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Benefit-Cost Analysis

Domestic Violence in Haiti



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Haiti Priorise

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Academic Abstract

In this paper we examine intimate partner violence (IPV) against women in Haiti. The aim of this paper is to examine the extent of the problem, provide some cost estimates, propose three possible interventions and estimate their cost benefit ratio (CBR). About 273,200 women suffer from severe physical and/or sexual IPV per year, this corresponds to 9.4 per cent of the population of 14-49 year old women. We estimate that the health costs of domestic violence are in the order of about HTG 641 million per year, this is equivalent to 0.16 per cent of GDP. The quantification of a complex human problem such as IPV is challenging, because the consequences of IPV are manifold and it is difficult to define and measure all of them. We only have a rough approximation of the tangible costs (medical treatment, justice system, lost earnings) and our analysis focuses on the health costs of IPV. We evaluate three possible interventions: the reconstruction of a women's shelter, a national helpline and a program to prevent dating violence aimed at teenagers. For two interventions, the shelter and the helpline, we have little evidence of their effectiveness and we have made conservative assumptions regarding their benefits. BCRs range from 2.1 to 31.0. For the dating violence program, there is considerable evidence of effectiveness in the public health literature and results from a trial in Haiti are also promising. However, the delivery costs of this intervention are high and most of the BCRs are below one.

Policy Abstract

Overview and Definition of the Problem

Women are most at risk of violence perpetrated by their husband, partner or boyfriend. We refer to this violence as intimate partner violence (IPV). Examples of physical and sexual IPV include: being slapped, pushed, shoved, punched, kicked, beaten, choked, burnt on purpose, threatened with a weapon, physically forced to have sexual intercourse, having sexual intercourse because of fear what a partner might do and being forced to do something sexual that is perceived as humiliating or degrading. Shame, trauma and fear prevent women from speaking out and seeking help. Very few women report intimate partner assaults to the authorities and IPV is therefore a problem hidden in plain sight.

Domestic violence against women has considerable consequences, it not only causes pain and suffering for the victims but results in costs for society at large. Women who suffer domestic abuse are more likely to commit suicide, are less likely to complete their education, are less likely to seek employment, have more unwanted pregnancies, are more likely to have underweight babies, and are more likely to contract sexually transmitted diseases (including HIV). Children growing up in abusive households are also more likely to become victims or perpetrators of domestic violence. IPV stops victims from fulfilling their potential and they are also less likely to be employed. Thus, IPV has far reaching consequences for societal development. IPV is thus a human rights, public health and development issue.

Evidence from Haiti

In Haiti evidence from confidential surveys suggests that IPV is a serious problem. Based on these surveys we estimate that that about 273,200 women suffer from severe physical and/or sexual violence per year. This corresponds to 9.4 per cent of the population of 14-49 year old women.

Possible Interventions

Attitudes towards women are shaped by cultural norms and changing these norms is a long term process. This cannot be achieved by one single intervention. It is also not achievable by legislation,

for example by outlawing certain actions, e.g. make rape within marriage a criminal offence. However, changes in the law are welcome because they signal what is deemed unacceptable in a society.

Benefits of the Interventions

The benefit of the interventions is a reduction of IPV and the resulting consequences. The health benefits are saved lives, the avoidance of injury and the following illnesses: major depressive disorder, dysthymia (persistent mild depression), HIV/AIDS and self-harm. This excludes a number of possible other health consequences, such as substance abuse, abortions, pre-term babies. This burden is assessed by in terms of Disability Adjusted Life Years (DALYs). The loss of DALYS is calculated by assigning weights to each condition from 0 (perfect health) to 1 (dead) and then summing all the DALYs to estimate the total burden of IPV.

In addition to the health burden there are a number of other consequences. There are the so called tangible costs such as medical care costs, criminal justice costs and foregone earnings. For Haiti we have no estimates of these costs. We approximate the tangible costs by using US studies on the costs of crime where intangible costs are about 4.8 times higher than the tangible costs. In our study we do not account for the burden of not finishing education, the lower probability of employment and the risk of the children from this household also experiencing violence (in the future). Thus, we underestimate the burden of IPV on the Haitian society.

Intervention 1: Reconstructing a Women's Shelter

The women's shelter in the West of the country was destroyed in the earthquake and there are plans to rebuild this shelter. There is limited evidence on how effective shelters are in preventing violence and treating victims and it is difficult to quantify the benefit of a shelter. We assume that the shelter serves a population of about 47,000 people, half of them are women. This is roughly equivalent to 0.4 per cent of all women and hence 0.4 per cent of all IPV victims. Making a number of assumptions the shelter avoids one death per year and lowers the health burden (specifically 12 Years Lost to Disability, YLDs). Building costs are HTG 10million and there will be four full time staff. Their pay is assumed to be HTG 29,000 per year. In addition there are utility bills and building

maintenance cost. The BCRs are always larger than one, depending on the discount rates and how a DALY is valued, the BCRs range from 2.1 to 37.4.

Intervention 2: A National Telephone Helpline

There is little evidence on how effective helplines are in the prevention of IPV and treatment of victims. We assume that a helpline would provide a benefit by avoiding one per cent of the health burden. The costs of a helpline would be renting an office plus the operation costs and four full time staff plus an inauguration information campaign, followed by top up campaigns. Depending on discount rates the total costs are between HTG 18million and HTG 7.7 million. The BCRs for this intervention are always larger than one, ranging from 3.3 to 12.4.

Intervention 3: Teenage Dating Violence Prevention

There is strong evidence that teaching safe and healthy relationships reduces physical/sexual IPV among teenagers. We assume a 56 per cent reduction in IPV. Confidential survey evidence suggests that the prevalence of IPV is high in the 15-19 age group and a pilot study in Haiti suggests that teen programmes could be effectively implemented. We assume that the teen IPV prevention program is provided to 15 year olds, and that the effects last 'a lifetime' (although we allow for the decay of the effectiveness over time). This is a voluntary program, teachers, assistants and students 'opt in'. Due to low school enrolment and student opt in rates the coverage would be eight per cent. Training lasts three days and delivery five. Additional costs for the program are: training (by some US experts), teaching materials and refreshments. The total cost of the program delivery is estimated at about HTG 35 million. The BCRs for this intervention are mainly below one which is due to the high delivery costs. An alternative method of delivery would be to include information on IPV in the national curriculum and make the teaching and/or attendance compulsory in schools. This would decrease costs considerably. However, there are two main concerns. First, the delivery through the average school teacher may not be as effective. Second, the low opt in rate indicates that many will be reluctant to consider this issue in schools and it may be politically difficult to decide on a new compulsory part of the curriculum.

Cost Benefit Table

Summary Table

Interventions	Benefit	Cost	BCR	Quality of Evidence
Shelter	143,480,108	10,222,712	14.0	Limited
Helpline	175,895,677	14,649,001	12.0	No evidence
Teen Dating Program	35,532,452	34,808,408	1.0	Strong

Notes: All figures assume a 5% discount rate, include tangible costs, DALYs valued at three times GDP per capita, benefit and costs expressed in HTG and represent lifetime project costs and benefits

1. Introduction

Violence is a human rights, public health and development issue. In this paper we examine violence against women in Haiti, where in line with a number of other studies, the most prevalent form is domestic violence. Domestic violence is a serious problem in Haiti: According to DHS data, about fifteen per cent of women report that their intimate partner assaulted them during the last year. Violence not only prevents individuals from fulfilling their potential but in aggregate violence harms societal development. Domestic violence has many consequences, including repressing women's voices and restricting their agency. Hurt, trauma and fear prevent women from speaking out, seeking support and treatment and it often inhibits economic activities outside their household. Very few women report intimate partner assaults to the authorities and domestic violence is therefore a problem hidden in plain sight.

The aim of this paper is to examine the extent of the problem, provide some cost estimates, propose three possible interventions and estimate their benefit cost ratio (BCR).

The quantification of a complex human problem such as domestic violence is fraught with difficulties. It requires difficult social and ethical judgements, for example how to value life, pain and suffering. Since the consequences of domestic violence are manifold, it is difficult to define all of them and measure them. The resulting cost estimates should therefore be understood as our best attempt to quantify this social problem rather than arriving at a precise estimate. However, despite not being able to produce a precise estimate, we think this is a worthwhile exercise because it encourages us to think through the consequences of domestic violence.

In this paper we estimate that the health costs of domestic violence are in the order of about HTG 641 million per year, this is equivalent to 0.16 per cent of GDP. Alternatively, the health burden resulting from domestic violence can be expressed as a percentage of the overall health burden. 1.3 per cent of all the health burden that women experience is due to IPV. This then leads to the question of what can be done about reducing these costs. In line with the other papers for this project we assume that the benefit of an intervention is the avoided health burden plus other societal burdens, such as the costs of medical treatment, criminal justice costs and foregone earnings. These benefits are then monetized and are compared to the costs of the intervention. We investigate three possible interventions: rebuilding a women's shelter, setting up a national telephone helpline and an educational programme to prevent teenage dating violence. Neither the costs nor the benefits for interventions are easy to

establish. We cost the health burden in different ways. All of the health burdens are expressed in disability-adjusted life years (DALYs). The value of the health burden is obtained by multiplying each DALY by the average GDP per capita where we use three values (one times GDP, three times GDP and eight times GDP). In addition we allow for different discount rates to calculate the net present values of benefits and costs (3%, 5% and 12%). Thus, for our three interventions we present a total of 36 BCRs. The BCRs for the shelter and the helpline are always greater than one but for the teen dating violence intervention the BCRs tend to be smaller than one.

Table 1: BCR (valuing one DALY at one times per capita GDP)

Intervention	Discount	Benefit	Cost	BCR	Quality of Evidence
Shelter	3%	36936973	10533077	3.5	Limited
	5%	39580720	10222712	3.9	
	12%	21223145	10114776	2.1	
Helpline	3%	62345331	18189344	3.4	No evidence
	5%	48522945	14649001	3.3	
	12%	26433775	7729287	3.4	
Prevention of Dating Violence	3%	15266809	34808408	0.4	Strong
	5%	9802056	34808408	0.3	
	12%	3157629	34808408	0.1	

Note: Only health burden considered, tangible costs are excluded, see Appendix Table for the estimates including tangible costs.

In this paper we first provide some background to the problem of IPV in Haiti. Section 3 discusses the BCR calculations and Section 5 offers some conclusions.

2. Background

According to international research the most prevalent form of violence against women is domestic violence, i.e. the perpetrator is either the woman's intimate partner or a family member (UN, 2006, WHO 2013). We will use domestic violence and intimate partner violence interchangeably in this paper. Men can also be victims of domestic violence but for Haiti we have no data on male victimization and we therefore concentrate on analysing domestic violence against women only.

Domestic violence against women has considerable consequences, it not only causes pain and suffering for the victims but results in costs for society at large. Women who suffer domestic abuse are more likely to commit suicide, are less likely to complete their education, are less likely to seek employment, have more unwanted pregnancies, are more likely to have underweight babies, and are more likely to

contract sexually transmitted diseases. Children growing up in abusive households are also more likely to become victims or perpetrators of domestic violence (Hindin et al, 2008; World Bank 2012: 152). All of these consequences generate costs above and beyond the immediate medical needs of the victim.

2.1 Empirical Evidence

The most recent data for Haiti come from the Demographic and Health Survey (DHS) collected in 2012 and we summarize the data in Table 2. In the DHS women are asked whether they experienced emotional, physical and sexual violence. Examples of physical and sexual IPV included: being slapped, pushed, shoved, punched, kicked, beaten, choked, burnt on purpose, threatened with a weapon, physically forced to have sexual intercourse, having sexual intercourse because of fear what a partner might do and being forced to do something sexual that is perceived as humiliating or degrading. We focus on whether women have experienced physical or sexual violence in the past 12 months because the burden of disease measures that we use further below do not consider emotional violence and do not distinguish between physical and sexual violence. Table 2 suggests that out of all age groups teenagers are most likely to experience physical and/or sexual violence. The main perpetrators are boyfriends, because few women are married in this age group. Many form an understanding of relationships through dating and if they experience physical and/or sexual abuse this will lead to a normalization of violent relationships. Often men and women repeat these behaviours learned while dating in later life (Whitaker et al 2004).

Table 2: Last year incidence of physical violence or sexual violence by age group, Haiti 2012

	Percent reporting past year physical violence or sexual violence	Percent reporting past year severe physical violence or sexual violence
15-19 year olds	32.81%	22.54%
20-24 year olds	21.34%	13.79%
25-29 year olds	16.64%	10.35%
30-34 year olds	11.86%	8.47%
35-39 year olds	11.84%	7.84%
40-44 year olds	9.72%	7.24%
45-49 year olds	7.83%	6.25%
Total	14.59%	9.87%

Source: DHS, Haiti 2012

In total, about ten per cent of women of the women interviewed in the DHS have experienced severe physical violence and/or sexual violence (last column). Using this information we can estimate how many Haitian women may be affected by IPV. In the DHS the Domestic Violence module is only answered by ever partnered women. Based on Cayemittes et al (2013: Table 4.1) we know how many women are married, cohabit, are widowed, divorced or separated. Summing over these possible states we find that on average 67 per cent of all 15-49 year old women were 'ever partnered'. This varies from age group to age group, only a minority of the younger women are married or cohabit while 98 per cent of the 45-49 year olds were 'ever partnered'. Using this information on ever partnered women and the prevalence rates reported in the DHS we calculate that about 273,200 women suffered from severe physical and/or sexual violence. This corresponds to 9.4 per cent of the population of 14-49 year old women. Thus, many women still face numerous threats to their physical integrity and mental wellbeing in Haiti today. This is most likely to be a conservative estimate because among the younger women some may have an intimate partner but not state that they are 'partnered'.

Another source providing evidence of the health burden resulting from IPV is the Global Health Data Exchange (GHDx). Violence causes loss of life, injury and disability and the concept of Disability Adjusted Life Years (DALYs) is applied to estimate the burden of violence. The loss of DALYS is calculated by assigning weights to each condition from 0 (perfect health) to 1 (dead) and then summing all the DALYs to estimate the burden of a particular condition. In the case of disease this is relatively straightforward. Weights have to be assigned for each 'disability', where is understood broadly as any condition that deviates from perfect health. The calculation of DALYs resulting from IPV involves a number of steps:¹

1. Estimation of prevalence rates of IPV
2. Estimation of the impact of IPV on health (this is termed relative risk)
3. Calculation of population attributable fractions (PAFs), using information on relative risks and prevalence rates
4. Application of PAFs to DALY estimates by 'disability' to derive the DALY estimate due to IPV

¹ Vos et al 2006 provide a detailed account.

Table 3: YLDs, YLLs and DALYs lost due to IPV, 2015

ages	YLDs	YLLs	DALYs	Deaths
15-19	160.42	1,088.00	1,248.42	15.72
20-24	817.59	2,458.99	3,276.58	38.23
25-29	1419.14	4,122.62	5,541.77	69.41
30-34	1515.95	4,645.91	6,161.86	85.34
35-39	1085.9	3,435.96	4,521.86	69.38
40-44	791.01	2,278.53	3,069.54	51.04
45-49	646.35	1,725.57	2,371.92	43.33
50-54	527.98	1,227.73	1,755.71	34.98
55-59	403.4	616.10	1,019.50	20.23
60-64	306.47	274.52	580.99	10.59
65-69	203.39	146.25	349.64	6.8
70-74	144.38	83.46	227.84	4.83
75-79	87.75	41.94	129.68	3.14
80 plus	95.19	24.37	119.56	3.18

Source: GHDx

As discussed further below, DALYs are the sum of years lost due to death and disability. Or in public health terms, YLL (years of life lost) and YLD (years lost due to disability). When compared to the DHS data presented in Table 2, it appears that the GHDx data is based on a much lower prevalence rates for teenage IPV than the DHS. However, we cannot offer any solution to this apparent contradiction in the data sources and just flag this data issue.

There is a considerable literature on the health impact of IPV and the wider health consequences of IPV are analysed by Ellsberg et al (2008). Women who experienced IPV have difficulty walking, struggle with daily activities, and suffer from pain, memory loss, dizziness and vaginal discharge. They also report significantly higher levels of emotional distress, suicidal thoughts and suicidal attempts. Based on country studies the WHO (2013) also concludes that women who suffer IPV are 16 per cent more likely to have a low birth weight baby and in some regions they are 1.5 times more likely to acquire HIV and 1.6 times more likely to have syphilis when compared to women who do not suffer partner violence.

For the GHDx calculations only a specific number of health consequences are considered. The losses of life attributed to IPV are due to interpersonal violence (homicide) and suicide. The losses due to disability consider major depressive disorder, dysthymia (persistent mild depression), HIV/AIDS (tuberculosis and results from other diseases), abortion, miscarriage, injuries due to physical violence and self-harm. For Haiti

there are zero losses attributed to abortion and miscarriage. There are a number of other health burdens that are not considered, such as other sexually transmitted diseases, cervical cancer, substance abuse, preterm births (low birth weight babies). Thus, the GHDx estimates are very likely to understate the costs of violence.

For future research it would be desirable to develop Haiti specific relative risks and population attributable fractions. Table 4 presents the DALYs due to specific disabilities:

Table 4: YLLs and YLDs resulting from IPV by cause

	Dysthymia (persistent mild depression)	Major depressive disorder	HIV/AIDS	Physical violence	Self-harm
YLL	-	-	14,629	3,544	3,997
YLD	1,164	6,119	819	70	33

Source: GHDx

HIV/Aids is the biggest cause of years of life lost while the losses due to partner violence and suicide are roughly comparable. Depression is the largest cause for years lost due to disability.

2.2 Legislation and Support for Victims of IPV

Improving our understanding of violence against women and using this knowledge for prevention and treatment will help us to work towards achieving Sustainable Development Goal (SDG) 16.1 “Significantly reduce all forms of violence and related death rates everywhere” and SDG 5 “Achieve gender equality and empower all women and girls”. In Haiti there is public acknowledgement that violence against women is a problem that needs to be addressed and that IPV is the most common form of gender based violence. This is evidenced by quotes such as this:

"The most frequent form of domestic violence in Haiti is the intimate partner violence. And the other forms are corollaries." (Sandy Francois, Director of Promotion and Defense of Women's Rights (DPDDF) at the Ministry for Women's Affairs and Women's Rights, MCFDF)

Haiti ratified the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) on April 7, 1981 and the Inter-American Convention on the Prevention, Punishment, and Eradication of Violence against Women on April 3, 1996. The provisions of these international treaties can be invoked in

Haitian courts as the Haitian Constitution (Article 276-2) grants the same status to international treaties ratified by Haiti and national legislation, and provides for the abrogation of all laws which are in conflict with the provisions of these international treaties. However, there is a wide gap between actual legislation and the experience of women and girls due to deep-rooted problems in the criminal justice system which have been documented elsewhere (Inter-American Commission on Human Rights, 2005). Prior to 2005, Haiti did not have specific legislation on sexual violence and did not prohibit violence against women in its criminal law. On 11 August 2005, an amendment of the Criminal Code reclassified rape as a criminal offense, rather than a crime against honor (Le Moniteur, 160th year, No.60). Haiti has also drafted The Framework Law on the Prevention, Punishment and Eradication of Violence Against Women and Girls for presentation to the 50th Parliament.

To achieve the objective of preventing violence against women in Haiti, a number of initiatives have been generated, including the creation of some institutions and public policies dedicated to protect women and their rights. Available services for IPV victims include:

1. Shelters in four (4) departments of the country (North, Northeast, South-East and West) to accommodate women victims of violence. The Shelter in the West was destroyed during the earthquake of January 12, 2010 and the Ministère à la Condition Féminine et aux Droits des Femmes (MCFDF) is currently trying to raise funds for the construction of a new shelter. Forensic, psychosocial, legal and social services are provided at these shelters, which are all managed by women's organizations, with the MCFDF playing a coordinating role.²
2. Legal assistance with filing complaints with authorities for IPV survivors. The Legal Aid Bureau (*Bureau d'Assistance Légale*) is under the Ministry of Justice but is only operational in the Port-au-Prince area. Civil society organizations also provide legal assistance to IPV survivors and often accompany them to the police and court. However, many of the representatives of these organizations have no legal training (UNDP, 2014).
3. Medical treatment and psychological counselling for victims of rape or sexual assault: Many civil society organizations and clinics provide both emergency medical assistance within 72 hours of an assault, and long-term medical and psychological care. One example is the Commission of Women Victims for Victims (KOFIVIV). Haiti has also revised the sexual assault case registration form to

² Detailed information about the use of the shelters in 2011 can be obtained here: <http://www.alainet.org/images/SOFA%20-Onzieme%20Rapport%20Bilan-%20%20decembre%202011-2.pdf> , accessed 14 April 2017

harmonize data collection across clinics and organizations. An MOU has also been signed between the MCFDF and the Ministère de la Santé Publique et de la Population (MSPP) for the provision of a free medical certificate in cases of sexual assault.

4. Training and awareness campaigns. Civil society organizations have been conducting activities to raise awareness about women's rights, available social, legal, and medical services for IPV survivors, and how to prevent sexually-transmitted infections. One such organization is KayFanm.³

There are two problems concerning teenagers that are of particular importance in Haiti: (1) the high rate of teenage pregnancies⁴ and (2) the problem of the so called 'Restavèk'. In Haiti a restavèk is a child who is sent by his or her parents to work for a host household as a domestic servant because the parents lack the resources required to support the child. The term comes from the French language *rester avec*, "to stay with". These children are at particular risk of exploitation (economic and sexual) and that of physical abuse. The NGO, la Fondation Maurice A. Sixto (FMAS), focuses on protecting the human rights for these children. In this paper we do not comment on these specific problems. The use of birth control is limited in Haiti and abortion is illegal, but the Penal Code reform considers making abortion legal. The Zika virus problems highlighted the few choices women have in delaying pregnancies in Haiti. This health crisis may speed up the debate on access to contraception and a reform of the Penal Code. It is mainly political will that is needed to address this issue and not a problem that lends itself to CBA. The problem of the restavèk is specific to Haiti and we do not know of any intervention that has been rigorously evaluated. One possible option would be to design and implement a program in conjunction with FMAS.

³ [http://www.enfolien.net/index.php?option=com_content&view=article&id=103:documentaire-kay-fanm-le-centre-reviv-pour-la-rehabilitation-des-fillettes-et-adolescentes-violee-n &catid = 44: groups-and-associations & Itemid = 73](http://www.enfolien.net/index.php?option=com_content&view=article&id=103:documentaire-kay-fanm-le-centre-reviv-pour-la-rehabilitation-des-fillettes-et-adolescentes-violee-n&catid=44:groups-and-associations&Itemid=73), accessed 14 April 2017

⁴ For more detail see http://haiti.unfpa.org/sites/default/files/pub-pdf/JMP2013_Grossesse_precoce_fact_sheet.pdf, accessed 14 April 2017

3. Calculation of the Benefit Cost Ratios (BCRs)

In this section we first provide a short summary of the method we use to calculate the benefits, followed by a discussion of the BCR calculation for each one of our three interventions, namely rebuilding a women's shelter, setting up a national telephone helpline and an educational programme to prevent teenage intimate partner violence.

3.1 Method

We evaluate the benefits of the interventions by adding the intangible and the tangible costs of IPV. We approximate the intangible costs, sometimes also referred to the costs of pain and suffering, by monetizing the DALYs that are the consequence of IPV. We do not have good estimates for the tangible costs, such as medical costs, criminal justice costs and foregone earnings. In Haiti many women may not see a health care professional with their injuries, thus incurring low medical care costs. Since many forms of IPV are not reported to the police and some of them are not even criminal offences (e.g. rape within marriage) the costs of apprehending the perpetrator, court and correction costs may also be low. Many women are unemployed or economically inactive, thus, the loss in earnings are also thought to be small. However, we can provide an approximation of the tangible costs by using US studies on the costs of crime. These studies provide tangible and intangible costs, the latter are about 4.8 times higher than the tangible costs for assault and rape. For homicides they are a multiple of 6.6.⁵ Using these approximations we calculated the BCRs including the health cost and tangible cost and present these alternative estimations in the Appendix Table A1.

Thus, most of the benefits of our interventions are measured in the DALYs that could be saved. The advantage of using the DALY methodology is that it enables a comparison of burdens of different diseases and social conditions, such as violence. It therefore appears to be a good choice for comparative projects like Haiti Prioritise. However, the main disadvantage of this method is that it is not obvious how to attach monetary values to DALYs. There is no theory to guide the researcher and commonly a DALY is valued at the average per capita income or a multiple thereof. When comparing disease burdens within Haiti it does not matter as long as all researchers value a DALY in the same way. However, this rather arbitrary way of pricing a DALY does have an implication for the Cost Benefit Ratios. Low DALY values result in lower BCRs.

⁵ See McCollister et al 2010.

We now turn to the discussion of three possible interventions: rebuilding a shelter in the West, a nationwide helpline and a teenage dating violence prevention programme.

For all of the interventions we state how many DALYs could be saved. Since the population of Haiti is forecast to grow by 60 per cent by 2050 we adjust the figures of future deaths and by taking the proportion of YLDs and deaths per 1000 of population per 5 year cohort and extrapolating them into the future based on projected population figures.

3.2 Intervention 1: Shelter

As explained above, one of the four shelters was destroyed in the earthquake and there are plans to rebuild this shelter. We do not really know how effective shelters are in preventing violence and treating victims. The recent review by Sullivan (2012) suggests that they are very effective in providing immediate safety and longer term support. Overall the shelter was overwhelmingly positive for women who used it. It is however very difficult to quantify the benefit of a shelter. We take the following approach: The average city in Haiti has about 70,000 inhabitants and clusters of four villages have a population of 6,000 each. Given an urbanisation rate of about 50 per cent, this shelter would be aimed at about 47,000 people, half of them are women. This is roughly equivalent to 0.4 per cent of all women and hence 0.4 per cent of all IPV victims. Since not all women know about the shelter we assume that about half of the deaths and YLDs are saved. Based on Sullivan (2012) we assume that 79 per cent of shelter users found the shelter beneficial and that 10 per cent found that it increased violence. We assume that 69 per cent of women are helped by a shelter. Using the GHDx data this translates into about one death and 12 YLDs saved per year. We assume that the shelter is built in 2018 and in use until 2046. We assume building costs similar to a health facility but the shelter will only have half the square meterage (equivalent to about HTG 10million) and that the shelter will be staffed by four full time staff. Their pay is assumed to be half of average annual earnings (about HTG 29,000 per year). In addition we allow for utility bills and building maintenance. Costs are assumed to grow annually by the current inflation of 2.7% per year. The BCRs are always larger than one, the lowest BCR is 2.1 when we assume the value of one DALY as equal to GDP per capita, a discount rate of 12 per cent and do not account for any tangible costs (see Table 1).

3.3 Intervention 2: Helpline

To our knowledge Haiti does not currently have a national helpline for victims of IPV. We have very little evidence on how effective helplines are in the prevention and treatment of IPV victims. They are popular

in some countries and in some cases phone calls increase dramatically in response to public information. For example, in 2016 a popular soap opera on BBC Radio 4 a detailed story of IPV running over several months and this resulted in a 20% increase of phone calls to UK helplines. We assume that a helpline would provide a benefit by avoiding one per cent of deaths and YLDs. We have no real basis for this assumption. The costs of a helpline would be renting an office (equivalent of USD 200 per person per month) plus the operation costs of ten per cent of the office rent. Four full time staff would be employed at a cost of half of average earnings (about HTG 29,000 per month).⁶ Training costs for staff are assumed to be ten percent of staff costs. In addition an information campaign at USD 0.0425 to reach every women aged 15-49 would be launched at the inauguration of the helpline. The effect of this information is assumed to decay over time and as the next cohort of women is at risk of IPV, they need new information. Thus, we allow for a yearly top-up campaign. Costs grow by 2.7% per year and the helpline would run from 2017 until 2028. The BCRs for this intervention are always larger than one, the lowest BCR is 3.3 when we assume the value of one DALY as equal to GDP per capita, a discount rate of five per cent and do not account for any tangible costs (see Table 1).

3.4 Intervention 3: Teenage Dating Violence Prevention

There is evidence that teaching safe and healthy relationships decreases the incidence of sexual assault (Sinclair et al., 2013), increases knowledge of IPV (Gage et al., 2016), and reduces physical/sexual IPV (Foshee et al., 2005; Lundgren & Amin, 2015; Peskin et al., 2014; Taylor, Stein, Mumford, & Woods, 2013; Wolfe et al., 2009) among teenagers. The focus here is on teen dating violence prevention. Such programmes have been evaluated for impact in the US and Canada. The choice of this intervention was motivated by two factors. First, as the DHS data Haiti suggest, the prevalence of IPV is high in the 15-19 age group. Second, the pilot study by Gage et al 2016 in Haiti suggests that teen programmes could be effectively implemented. They adapted the SAFE Dates curriculum by (Foshee and Langwick, 2010) for Haiti and found evidence that teaching teens in Haiti dramatically improved their knowledge on dating violence. Interventions for these age groups are likely to have long lasting effects because very often men and women experience behaviour that they repeat later in life. However, Gage et al (2016) did not examine the impact of the curriculum on dating violence or IPV victimization or perpetration. Foshee et al. (2004) found

⁶ We also calculated the BCRs for salaries of average earnings. Since salaries make up a relatively small part of the total helpline cost, the BCRs remain in the region of 3.2 to 27.

that in the United States, the Safe Dates program led to a reduction in physical and sexual dating violence perpetration and victimization four years after the program.

We assume that the proposed teen dating violence prevention programme will start in 2018 and that we will observe an impact on teen IPV for four years (the same evaluation period that Foshee et al. (2004) used), after which the effect decays. Foshee et al. (2004) only observed survivors of IPV. We assume that the same reduction holds for deaths. We also assume that after four years there will be some positive effects, such as reduced substance use, depression, self-harm etc, which have been associated with teen dating violence prevention programs. We do not know how large the effects would be. We assume a geometric decay of the effectiveness – but we have no formal basis for these assumptions. We assume that the teen IPV prevention program is provided to 15 year olds, and that the effects last 'a lifetime'. Fifteen year olds are 1/5 of the 15-19 year old group. Thus we apply the effects of the reduction to 1/5 of the 15-19 year old group. As the treated cohort grows up, we assume that the prevalence rates are as for the older age groups, i.e. 20-24, 25-29, etc.

We use the costs as stated in Gage et al (2016), namely three days of training per teacher and teaching assistant and five days of implementation. Teachers' days are costed at USD 80 and teaching assistants at USD 10. The delivery was in ten sessions to about 30 students, they did not receive remuneration but were provided with a refreshment (costed at USD 1.5 per day). An important consideration is how many students could be reached. In the Gage et al (2016) only 31 per cent of the parents provided consent and currently only 25 per cent of all 14 year olds are in school. This translates to a treatment of eight per cent of all 14 year old teenagers. Or to put it differently 627 groups of 30 pupils would be taught. The delivery of this program is costly (around HTG 17.9 million). Another cost factor is the use of outside experts and production of the study materials. We used the cost of the pilot, minus the teacher training and implementation, assumed that scaling up would reduce printing costs and assume that an additional cost of about USD 473. Assuming that one teacher can teach the curriculum to four different groups, 157 teachers would have to be trained. The teacher delivery costs make this intervention very costly and thus BCRs are low. They are in the region between of 0.1 and 3.5, depending on the value per DALY and the discount rate.

4. Conclusions

In this paper we suggest that IPV is a serious problem in Haiti. Based on DHS data we estimate that about 273,200 women suffer from severe physical and/or sexual violence per year. This corresponds to 9.4 per cent of the population of 14-49 year old women. This is most likely to be a conservative estimate because among the younger women some may have an intimate partner but not state that they are 'partnered'. Thus, many women still face numerous threats to their physical integrity and mental wellbeing in Haiti today. IPV can have a number of consequences. Some women are killed by their intimate partners, worldwide about 43 per cent of all homicide victims are killed by their current or former intimate partner (Stöckl et al 2013). For Haiti we were unable to obtain a breakdown of homicides by perpetrator. Other consequences include major depression, dysthymia (persistent mild depression), sexually transmitted diseases, HIV/AIDS, cervical cancer, abortion, miscarriage, preterm births (low birthweight babies), substance abuse, injuries due to physical violence and self-harm. These consequences of IPV have been evaluated by the Global Health Data Exchange (GHDx) and we use their data on DALYs to calculate the benefits of the proposed interventions. The use of these data are a shortcoming of our study because the GHDx does not appear to use country specific information to calculate the population attributable fractions (PAFs) in the estimation of DALYs for IPV in Haiti. Only some consequences of IPV are considered, thus the DALYs probably underestimate the burden of IPV.

We evaluated three different interventions: the reconstruction of a women's shelter, a national helpline and a program to prevent dating violence aimed at teenagers. Using different values for DALYs and discount rates we calculated nine BCRs per intervention. We also approximated for tangible costs in addition to these health burdens, these tangible costs would be medical costs, loss of earnings and criminal justice costs. Following the US literature on crime, the tangible costs of interpersonal violence are much smaller than the intangible costs (or health costs). Since the benefits are higher when these tangible costs are considered the resulting BCRs are slightly larger.

For two interventions, the shelter and the helpline, we have very little evidence of their effectiveness and made conservative assumptions of their benefits. However, the BCRs are between 2.1 and 31.0. For the last intervention, the dating violence program, there is much more evidence of effectiveness in the public health literature. Targeting teenagers, boys and girls, are likely to have long lasting effects because very often men and women experience behaviour that they repeat later in life. The SAVE Dates curriculum program in the US decreased the prevalence of dating violence by about 56 per cent. This curriculum was

trialled in Haiti (Gage et al 2016) and dramatically improved knowledge of IPV. This trial indicates that advice on SAVE Dates could substantially decrease the prevalence of IPV among teenagers. However, we found that the cost of paying teachers to teach the SAFE Dates curriculum outside school hours in Haiti makes the delivery of this intervention very expensive. The BCRs for the teen prevention program are smaller than one unless we assume high values of DALYs and low discount rates. If the national curriculum were adapted to include information on dating violence to be taught during school hours this would approximately halve the delivery costs and hence improve the BCRs. Whether the delivery would be as effective is unclear though. It is also worth noting that only about 31 per cent of parents provided consent for their children to take part in the pilot study in Haiti. Thus, even though the prevalence of IPV is high in Haiti, the majority of the population may not be ready to confront the issue.

5. Appendix

Table A1: BCR (valuing one DALY at one times per capita GDP)

Intervention	Discount	Benefit	Cost	BCR	Quality of Evidence
Shelter	3%	44632175.83	10533076.94	4.2	limited
	5%	47826702.83	10222712.19	4.7	
	12%	25644633.5	10114775.92	2.5	
Helpline	3%	75333942.2	18189343.69	4.1	no evidence
	5%	58631892.39	14649000.82	4.0	
	12%	31940811.43	7729286.933	4.1	
Prevention Of Dating Violence	3%	18,447,394	34,808,408	0.5	strong
	5%	11,844,151	34,808,408	0.3	
	12%	3,815,469	34,808,408	0.1	

Note: Tangible costs included.

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