply in the economic costing in Section 3.

Table 4: Summary of violence prevalence measures

Description	Year	Measure	Source
Total homicides	2019	20529	Own calculations (2.1, 2.3)
Male homicides	2019	19065	
Female homicides	2019	1463	
Total burden attributable to interpersonal violence (deaths)	2019	40763	Own calculations (2.3)
Male burden attributable to interpersonal violence (deaths)	2019	20948	
Female burden attributable to interpersonal violence (deaths)	2019	19788	
Total burden attributable to interpersonal violence (DALYS)	2019	1851814	Own calculations (2.3)
Male burden attributable to interpersonal violence (DALYS)	2019	859144	
Female burden attributable to interpersonal violence (DALYS)	2019	992670	
Total burden attributable to interpersonal violence (YLLs)	2019	1336877	Own calculations (2.3)
Male burden attributable to interpersonal violence (YLLs)	2019	696609	
Female burden attributable to interpersonal violence (YLLs)	2019	640268	
Total homicides	2012	17629	Prinsloo et al., 2022
Male homicides	2012	15854	
Female homicides	2012	1416	
Total burden attributable to interpersonal violence (deaths)	2012	36703	Prinsloo et al., 2022
Male burden attributable to interpersonal violence (deaths)	2012	17590	
Female burden attributable to interpersonal violence (deaths)	2012	19113	
Total burden attributable to interpersonal violence (DALYS)	2012	1756869	Prinsloo et al., 2022
Male burden attributable to interpersonal violence (DALYS)	2012	750302	
Female burden attributable to interpersonal violence (DALYS)	2012	1006567	
Total burden attributable to interpersonal violence (YLLs)	2012	1215051	Prinsloo et al., 2022
Male burden attributable to interpersonal violence (YLLs)	2012	586300	
Female burden attributable to interpersonal violence (YLLs)	2012	628751	
Prevalence of all forms of child maltreatment, ever (males), by aged 15-19	2012, 2017, 2019	40.1	Prinsloo et al., 2022; Artz et al., 2016
Prevalence of all forms of child maltreatment, ever (females), by aged 15-19	2012, 2017, 2019	51.6	
Prevalence of bullying victimization (males) in the past 12 months by aged 15-19	2012, 2017, 2019	14.0	Prinsloo et al., 2022; Artz et al,. 2016; StatsSA 2001; StatsSA 2007; and StatsSA 2012.
Prevalence of bullying victimization (females) in the past 12 months by aged 15-19	2012, 2017, 2019	18.3	
Prevalence of intimate partner violence (physical or sexual), ever (females) aged 15-19	2012, 2017, 2019	24.0	Prinsloo et al., 2022; Machisa et al., 2011
" " " (females) aged 20-24_		35.0	
" " " (females) aged 25-29		42.0	
" " " (females) aged 30-34		37.0	
" " " (females) aged 35-39		44.0	
" " " (females) aged 40-44		38.0	
" " " (females) aged 45-49		44.0	
" " " (females) aged 50-54		36.0	
" " " (females) aged 55-59		27.0	

Prevalence of intimate partner violence (physical or sexual), in the past 12 months (females) aged 15-19	2012, 2017, 2019	12.0	Prinsloo et al., 2022; Machisa et al, 2011
" " " (females) aged 20-24_		18.0	
" " " (females) aged 25-29		18.0	
" " " (females) aged 30-34		15.0	
" " " (females) aged 35-39		19.0	
" " " (females) aged 40-44		13.0	
" " " (females) aged 45-49		8.0	
" " " (females) aged 50-54		17.0	
" " " (females) aged 55-59		1.0	
Prevalence of sexual violence by non-partners, ever (females) aged 15-19	2012, 2017, 2019	8.0	Prinsloo et al., 2022; Machisa et al, 2011
" " " (females) aged 20-24		21.0	
" " " (females) aged 25-29		17.0	
" " " (females) aged 30-34		3.0	
" " " (females) aged 35-39		14.0	
" " " (females) aged 40-44		11.0	
" " " (females) aged 45-49		17.0	
" " " (females) aged 50-54		13.0	
" " " (females) aged 55-59		6.0	
Prevalence of community violence victimization, ever (males) aged 15-19	2012, 2017, 2019	24.0	Prinsloo et al., 2022; Artz et al,. 2016
Prevalence of community violence victimization, ever (females) aged 15-19		19.0	
Prevalence of other community violence: witnessed murder of a stranger, ever (males) aged 20-24	2012, 2017, 2019	27.0	Prinsloo et al., 2022; Machisa et al., 2011
" " " (males) aged 25-29		56.0	
" " " (males) aged 30-34		33.0	
" " " (males) aged 35-39		31.0	
" " " (males) aged 40-44		43.0	
" " " (males) aged 45-49		31.0	
" " " (males) aged 50-54		24.0	
" " " (males) aged 55-59		30.0	
Prevalence of other community violence: witnessed murder of a stranger, ever (females) aged 20-24	2012, 2017, 2019	7.0	Prinsloo et al., 2022; Machisa et al., 2011
" " " (females) aged 25-29		10.0	
" " " (females) aged 30-34		6.0	
" " " (females) aged 35-39		14.0	
" " " (females) aged 40-44		7.0	
" " " (females) aged 45-49		15.0	
" " " (females) aged 50-54		10.0	
" " " (females) aged 55-59		12.0	
Prevalence of other community violence: witnessed murder of family/friend, ever (males) aged 20-24	2012, 2017, 2019	27.0	Prinsloo et al., 2022; Machisa et al., 2011
" " " (males) aged 25-29		32.0	
" " " (males) aged 30-34		31.0	
" " " (males) aged 35-39		31.0	
" " " (males) aged 40-44		20.0	
" " " (males) aged 45-49		22.0	
" " " (males) aged 50-54		24.0	
" " " (males) aged 55-59		26.0	

Description	Year	Measure	Source
Prevalence of other community violence: witnessed murder of family/friend, ever (females) aged 20-24	2012, 2017, 2019	18.0	Prinsloo et al., 2022; Machisa et al., 2011
" " " (females) aged 25-29		13.0	
" " " (females) aged 30-34		17.0	
" " " (females) aged 35-39		15.0	
" " " (females) aged 40-44		7.0	
" " " (females) aged 45-49		28.0	
" " " (females) aged 50-54		23.0	
" " " (females) aged 55-59		13.0	
Prevalence of other community violence: carjacked/ kidnapped/robbed, ever (males) aged 20-24	2012, 2017, 2019	42.0	Prinsloo et al., 2022; Machisa et al., 2011
" " " (males) aged 25-29		48.0	
" " " (males) aged 30-34		65.0	
" " " (males) aged 35-39		51.0	
" " " (males) aged 40-44		47.0	
" " " (males) aged 45-49		47.0	
" " " (males) aged 50-54		59.0	
" " " (males) aged 55-59		48.0	
Prevalence of other community violence: carjacked/ kidnapped/robbed, ever (females)	2012, 2017, 2019	33.0	Prinsloo et al., 2022; Machisa et al., 2011
" " " (females) aged 25-29		25.0	
" " " (females) aged 30-34		14.0	
" " " (females) aged 35-39		20.0	
" " " (females) aged 40-44		20.0	
" " " (females) aged 45-49		13.0	
" " " (females) aged 50-54		18.0	
" " " (females) aged 55-59		13.0	

2.5 Risk factors for interpersonal violence in South Africa

This section provides a brief summary of key risk factors for interpersonal violence in South Africa. We note that SA presents a wide range of risk factors that have been set out according to an ecological framework in several previous texts.[52-54] We do not replicate this body of knowledge exhaustively here, but instead identify several key factors and interactions between them which are particularly influential. Ward et al. (2012) describe individual risks including biological factors that are shaped by microsystems in which daily interactions with family members and peers shape behaviour.[52] These interactions are influenced by exosystems that affect the lives of families, neighborhoods, extended family systems, and communities. Exosystems are in turn influenced by the macrosystem comprising policies, the economy, norms, ideologies, and global changes.

We believe it is this confluence of risks that drives the high rates of violence in SA, rather than any unique risk factor. Many of these risks developed from historical social drivers of SA's colonial and apartheid past. For example, age and sex are among the individual factors that affect the risk of aggression and exposure to violence. The risk of experiencing violence peaks among young adults—particularly males for physical violence and females for sexual violence. This is not unique to SA, but the demographic structure of SAn cities, with their high concentration of youths and young adults, amplifies this risk at the population

level. Furthermore, child development is compromised by a high prevalence of malnutrition *in utero*, as well as early childhood neuropsychological deficits—SA has among the highest rates of fetal alcohol syndrome in the world—and exposure to domestic violence and child abuse, all of which increase the risk of delinquent behavior.

While the complex interrelatedness between risk factors hampers determination of causal inference and evaluation of interventions, it is important to recognize and prioritize interventions that target upstream/distal societal risks further up the causal chain. These can include factors like employment, poverty and income inequality, and access to housing, education and other public infrastructure. Such considerations provide the context that enables or inhibits interpersonal violence. Addressing these upstream risks is consistent with broader priorities and the recommendations of the Commission on the Social Determinants of Health.[55]

SA is among the most unequal countries in the world,[56] a condition resulting from legacies of systemic violence in the country's postcolonial past and recent history of racial segregation. Entrenched inequalities have been further solidified by high rates of legal and illegal firearm ownership, high rates of incarceration, and the normalization of violence in civil unrest and political protest. Rapid social change also predicts violence, and in SA rapid urbanization has led to the development of large urban slums with poor physical and social infrastructure. Social cohesion is also undermined in low income neighborhoods through easy access to cheap alcohol,[57] which is compounded by prevailing gender norms and patriarchal masculinity. Furthermore, the considerable impact of violence on both health and development in low income contexts serves to compound inequality that, in South Africa, undermines recent attempts to mitigate the impacts of apartheid and colonialism.[1,58]

3 Cost of Violence

The following estimates of the cost of violence in South Africa are expressed on an annual basis in South African rand, to facilitate comparison to gross domestic product. At the time of writing, the exchange rate with the US dollar was approximately ZAR 19.30 to USD 1. USD estimates will be standarized to that rate. Older cost estimates will also be adjusted for inflation to 2019 levels using Consumer Price inflation indexes as produced by Statistics South Africa. As much as possible, estimates will distinguish between costs associated with homicide, assault, and intimate partner violence. Only interpersonal violence is considered.

3.1 Tangible costs

The first category of costs of violence considered is tangible costs, defined here as being financial in nature, as compared to the intangible costs of trauma and psychological injury. In other words, the effects measured have real monetary impact, either on the victim or on wider society, and thus have a direct economic impact.

Tangible costs are typically orders of magnitude smaller than intangible costs. Hoeffler (2017) suggests that the ratio of intangible to tangible costs per homicide, for example, is typically around 9:1.[59] Nevertheless, these costs of violence have a direct impact on economic outcomes, and are thus often of particular concern to policymakers. We will distinguish between two categories of tangible costs. First order tangible costs are those which arise immediately and directly as a result of a violent incident: the losses are incurred to society or the victim in the days and weeks after violence takes place. Second order costs are experienced further in time from a violent incident, in the months and years that follow. These effects may not be directly attributable to a specific incident, and can instead reflect the accumulation of multiple incidents of exposure to violence.

3.1.1 First order tangible costs

While not every incident of violence is immediately associated with tangible economic costs, more severe episodes often are. Two sources of first order tangible costs are considered: the healthcare costs incurred by victims, and criminal justice system costs associated with reporting and prosecuting a specific incident. Other first order tangible costs, such as earnings interruptions experienced by victims, are not estimated due to lack of data and are likely to also be material. The focus here is on immediate costs directly associated with specific incidents of violence.

Healthcare costs

Some estimates are available of the per-incident healthcare costs associated with incidents of interpersonal violence. For example, a 2008 study of the costs experienced by women subject to violence in the Chatsworth area found associated medical costs per incident of ZAR 204 (approximately USD 22 in 2023, adjusted for inflation and exchange rate depreciation). However, per-incident medical costs are highly variable depending on the severity of the assault, making it impossible to do a bottom-up extrapolation from these limited datapoints into a wider estimate of total healthcare costs associated with violence.

Instead, we adopt a top-down method, following the approach used by Truen et al. (2011),[60] which in turn was based on research conducted by Budlender (2009).[61] This method begins by deriving an estimate of the attributable fraction of healthcare DALYs caused by interpersonal violence. This is then used as a proxy for the proportion of total healthcare costs associated with interpersonal violence. The interpersonal violence attributable fraction is calculated based on the 2012 SANBD study, as per the analysis of Pillay-van Wyk et al. (2016),[6] and the interpersonal violence attributable burden as calculated above. As shown in Table 5, the total interpersonal violence attributable fraction of all YLLs in 2012 was 12.1 percent, and of deaths was 6.9 percent.

Table 5: 2012 total deaths and YLLs and interpersonal violence attributable fraction

	Males		Females		Persons	
	Deaths	**YLLs**	**Deaths**	**YLLs**	**Deaths**	**YLLs**
Total, 2012 *	276,378	5,345,922	252,568	4,686,966	528,947	10,032,887
Interpersonal violence, 2012	17,590	586,300	19,113	628,751	36,703	1,215,051
Interpersonal violence attributable fraction	6,4%	11,0%	7,6%	13,4%	6,9%	12,1%

Source: Pillay-van Wyk et al., 2016[6]

It is unclear whether the attributable fraction associated with deaths or YLLs is more appropriate. As deaths from interpersonal violence tend to occur at a younger average age than those from other causes, total YLLs will include a large number of YLLs lost to premature mortality, which do not cause healthcare costs, suggesting that using the YLL fraction may result in cost overestimation. However, interpersonal violence causing disability in the young will generate substantial lifetime healthcare costs, which suggests that using the deaths fraction could underestimate these costs. We therefore proceed by averaging the deaths and YLL fractions, suggesting that 9.5 percent of total healthcare costs are attributable to interpersonal violence. Unfortunately, we did not find estimates of total system healthcare costs for interpersonal violence, and thus it was not possible to calculate healthcare costs per outcome.

The resulting estimate of interpersonal violence healthcare costs is shown in Table 6. As can be seen, total income in the health and social work sector in 2018 was ZAR 165 billion, and thus a 9.5 percent interpersonal violence attributable fraction of total economic activity in the sector amounts to ZAR 15.7 billion. Government healthcare expenditures comprised a total of ZAR 47 billion in 2018–19, of which ZAR 4.5 billion is thus estimated to be attributable to interpersonal violence. This equates to 0.4 percent of final consumption expenditure by general government in 2019.

Table 6: Total, public sector and interpersonal violence healthcare expenditures, 2018/19

	Total, 2018 ZAR m	Interpersonal violence attributable, 2018 ZAR m	Cost of violence, percentage of 2019 GDP
Public health expenditure 2018/19 *	47,008	4,477,400	0.08%
Health and social work sector, total income 2018 **	164,696	15,686,900	0.28%

* Total public health expenditure is as per National Treasury (2019)
** Health and social work total income is as per Stats SA (2020)

Criminal justice system

Interpersonal violence frequently results in increased costs for the criminal justice system. These costs are somewhat different in nature to violence-related healthcare costs, however, because criminal justice is also an intervention aimed at reducing future violence. To the extent that there is a deterrence effect from prosecution, and that incarceration of perpetrators reduces their ability to commit further acts of violence, criminal justice system costs are both a direct cost associated with interpersonal violence, and an intervention against it.

Evaluating these costs is complicated by the fact that the justice system includes a number of activities which do not address violent crime. Nonviolent property crimes, for example, should not be included in the evaluation of the cost of violence. Altbeker (2005) points out that justice system expenditures in South Africa also include activities related to the administration of trusts, handling deceased estates, insolvency cases, etc.[62]

One way of attempting to deal with this complexity is to isolate components of the justice system which are specifically related to interpersonal violence, and calculate total costs from the bottom up. For example, KPMG (2016) evaluate the cost to the state of violence against women and children by examining state budget allocations to VAWC (violence against women and children) programs, distinguishing between programs which directly or indirectly address VAWC. They acknowledge that "not all of the programmes identified address VAW or VAC exclusively," and that this approach will thus tend to overestimate total spending (which is at least partially offset by the fact that no specific VAWC costs are identified in the correctional services system). They find expenditure on direct VAWC programs in the 2014–15 year of ZAR 26.9 billion, and a further ZAR 34.2 billion on indirect programs.[63]

Thorpe (2015) undertakes a much more conservative exercise, attempting to isolate direct costs to the state to a significant degree of granularity. She finds that the state spent at least ZAR 310 million during the 2013–14 financial years on services to victims of GBV, although she notes that this is likely to be an underestimate of total costs.[64] In practice, specific spending items in criminal justice are unlikely to be either entirely associated with interpersonal violence, or entirely separate from it. For example, a fingerprint database will be used to identify perpetrators of violent and nonviolent crimes, and crimes such as burglary may be principally property crimes, but will also frequently be characterized by

violence. Conversely, a sexual assault can also involve elements of property crime. A bottom-up estimation approach which attempts to isolate specific interpersonal violence spending items is thus likely to systematically underestimate the total cost, not least because it is unlikely to account for the system's overhead costs; i.e., managing the resources which are used to address violent crime. An alternative way of evaluating criminal justice costs would be to take a top down approach, and estimate the proportion of criminal justice expenditures which are associated with violence. Unfortunately there is no present methodology to do so. Further research in this area may be needed.

We take the KPMG (2016) estimate of direct costs only as a starting point for estimating the cost of violence in the criminal justice system. This only estimates VAWC costs, however, not correctional system costs, nor does it pro rata the proportion of each budget line item for VAWC. The result is an extremely rough and unsatisfactory estimate of total interpersonal violence costs. Nevertheless, total direct expenditures of ZAR 26.9 billion in the 2014–15 financial year was equivalent to 10.0 percent of the estimated expenditure of the departments involved (Departments of Social Development, Health,[1] Justice and Constitutional Development, Basic Education, Women, and the South African Police Service).[2] Ten percent of the expenditure of these departments in 2018–19 is equivalent to ZAR 35.1 billion, which comprises 3.2 percent of final consumption expenditure by general government and 0.6 percent of 2019 GDP.

The estimated first order tangible costs of violence are summarized in the table below.

Table 7. First order tangible costs

	2019 cost estimate	As a percent of 2019 GDP
Healthcare costs	ZAR 15,687	0.3%
Criminal justice system	ZAR 35,175	0.6%

3.1.2 Second order tangible costs

Violence can have a profound effect on the ability of individuals to utilize the economic opportunities around them. Long after the immediate impact of a specific violent event has passed, its economic effects can still linger, having a tangible economic impact that is nevertheless quite distant in time from the event or events which caused it.

The results of the Victims of Crime survey of approximately 30,000 South African households illustrates these kinds of tangible behavioural impacts of the fear of crime and violence. As shown in Table 8 below, around one in ten households are impacted by the fear of crime when taking part in basic economic activities such as starting a home business, walking to work, or using public transport.

1 Health expenditures in this category include only community based services, and thus there is no double counting as regards the previous estimate of health system expenditures.
2 Data from the Estimates of National Expenditure released by National Treasury, by national vote. https://www.treasury.gov.za/documents/nationalpercent20budget/default.aspx

Table 8. Percentage of households prevented from partaking in activities due to fear of crime

Activities affected by crime	Female	CV%	Male	CV%
Walking to work/town	12.9	4.0	12.4	3.7
Walking to the shops	11.9	4.1	10.4	3.8
Using public transport	11.3	4.3	10.5	3.8
Investing/starting a home business	11.2	4.6	9.3	4.3

Source: Statistics South Africa (2018)[65]

Despite high levels of unemployment in South Africa, the amount of activity in the informal sector remains relatively low. Gandhi, Kingdon, and Knight (2001) believe that this is a result of barriers to entry in informal employment markets, and suggest that high levels of violence and insecurity in the informal sector may contribute to such barriers.[66] Lund (1998) synthesizes several pieces of research on the problems faced by street traders and finds that crime and violence are frequently cited as their largest single issue, and that the burden on women street traders is larger than it is for men.[67] Gough et al. (2003) conducted research on informal home-based enterprises (HBEs) in low-income areas in South Africa and Ghana, and found that in Ghana "at no point was the fear of crime mentioned as a factor affecting the operation of the HBEs studied," whereas in South Africa, crime heavily affected business operations.[68] For example, crime often influenced South African business owners' decision to close before dark, whereas in Ghana, many of the HBEs experienced the greatest level of activity after dark. South African respondents felt that having an HBE attracted criminal activity, and might close a business if their profits were insufficient to justify the increased risk.

While the effect of violent crime on businesses may be proportionally higher for informal businesses, it is also likely to impact the formal sector. In a World Bank assessment of the South African investment climate, Ramachandran et al (2007) characterize South Africa as "representative of countries where crime and security may be considered an important, though not critical, problem." Around 30percent of South African firms surveyed felt security issues were a major or severe obstacle to doing business, significantly lower than in many Latin American countries (40-80percent), but substantially higher than the rate in most middle income countries, of around 10-20percent.[69]

Crime and its associated violence also affects the cost of doing business through the resultant increase in private expenditures on security. We found no reliable estimates of the total value of the private security industry in South Africa. However, as of the end of March, 2022, the total number of registered active security officers was 586,042 (Private Security Industry Regulatory Authority Annual Report, 2021-22). The average minimum monthly wage per security officer in 2022 was approximately ZAR 5,300, as per the sectoral minimum wage determination for the security industry.[70] Assuming 500,000 security officers employed for twelve months at that wage, we estimate that the total 2022 wage expenditure on private security guards was approximately ZAR 31.8 billion. This excludes costs for administrative and management staff, facilities and equipment costs, and other overheads.

Even if a comprehensive estimate of the private security industry was available, there would still be no way to estimate the proportion of that expenditure attributable to prevention or deterrence of interpersonal violence. Further research would be needed into the motivations behind those businesses or households purchasing security services.

A number of studies have examined the impact of violence on educational attainment in South Africa. A longitudinal study by Sherr et al. (2015) focused on persistence in education in primary school-aged children in South Africa and Malawi, finding that where children are exposed to psychological violence, they were more than ten times as likely to have dropped out, and that exposure to physical violence reduced grade progression.[71] Barbarin et al. (2001) examined the impact of family violence on a sample of South African six year olds, and found that it reduced academic motivation, while increasing measures of aggression, oppositional behaviour, and attention problems, which might then in turn affect educational outcomes.[72] Pieterse (2015) used a sample of children in Cape Town and found that childhood maltreatment reduces numeracy test scores and increases likelihood of dropout, with a dose effect associated with increased exposure to maltreatment.[73] Romero (2018) considered the impact of exposure of South African adolescents to six different forms of violence, and found that more frequent exposure to more forms of violence increased the risk of school delay. More recently, Lee and Rudolf (2022) considered the impact of school-related GBV on absenteeism across fourteen Southern African countries, including South Africa. Their findings indicate that the likelihood of absenteeism in a given month rises by 3.3 percent when a school "sometimes" has problems with teacher-to-learner harassment, and by 5.6 percent when that harassment occurs "often."[74]

Fang et al. (2017) undertook a systematic review of the consequences of violence against South African children and estimated that 2.3 million DALYs were lost to nonfatal violence in 2015, with the largest impacts being associated with violence around HIV prevalence and alcohol abuse.[75] Valuing DALYs at average GDP per capita, they estimated the total associated economic loss at ZAR 166 billion. Fatal violence against children contributed another 84,287 DALYs and ZAR 6.2 billion in economic loss. Total losses equated to 4.3 percent of 2015 GDP. Fang et al also examined the impact of physical and emotional violence on children's earning potential, estimating an 11.7 percent and 9.2 percent respective reduction in victim earnings. The proposed causal mechanisms were unclear, but are likely to include the educational impacts described above. The total economic losses associated with decreased earnings were estimated at ZAR 34.8 billion in 2015, which equates to ZAR 42.3 billion in 2019, or 0.8 percent of 2019 GDP.

No research appears to have been conducted on the cumulative impact of violence on educational outcomes in the South African context. Research from Italy is, however, suggestive. Caglayan et al. (2021) researched the impact of a forced resettlement of convicted criminals from southern Italy with suspected Mafia ties to northern Italy from the mid 1950s to early 1980s. This forced migration resulted in an increase in levels of criminal activity in northern Italy. The authors found that "for the top 75% of mafia-infiltrated provinces, a reduction by 25 percentiles in their position within the mafia ranking could increase the number of university graduates per capita by 4-21%."[76]

Violence therefore has an impact on human capital formation for South African children. For individuals who do succeed educationally, a small body of research also suggests violence as a subsequent factor that can contribute to emigration. For example, Ferreira and Carbonatto (2020) surveyed parents of South African emigrants (n=24) and found that concerns over violent crime were a key reason for leaving. A survey of South Africans living in Australia (Brink, 2012, n=48) found that 73 percent were dissatisfied with the level of personal and family safety in their home country.[77]

Halstein (2021) points out that South Africa tends to receive significantly fewer skilled migrants than it loses to emigration, and UNDESA estimates the stock of emigrant South Africans at 914,901 individuals in 2020.[78] Economic modelling exercises by Halstein (2021) and Bohlmann (2010) both found a negative impact from skilled emigration on South African GDP growth, although Halstein found that the emigration may be offset by remittances and skills support subsidies.[78,79]

The tangible costs of violence are significantly affected by gender-based patterns of violence in South African society. One study estimated that in 2012–13, the cost of gender-based violence alone amounted to between 0.9 percent and 1.3 percent of GDP,[80] which is in line with other international estimates.[81] While it is clear that exposure to violence affects economic outcomes for victims, Reeves and O'Leary-Kelly (2007) suggest that the literature on intimate partner violence does not as yet provide an explanation for the direction of causality between intimate partner violence victimization and victim earnings. They posit two possible relationships: first, that lower-earning individuals are more economically vulnerable, and that this increases vulnerability to intimate partner violence; and second, that intimate partner violence causes career interruptions which then decrease earnings.[82]

A literature review by Tandrayen-Ragoobur (2018) suggests two main schools of thought on the relationship between labor force participation and intimate partner violence. The first is the "non-cooperative bargaining" model, where greater financial independence for women increases their ability to leave, thus reducing intimate partner violence. The second "male backlash" model produces the opposite effect, with intimate partner violence increasing as women's earnings increase, due to an increased threat to traditional gender roles. Tandrayen-Ragoobur's research in Sub-Saharan Africa supports the backlash hypothesis, as working women in the study are found to experience higher levels of intimate partner violence than nonworking women.[83]

Substantial effects on workforce absenteeism and productivity are also evident. Evans-Lacko and Knapp (2016) examined the costs of absenteeism and presenteeism associated with depression only, finding South African costs per person of USD 894 and USD 6,066 respectively, using purchasing power parity currency conversion rates.[84] As shown in the burden of disease synthesis, violence-related depression and anxiety are particularly prevalent in women, and thus the burden of this economic effect is likely to fall disproportionately on this segment of the population. Rasmussen et al. (2017) estimate the total economic effect of ill health from all sources on absenteeism, presenteeism, and early retirement in 2015 in South Africa at 6.7 percent of GDP.[85] Assuming again an interpersonal

violence attributable fraction of 9.5 percent, this would equate to workplace effects of violence of approximately 0.6 percent of GDP, which in 2019 is equivalent to ZAR 35.8 billion.

The available evidence for many of the other identified effects is insufficient to calculate their impact on economic outcomes. However, it is certainly possible to derive some idea of the possible magnitude of the impact of violence. In the informal economy, estimates of its total impact vary widely, from just under 6 percent of GDP (Statistics South Africa, 2014)[86] to 20–25 percent of GDP (Medina et al 2017).[87] If violent crime decreases the size of informal sector activity by only 1 percent, then that would amount to a cost of ZAR 2.8 billion to ZAR11.5 billion per annum.[3] The potential effects of crime on formal sector growth are likely to be even higher given the larger size of the formal economy.

The second-order intangible costs are summarized in the table below. As can be seen, for a number of mechanisms there is likely to be a substantial negative impact on economic costs, which cannot however be estimated.

Table 9: Second order tangible costs of violence

	2019 cost estimate	As a percent of 2019 GDP
Absenteeism, presenteeism, and early retirement	R35 824	0.6%
Human capital formation and lifetime earnings	R42 277	0.8%
Risk perception effect on business activity	Unknown	
Increased security spending	Unknown	
Emigration	Unknown	

3.2 Intangible costs

The intangible costs of the suffering caused by interpersonal violence are noneconomic in nature. Grief and loss are real and vivid costs, but do not directly affect gross domestic product. However, from a policy perspective it remains useful to attempt to estimate these costs, in order to illustrate the size of the social impact involved and to help make the case for spending on programs to mitigate their effects.

Costing methods based on the earnings potential of the individual involved can produce very different estimates of the value of life of wealthy versus impoverished individuals. Such estimates are distasteful and counterintuitive. A more neutral alternative is the value of a statistical life (VSL), which can be used to estimate an average value placed on avoiding death in a given country. VSL accomplishes this by looking at the amount people in that country are on average prepared to spend to reduce the risk of death. As an example, being prepared to spend USD 1,000 to reduce the risk of death by 0.1 percent on average would suggest that VSL is USD 1 million.

VSL estimates are compiled per country using survey methodology, and to the best of our knowledge no VSL survey has been undertaken as yet for South Africa. Instead, we follow

3 As per Statistics South Africa P0441, GDP at market prices amounted to ZAR 4,585 billion as at Q4 2022.

Matzopoulos et al. (2014), who derive a South African VSL estimate of ZAR 3.5 million for 2009,[88] based on the findings of Lindhjem et al. (2011) that a mean VSL of 73.8 times per capita GDP is appropriate in countries with similar per capita GDP.[89] Given GDP per capita of ZAR 95,602 in 2019 (Reserve Bank quarterly bulletin time series 6270J), this suggests a 2019 South African VSL of ZAR 7.06 million.

This estimate is combined with the DALY, YLD, and YLL estimates for 2019, as developed above, to derive an estimate of the total intangible cost of interpersonal violence in South Africa in 2019. As shown in Table 10, the total cost is estimated at ZAR 398.1 billion, of which ZAR 182.7 billion is borne by males and ZAR 215.4 billion by females. 74percent of total male intangible costs are associated with premature mortality (YLLs) due to interpersonal violence injuries. For females, the largest single line item is YLLs for HIV/AIDS (52 percent), followed by morbidity (measured as YLDs) for depressive disorders (14 percent).

Table 10: Intangible costs of death and YLDs, 2019

2019, R billions	Males			Females			Persons		
	YLL cost	YLD cost	DALY cost	YLL cost	YLD cost	DALY cost	YLL cost	YLD cost	DALY cost
Interpersonal violence injuries	134.5	6.7	141.2	10.3	2.3	12.7	144.8	9.1	153.9
Self-harm injuries	13.1	0.1	13.2	5.0	0.1	5.1	18.1	0.2	18.3
Intimate femicides*				11.1		11.1	11.1		11.1
Depressive disorders		14.1	14.1		30.6	30.6		44.7	44.7
Anxiety disorders		12.6	12.6		18.8	18.8		31.5	31.5
HIV/AIDS*				112.8	22.6	135.3	112.8	22.6	135.3
Maternal abortion. miscarriage and ectopic pregnancy*				0.06	0.02	0.07	0.06	0.02	0.07
Alcohol use disorders	0.2	1.3	1.5	0.3	1.4	1.7	0.5	2.7	3.2
Total intangible cost	**147.8**	**34.9**	**182.7**	**139.6**	**75.8**	**215.4**	**287.4**	**110.7**	**398.1**

**Not measured or not available for males; Please refer back to footnote 1 (page 2).*

At ZAR 398.1 billion, the intangible cost of violence in 2019 is equivalent to 7 percent of 2019 GDP of ZAR 5,614 billion. Females bear 54 percent of this cost, due primarily to the impact of HIV/AIDS infections associated with violence, while for males the bulk of the cost of violence is attributable to early deaths due to interpersonal violence.

3.3 Summary of tangible and intangible costs

Table 11 summarizes our findings regarding the tangible and intangible costs of violence to the South African economy. As a number of costs could not be quantified, this should likely be regarded as a significant underestimation of true total costs. As can be seen, tangible costs are estimated to be on the order of ZAR 129 billion, or 2.3 percent of 2019 GDP. Intangible costs using the VSL estimation technique are extremely high, and amount to more than twice 2019 GDP. These intangible costs can be viewed as an expression of the desire of the electorate to reduce interpersonal violence.

Table 11: Summary of cost estimates, 2019 ZAR million

	2019 cost estimate, R million	As a percent of 2019 GDP
Tangible costs		
Healthcare costs	ZAR 15.687	0.3%
Criminal justice system	ZAR 35,175	0.6%
Absenteeism, presenteeism and early retirement	ZAR 35,824	0.6%
Human capital formation and lifetime earnings	ZAR 42,277	0.8%
Total tangible costs	*ZAR 128,963*	*2.3%*
Intangible costs	ZAR 398,114	7.1%

The authors apologise for this error and state that this does not change the scientific conclusions of the report in any way.* ***Please refer back to footnote 1 (page 2).*

As noted in section 2.3, approximately half of DALYs caused by violence are born by females; if intimate partner violence femicide ratios are used as a proxy for the intimate partner violence attributable fraction, then approximately half of those DALYs are attributable to intimate partner violence. This would suggest that roughly a quarter of the total tangible and intangible costs shown in the table above are associated with intimate partner violence against females.

4 Interventions and Reforms to Prevent Violence, and Associated Costs

We summarize interventions and reforms to address violence across four categories: (1) individual and family based; (2) community level; (3) legal reforms; and (4) media campaigns to change attitudes and norms. We focus on interventions where there is evidence of effectiveness and, where possible, information regarding costs. It is important to recognize that interventions at lower ecological levels tend to have more robust epidemiological evidence and are more easily costed, whereas structural interventions that are difficult to cost may have wider impacts at a population level. For this reason it has not been possible to apply systematic inclusion criteria. The interventions that we have included, particularly on law reforms and media campaigns, are a subjective selection arising from our terms of reference for this review and the authors' understanding of priority and importance.

Furthermore, if one is to consider social determinants and more distal risk factors as worthy prevention targets to reduce violence, as encompassed in several framing documents, then it is worthwhile to consider strategies and interventions that address these major risk factors, even if the indirect effects on violence are assumed and not measured directly. These can include both policy and programmatic or community-level interventions to address risks.

4.1 Individual and family-based interventions

Early childhood development programs are considered key interventions to reduce violence and aggressive behavior directly, and also to address their triggers. Several South African interventions have been tested in the domestic setting with favorable results. For example, an intervention to promote sensitive and responsive parenting and secure infant attachment to the mother was implemented as a home visitation program by previously untrained lay community workers in two adjoining areas of Khayelitsha, a large peri-urban settlement (population approximately 500,000) on the outskirts of Cape Town, Western Cape. Evaluated as an RCT, the intervention was associated with significant benefit to the mother-infant relationship. Mothers in the intervention group were significantly more sensitive and less intrusive in their interactions with their infants at six and twelve months. The intervention was also associated with a higher rate of secure infant attachments at eighteen months.[90]

Several additional parenting interventions have arisen from the "*Parenting for Lifelong Health*" (PLH) initiative, launched in 2012 as a small evidence-building collaboration between academics, students, and colleagues at the WHO, UNICEF, and nongovernmental organizations (NGOs).[91] Examples include:

Sinovuyo Caring Families Program for Young Children, a parenting programme in Khayelitsha that aimed to reduce the risk of child maltreatment, was an important forerunner of subsequent PLH studies. Delivered over twelve weekly sessions by community-based workers with basic ECD training, sessions included (a) prayer; (b) mindful physical

exercise; (c) children's song; (d) discussion on home activities from the previous session; (e) introduction of core parenting principle; (f) group discussion on the benefits of the principle; (g) working through illustrated stories; and (h) practicing parenting skills through roleplay and assignment of home activities to implement learned skills. Moderate effects were reported immediately post-intervention, including increased frequency of (parent-reported) positive parenting (d = 0.63) and observational assessments of parent-child play (d = 0.57); and moderate negative treatment effects (observational assessment) for less frequent positive child behavior (d =−0.56).[92]

PLH for Young Children, a low-cost twelve-session program designed to increase positive parenting and reduce harsh parenting and conduct problems in children aged two to nine. An RCT in low-income, peri-urban settlements in Cape Town, Western Cape Province, observed significantly higher positive parenting practices across the duration of the program (39 percent [t1] better in the intervention group, reducing to 24 percent [t2]); and positive (and improving) child behaviour (11 percent [t1] and increasing to 17 percent [t2]). Less enduring favourable results included significantly less physical (28 percent) and psychological (14 percent) discipline, and 20 percent less caregiver-reported depression at t1.[93]

PLH Sinovuyo Teen*,* a fourteen-session parent and adolescent program on abuse and parenting practices delivered by trained community members in low-income and middle-income countries, an RCT across forty urban and rural sites in the Eastern Cape Province. At five to nine months post-intervention, the program was (according to caregivers) associated with significantly lower abuse (IRR = 0.55), reduced corporal punishment (IRR=0.55), and improved positive parenting (d=0.25); and (according to adolescents and caregivers) more involved parenting (d=0.86 and d=0.28 respectively) and less poor supervision (d=−0.50 and d=−0.34). Secondary outcomes (according to caregivers) showed reductions in corporal punishment endorsement, mental health problems, parenting stress, substance use, and increased social support. No adverse effects were detected.[91]

The inextricable bidirectional relationships between mental health, substance abuse, and interpersonal violence[94] substantially increase the scope of potential mental health interventions that could meaningfully impact individual-level violence risk for both victims and perpetrators. It is beyond the scope of this review to describe these exhaustively. We also recognize the importance of upstream confounders that influence supply and demand, such as national and regional drug and alcohol policies. Nevertheless, WHO recommends targeted educational interventions for different alcohol consumption patterns by providing simple advice outlining alcohol-related risks and normative advice on drinking limits and goals, and offering encouragement to moderate-to-heavy drinkers.[95] We highlight one local project in the Western Cape that explores interventions for hazardous and harmful drinking in primary health care settings such as antenatal clinics and emergency units.

Project STRIVE (Substance use and Trauma InterVention), a blended motivational interviewing (MI) and problem-solving therapy (MI-PST) intervention to reduce substance use among patients presenting for emergency services, was evaluated through an RCT.[96]

ASSIST scores—a standard instrument to measure substance use—decreased from baseline to follow up at three months in all three arms: MI, MI-PST, and control, with the ASSIST scores significantly lower in the MI-PST group. Notably, the significant findings for the control group indicate that the screening questions alone were beneficial. Furthermore a costing study found that cost per patient was low in all three groups: USD 16, USD 33, and USD 11, respectively. Both MI and MI-PST offered similar reductions in per unit reduction in ASSIST scores: MI at USD 119, and MI-PST at USD 131 per unit reduction.[97] The studies indicate that primary healthcare facilities which serve populations most affected by violence present an ideal opportunity for alcohol screening and early referral to treatment services. However, the absence of standardized screening protocols and lack of investment in follow-up care present challenges.

4.2 Community level programs

Several SA research studies have explored community-level programs that seek to achieve reductions in interpersonal violence, of which three are already featured in the Pathfinders initiative's framing documentation:

Stepping Stones and Creating Futures, a combined programmatic intervention to reduce intimate partner violence and HIV risks through peer-led, interactive sessions with young adults in informal settlements. Initially, Stepping Stones—which included knowledge building, risk awareness, and communication skills around gender, HIV/AIDS, and violence, as well as an economic skills module—was implemented in seventy villages in the Eastern Cape province. The intervention significantly improved several reported risk behaviours in men, with a lower proportion of men reporting perpetration of intimate partner violence across two years of followup, less transactional sex, and less problem drinking at 12 months. The desired behaviour changes were specific to male participants.[98] Subsequently, Creating Futures, a livelihood-strengthening intervention to address women's economic dependency on men and the overall contexts of poverty,[99] was implemented alongside Stepping Stones in the urban informal settlement of eThekwini in KwaZulu-Natal province. A cluster randomized controlled trial recruited 676 female and 646 male residents aged eighteen to thirty years that were not working or in education. At twenty-four months post enrollment, men's self-reported past year intimate partner violence perpetration was lower (physical intimate partner violence [adjusted odds ratio [aOR]: .71, 95 percent CI: .51e.97]; severe intimate partner violence [aOR: .70, 95 percent CI: .52e.94]; and sexual intimate partner violence [aOR: .74, 95 percent CI: .54e1.03]). For women, earnings were significantly higher in the intervention arm (b 1⁄4 .97, 95 percent CI: .43e1.51). The authors concluded that the interventions reduced men's self-reported intimate partner violence perpetration and strengthened women's livelihoods, but not women's experiences of intimate partner violence.[100]

The **Intervention with Microfinance for AIDS and Gender Equity (IMAGE)** study piloted in villages in rural Limpopo province combined a microfinance program with a gender and HIV training curriculum. An RCT in pair-matched villages selected participants from three groups: direct program participants, randomly selected co-residents (aged fourteen to thirty-five), and randomly selected community members. Experience of intimate partner violence was

reduced by 55 percent (adjusted risk ratio [aRR] 0·45, 95 percent CI 0·23–0·91; adjusted risk difference–7·3 percent,–16·2 to 1·5) among participants. The authors concluded that social and economic development interventions have the potential to alter risk environments for HIV and intimate partner violence.[101] The study complemented a growing body of evidence which suggests that an increase in women's economic participation may decrease gender inequity and violence. IMAGE was subsequently found to be cost effective in terms of cost per DALY averted at the trial phase[102] and after subsequent scale-up to 3,000 participants.[102]

Men as Partners (MAP), implemented in Johannesburg, Gauteng province in the mid 2000s, provided group education, community workshops, and activities for young men focused on gender equality, heathy relationship dynamics, and HIV/AIDS. The evaluation yielded favorable results, with most male respondents (95 percent) indicating changes in how they thought about gender and eliminating violence against women.[103] However, the evaluation was qualitative in nature, comprising focus groups and pre- and post-workshop interviews, and did not lend itself to quantification for cost effectiveness.

Given that all three of the above programs include a a particular focus on reducing violence directed at women, it is also worthwhile to examine emerging evidence for promising general violence prevention strategies. **Violence Prevention through Urban Upgrading (VPUU)** is a second-generation program addressing crime prevention through environmental design (CPTED). It included built environment interventions alongside social programs and community participation initiatives in Khayelitsha, Western Cape. A cross-sectional study of 3,500 households found that living in close proximity to the upgraded infrastructure was associated with significantly lower experience of interpersonal violence (34 percent lower incidence (95 percent CI: 23 percent–43 percent)) after adjusting for household and area level deprivation and alcohol outlet density. The association was stronger after adjusting for social cohesion, which was collected for a smaller sample.[57] Notably, the association was consistent for men and women and for old and young adults. The main limitation of the study was the timing of its repeated cross-sectional design, which did not include surveys prior to the introduction of the VPUU intervention. Forthcoming research that examines temporal aspects using police violent crime data as a proxy for experience of violence is expected to show a reduction over time, specifically in informal areas. Complementary, unadjusted analysis has also shown favourable associations between VPUU and satisfaction with services, better mental health, and social cohesion.[104]

We were unable to find economic costing, but the overall cost of the VPUU intervention is likely to be formidable. It is troubling that recent reports suggest the quality of public infrastructure in South Africa is declining,[105] and thus the urban built environment may worsen violence outcomes going forward. It is also important to note that alcohol outlet densities were a significant predictor for households experiencing interpersonal violence, and that outlet densities were extremely high across the study area.[57] Consequently, the full range of evidence-based strategies to reduce harmful drinking need to be considered as potential interventions for reducing violence. Many of these could conceivably include

community-level initiatives, but we discuss them collectively in section 4.3, because the overarching policy ultimately enables uptake of interventions at the community level.

4.3 National-level policies, stragies, and legal reforms

Since SA's first democratic elections in 1994, there have been several important policy developments that may have impacted **interpersonal violence**. First, the 1996 National Crime Prevention Strategy (NCPS) presented an entirely new paradigm to policing, viz., social crime prevention. The strategy included measures either carried out by organizations outside the justice system with the aim of reducing risks, or, if within the criminal justice system, focused on reducing recidivism by perpetrators.[106] The NCPS was subsequently included as one of the key pillars of SA's National Growth and Development Strategy, which had symbolic importance as the first instance of crime prevention being included as part of economic development. It also informed the development of the 1998 *White Paper on Safety and Security* that extended the remit of policing beyond investigation, visible policing, and service to victims, expanding it to also include intervention in the environment and conditions in which crimes occur[107]—an approach more consistent with public health principles that address the social determinants of violence. However, the necessary impetus for government to move forward with this agenda has been lacking, and the police have subsequently reverted to a more traditional crime-fighting role.[106-108]

More recent policy documents have embraced a similar approach. The 2012 National Development Plan (NDP), in its efforts to build safer communities, advocated interventions to address root causes such as poverty; inequality and unemployment; improve social cohesion; reduce the availability of weapons; and address spatial factors including environmental design, alongside more civilian involvement and the demilitarization of the police.[109] In a similar vein, the 2016 *White Paper on Safety and Security* draws on the NDP, NCPS, and the previous White Paper as framing documents. It advocates a developmental approach to crime prevention, recognizing tenets of the ecological model as set out in section 2.4, and also includes aspects of the built environment as an important contributor to improved safety.[110]

For **intimate partner violence,** the 2020 National Strategic Plan on Gender-Based Violence and Femicide (NSP) presents a comprehensive framework for implementation by a range of government departments, drawing on evidence-based literature "to ensure a coordinated national response to the crisis of gender-based violence and femicide by the government of South Africa and the country as a whole." Key to its implementation are activities around six pillars: 1.Accountability, Coordination and Leadership; 2. Prevention and Rebuilding Social Cohesion; 3. Justice, Safety and Protection; 4. Response, Care, Support and Healing; 5. Economic Power; and 6. Research and Information Management. The NSP aligns with several global, regional, and national policy frameworks including: the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW); the Convention on the Rights of Persons with Disabilities; the International Convention on the Elimination on Forms of Racial Discrimination; the International Labour Organisation (ILO) Convention on Violence and Harassment; the SDGs-related targets; the Beijing Platform for Action; the International

Covenant on Economic, Social and Cultural Rights; Agenda 2063; the Southern African Development Community (SADC) Gender Protocol; and the SADC Regional GBV Strategy and Framework for Action 2019–2030.

Another example of public health principles being applied in policy was the Western Cape government's Integrated Violence Prevention Policy Framework, adopted in 2013 following the Provincial Government and the National Department of Health co-hosting the 5th Milestones Meeting of the WHO's Global Campaign for Violence Prevention in Cape Town in 2011. The Policy Framework included the prioritization of a number of evidence-based interventions: developing safe, stable, nurturing relationships between children and parents/caregivers; developing life skills in children and adolescents; promoting gender equality to prevent violence against women; changing cultural and social norms that support violence; reducing the availability and harmful use of alcohol; a focus on high-risk areas; and the instutionalization of monitoring and evaluation. Importantly, the Policy Framework recognized the need for "quick wins" (e.g., firearm control and alcohol harm reduction) that could demonstrably reduce violence at a population level in the short term, providing a window for policy makers to enact sustained, longer-term preventative action (e.g., early childhood development and parenting programs). However, a review of the Policy Framework undertaken one year following implementation identified early resistance arising from conflict with intradepartmental priorities and competing policies and directives.[111] While some of the solutions outlined in this review have been addressed in the Provincial Government's more recent safety plan,[112] adherence to evidence is still only considered optional. Where evidence conflicts with other imperatives, such as economic development through further expansion of the alcohol industry, political priorities take precedence.

Alcohol control is also a notable omission from the National Development Plan chapter on Building Safer Communities, despite an undertaking to "implement strategies known to work." South Africa has an influential domestic alcohol production industry and has struggled in the past to implement progressive alcohol control policies informed by international best practices. Examples include the 2013 Control of Marketing of Alcoholic Beverages Bill that aimed to restrict advertising and promotion of alcohol products, and the 2016 Draft National Liquor Amendment Bill that sought to impose stricter licensing conditions and raise the minimum drinking age. Another effort was the 2017 Western Cape White Paper on Alcohol Harms Reduction, which embraced the WHO's ten recommended targets in its Global Strategy to Reduce Harmful Use of Alcohol,[113] but prioritized alcohol harm reduction above industry well-being.

The links between alcohol and violence (as well as injuries more broadly) were recently highlighted in the wake of alcohol sales bans that accompanied 2020 COVID-19 restrictions. The sales restrictions were designed to reduce the pressure on public healthcare systems caused by alcohol-related violence, and were followed by immediate and significant reductions in injury, deaths, and hospitalizations.[25,114–116] While such a ban/prohibition is neither sustainable nor desirable, the events alerted the public to the risks associated with alcohol and provided some impetus for the adoption of evidence-based alcohol policies. A public appeal to government during the COVID-19 period by 164 academic, government,

civil society, and corporate signatories centered on five key evidence-based strategies, which are based on a comprehensive cost effectiveness study[117] and are also consistent with WHO's SAFER initiative:[118]

1. A ban on **advertising** of alcohol (except on the site of sale, where it should not be visible to those under eighteen years);
2. Increasing the **price** of alcohol, both through excise taxes and by introducing a minimum price per unit of pure alcohol in liquor products;
3. Reducing the **legal limit for drinking and driving** to a blood alcohol content of 0.02 percent or below;
4. Reducing the **availability of alcohol**, especially in residential areas, by limiting the density of liquor outlets, shorter trading hours, and ending the sale of alcohol in larger containers; and
5. Intensifying the **availability of counselling and medically-assisted treatment** for persons struggling with dependence.

Another implementation failure relates to firearm control. Researchers ascribed significant reductions in mortality from interpersonal violence between 1997 and 2012 to a decrease in firearm homicides following the adoption of the provisions of the Firearms Control Act (FCA) of 2000.[18,119,120] The FCA introduced more stringent eligibility and competency requirements for state and civilian firearm owners, and provisions for the prevention of gender-based violence. However, more recent data reflects a surge in firearm homicide.[121] It is important to note that non-firearm violence—a proxy for the level of violence in society more generally—has remained more stable. Consequently, the major share of the recent increase in homicides reported in national police data relates to the increasing share of gun deaths.

Matzopoulos et al. (2019) surmise that there were two key drivers for this: (1) the clearing of a Central Firearm Registry backlog resulting in the expedited finalization of more than 1 million firearm applications, including license renewals and new licenses; and (2) corrupt police officials and firearm dealerships redirecting more than 2,000 firearms marked for destruction at the police armory in Gauteng province to criminal networks.[120] Affected families recently applied for certification of a class action against the state to claim for deaths and injuries resulting from these firearms.[122] The 2017 Firearms Control Amendment Bill offers an opportunity to reverse this lapse by further limiting civilian access (e.g., by removing the "self defense" licensing category and further strengthening access restrictions for GBV offenders).

It is worth noting that despite poor adherence/implementation, as in the case with firearms and alcohol policies, international instruments and agreements do have a considerable bearing on the policies put in place by national government, which in turn receive support at the community level. For example, the FCA aligns with various international obligations, such as the legally binding global Firearms Protocol[123] and the regional SADC Firearms Protocol.[124] Both protocols provide for various principles underpinning the new Draft Firearms control Amendment Bill, including nonproliferation, recordkeeping, and stockpile management. Similarly, the women's movement in SA has used CEDAW, among other instruments, to advocate for reforms around domestic violence.

Nevertheless, this international policy influence is not always favorable. The explicit focus on violence against women and children, and—until their implicit SDG inclusion under SDG14[125]—exclusion of men from violence prevention agenda emanates from various instruments in the UN system.[10,126] International drug policy also presents challenges. As well as criminalizing substance abuse and addiction among users that could conceivably be better addressed through mental health services, these policies may also perversely incentivize the trade by inflating profit margins for successful operators. It is beyond the scope of this review to localize what is essentially an international issue, but certainly the "war on drugs" is a structural driver more likely to increase rather than decrease violence.

4.4 Media campaigns seeking to change attitudes and norms around violence

Although evidence supporting the influence of standalone media campaigns in reducing interpersonal violence seems sparse,[127] they remain a popular rallying point for activism both internationally and locally. Most prominent in the South African landscape is the annual *16 Days of Activism for No Violence against Women and Children*, a UN campaign running from November 25 (International Day of No Violence against Women) to December 10 (International Human Rights Day). We were unable to find research evaluating the effectiveness of this campaign in reducing violence—nor would we expect it to be effective so close to year end with the increase in festivities and drinking—but an evaluation of the government's communication strategy around the campaign indicated that it should be more visible throughout the year, that aspects should target men specifically, and that it should include educational components about the social and economic consequences of GBV.[128]

The Pathfinders initiative's framing documentation also highlights *Soul City,* South Africa's acclaimed weekly primetime TV drama series about social problems, including domestic violence, which features prominently in the *What Works for Violence Prevention* literature.[129] The Soul City Development Institute's own evaluation found increased levels of support-seeking and support-giving behavior among households exposed to the show. While more direct effects in terms of reducing acts of violence may be difficult to determine, the medium is certainly cost effective in terms of its wide reach, estimated at just USD 0.16 per person reached with a VAW message.[130] This makes mass media an attractive complimentary intervention to accompany other initiatives and policy implementation processes.

4.5. Summary of violence prevention interventions and reforms

It is clear that SA employs a myriad of approaches to prevent violence, from individual, family, and community-based prevention programs through to structural-level legal reforms guided by international instruments and policies, as set out in Sections 4.1 to 4.4. Despite this, obvious challenges remain with implementation. Program interventions face challenges with replication and scale-up, whereas at the structural level, reforms can be compromised by a lack of political will alongside competing priorities, compounded by insufficient service delivery capacity. In Section 5 we recommend strategies to address some of these deficiencies.

5 Recommendations

The overarching recommendation from this evidence review and costing exercise is that there is an urgent need to provide financial and technical support for intersectoral collaboration, multilateral research cooperation, and research capacity to address violence, which in South Africa imposes a significant threat to development. Sub-recommendations for progressing this agenda—from a macro to a micro perspective—are as follows:

To prevent violence at a societal level:

- The government should adopt an integrated violence prevention approach that targets a few quick wins likely to make an impact at the population level (with the obvious targets being firearms and alcohol interventions). At the same time, the government should invest in evidence-based programmatic and policy interventions that impact across the life-cycle and that deliver, although sometimes delayed, sustained cumulative benefits.
- It is imperative to balance the response to violence (criminal justice) with a more preventative approach that addresses social determinants of violence. Further violence prevention strategies should include advocacy for policy reforms that prioritize violence prevention, survivor protection, and perpetrator accountability.
- A major finding of this study is that a significant portion of the economic cost of violence derives from the impact of violence on human capital formation in children who are exposed to violence. Consideration should thus be given to the potential of educational system interventions in order to counterbalance the impact of violence on educational attainment. Further research is needed in this area.
- Evidence-based prevention programs are required that target both males and females and address various forms of interpersonal violence, such as child maltreatment, community violence, and intimate partner violence. This can be achieved through collaboration with schools, community organizations, and health institutions to integrate these programs into curricula, community initiatives, and healthcare services.
- Mental health services and resources tailored to individuals who have experienced interpersonal violence should be expanded and strengthened. Engagement with mental health professionals, social workers, and medical practitioners can provide a holistic approach to healing.
- A coordinated preventive strategy that combines law enforcement efforts, healthcare responses, and educational campaigns is needed to address the root causes of violence.

- Prevention efforts should at all times be based on robust evidence-based research conducted by credible independent agencies such as universities and science councils. Research and intervention programs directly promoted and funded by business should be supplementary in nature, and should not lead the research agenda. Contributions should where possible be allocated by government, according to research and intervention priorities that are consistent with international best practice for violence prevention (e.g., WHO's INSPIRE).

To improve the evidence base for violence prevention:

- More funding should be allocated to researching promising programmatic interventions for violence prevention.
- Research should be accompanied by investment in independent (i.e., not industry-designed) evaluations of upstream and policy reforms likely to reduce violence.
- Documentation of upstream interventions and policy reforms must be improved to support future costing and cost-effectiveness studies.
- Routine, recent, and reliable data on injury deaths and presentations to health facilities needs to be available from a national injury surveillance system that records detailed information on demographics, mechanisms (i.e, firearms, sharp force, etc.), type of violence (i.e., intimate partner, gang violence, etc.), and nature of injuries (i.e., fractures, open wounds, amputations, etc.). This data can be utilized to identify trends, high-risk groups, and areas that need targeted interventions.

To improve the quality of future costing studies:

- In the absence of reliable routine injury surveillance, occasional all-injury mortality studies can ascertain the completeness/validity of police homicide statistics.
- Similarly, burden of disease studies can provide more recent mortality and DALY rates for all diseases including interpersonal violence. Accompanying comparative risk assessment studies can assess the impact of violence on a range of health outcomes, but the scope of these studies should be expanded to quantify impacts of additional forms of violence and to consider more conditions affecting men.
- More funding should be directed to research that measures the impact and cost of crime on various aspects of the economy. Such research should also disentangle violence prevention and response costs from overall costs of crime.
- Research to inform a South Africa-specific value-of-a-statistical-life (VSL) measure would aid policy makers to recognize the true costs of major impediments to health and development, such as interpersonal violence.

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