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# Domestic Violence Literature Review: Analysis Report

## Background

Blue Shield of California Foundation (BSCF) has been a pioneer in efforts to prevent and mitigate domestic violence (DV) in California. Through investments in leadership development and capacity building, innovation, and promotion of innovative policies and practices, BSCF is laying the foundation for a systemic and comprehensive response to address DV and support Californians experiencing violence.

In December 2015, BSCF contracted with JSI to support the development of a 'business case' to elevate domestic violence as a consideration in health system transformation and triple-aim achievement efforts. Given the formative nature of business case development in this field, one of the first tasks was to understand the status of knowledge in the field.

The objective of JSI's literature review and analysis was to address the following questions:

1. What is the evidence about the prevalence of DV?
2. What is known about the health consequences of exposure to DV?
3. What is the evidence about DV as a driver of health care costs?
4. What are the outcomes from interventions integrating DV response systems with health care?
5. What are the lessons learned from other sectors?

This report presents a synthesis of findings from the literature review analysis for each question.

## Summary of Key Findings

Key findings from JSI's literature review analysis include:

- Domestic Violence (DV) is widely prevalent and a well-recognized public health issue.
  - More than one in three women (35.6%) and one in four men (28.5%) aged 18 and older reported a lifetime prevalence of physical violence, rape, and/or stalking by an intimate partner

- Being younger (18-24 years), female, a racial/ethnic minority, and low income are associated with higher rates of domestic violence.
- DV has immediate, short, and long-term health effects through injuries; chronic health, mental health, and substance abuse conditions; and health risk behaviors.
  - Emerging research demonstrates the complex relationships between DV, mental health conditions, health-risk behaviors and other socio-economic stressors.
  - Women with a history of DV are 3X time more likely to have a mental health condition, and 6X more likely to be drug/alcohol dependent compared to non-abuse women.
  - Conversely, mental health patients report higher rates of lifetime abuse and women with substance-use disorders are at higher risk for DV.
- A large and growing body of evidence indicates that DV elevates health care utilization and costs, but current estimates are considered to underestimate the true cost of DV due to undisclosed and/or undiagnosed abuse.
  - The medical cost burden within the 12 months after victimization ranges from \$2 to \$7 billion nationally.
  - Higher health care utilization rates and costs persist even 3 to 5 years after DV exposure has ended.
  - Even though health care utilization increases for all services, ED use is seen to increase the most.
  - Physical violence has been found to increase health care utilization more than other forms of abuse.
  - DV exposure increases the need for mental health services.
- DV not only affects survivors but also their families, in particular children who witness abuse. It impacts their physical and mental health, and increases their risk for adult victimization and perpetration.

- Intervention research largely focuses on process outcomes (e.g., numbers screened, numbers of providers reporting increased screening). There is limited evidence on the effectiveness of interventions in reducing DV, improving health outcomes, and/or reducing health expenditures over time.

## Methods

JSI used the following methods to search the literature:

1. Targeted searches of electronic databases of peer-reviewed literature (PubMed, Medline and Google Scholar)
2. Website and review of publication lists of leading organizations in the field (e.g., CDC, Family Violence Council, National Resource Center on Domestic Violence, Prevention Institute, National Center on Domestic Violence, Trauma, and Mental Health, Futures Without Violence, and National Center on Domestic Violence and Sexual Abuse)
3. Cross-referencing of reference lists of select publications

Searches were conducted based on all possible combinations of a set of search terms pertinent to the impact of domestic violence on health and health care costs. Search terms included: domestic violence, economic cost, societal cost, health care utilization, domestic violence and prevalence, mental health, reproductive health, chronic health, and substance abuse respectively. Searches were restricted to publications between the dates of 2006 and 2016 and on data collected from U.S. populations. JSI included a few articles published before this time period (e.g., seminal literature and landmark studies).

## Findings

Figure 1 presents a conceptual framework of the linkages from DV risk factors to incidence to investment to impact. While there is evidence for many of these linkages, there is limited evidence where the full chain has been demonstrated, especially the impact interventions have on health outcomes, behavioral health, violence rates, and health care utilization and costs. Areas where major gaps remain are annotated.

### DV is widely prevalent and disproportionately experienced by younger, low-income women of color

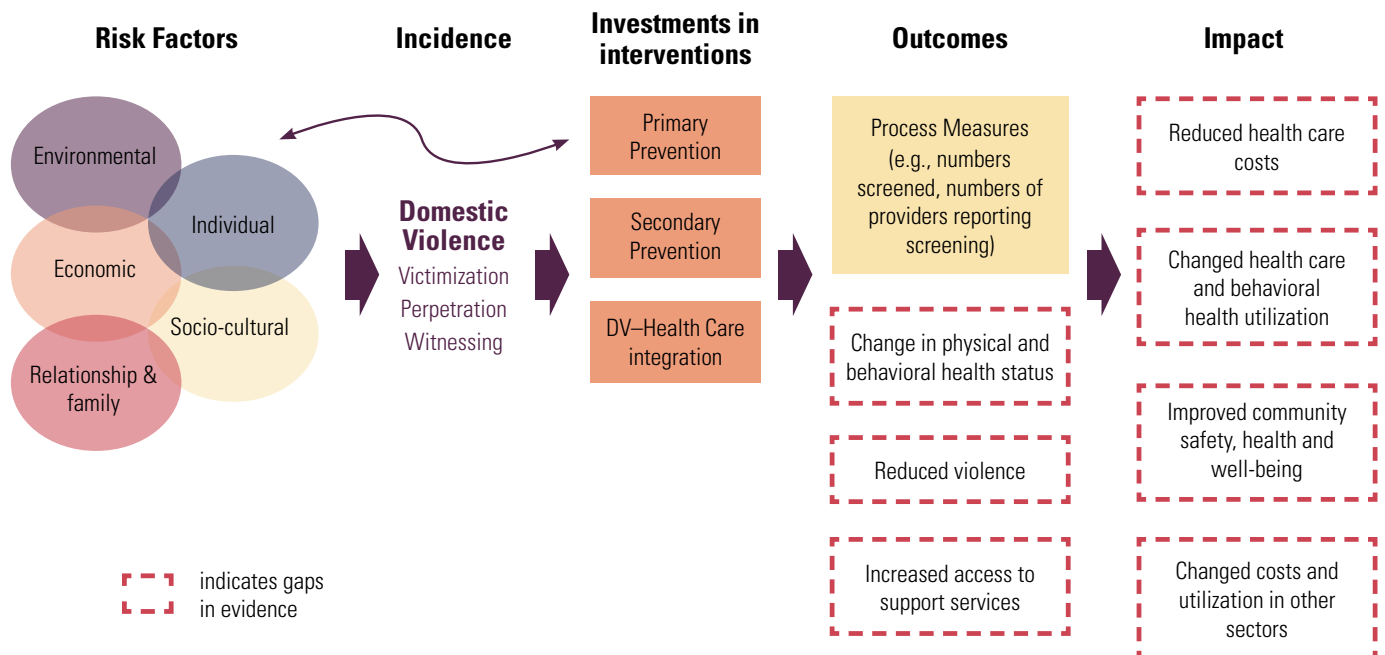
**Prevalence.** Extensive evidence spanning more than three decades documents the widespread prevalence of DV in the United States. According to the CDC, in 2010 more than one in three women (35.6%) and one in four men (28.5%) aged 18 and older reported a lifetime prevalence of physical violence, rape, and/or stalking by an intimate partner.<sup>1</sup> Annually DV affects more than 12 million women and men in the US.<sup>2</sup> These estimates are likely to underestimate the actual rates since many DV survivors may not disclose abuse due to safety concerns.

**Risk factors.** Being young (18-24 years), female, a racial/ethnic minority, and low income are associated with higher rates of violence.<sup>1</sup> Women are twice as likely as men to experience multiple forms of abuse over their lifetime, and three times more likely to be injured (42% vs. 14%). Black non-Hispanic women (44%) and multiracial non-Hispanic women (54%) are significantly more likely to experience lifetime violence compared to White non-Hispanic women (35%).<sup>3</sup> Women with annual incomes lower than \$25,000, and women experiencing food and housing insecurity are more likely to report having experienced DV. Similar patterns have been observed among men who experience DV.

### DV is associated with adverse and long-term health consequences

A large body of evidence documents the association between DV and fatalities, injuries, and myriad adverse and long-term physical and mental health outcomes,<sup>1,4,5,6,7</sup> including outcomes specific to women's health: unintended pregnancy, poor pregnancy outcomes, and sexually transmitted infections.<sup>8,9</sup> Table 1 summarizes key findings regarding the linkages between DV exposure and adverse and long-term health outcomes.

**Figure 1. Conceptual Framework**



**Table 1. Association of DV and adverse health outcomes**

Health Outcomes	Key Findings
<p><b>Injury and physical symptoms</b></p> <ul style="list-style-type: none"> <li>■ Bruises, fractures, bone dislocations</li> <li>■ Head/neck/abdomen/pelvic injury</li> <li>■ Chronic body pain</li> <li>■ Headaches</li> <li>■ Fatigue</li> <li>■ Shortness of breath</li> <li>■ Loss of appetite</li> </ul>	<ul style="list-style-type: none"> <li>■ In 2010, 241 males and 1,095 females were murdered by an abusive partner.<sup>2</sup></li> <li>■ Women with a history of DV are more likely to report symptoms of: chronic body pain, frequent headaches, fatigue, and activity limitations compared to non-abused women.<sup>3</sup></li> </ul>
<p><b>Chronic health conditions</b></p> <ul style="list-style-type: none"> <li>■ Asthma</li> <li>■ High cholesterol</li> <li>■ High blood pressure</li> <li>■ Cardiovascular disease</li> <li>■ Gastrointestinal disorders</li> <li>■ Irritable bowel syndrome</li> </ul>	<ul style="list-style-type: none"> <li>■ DV has long-term effects; the chronic stress of DV weakens the immune systems leading to endocrine and immune system disorders, gastrointestinal and cardiovascular health conditions.<sup>1</sup></li> <li>■ Prevalence of asthma, irritable bowel syndrome, and diabetes is almost twice as high among women with a history of DV compared to women with no DV history.<sup>3</sup></li> </ul>
<p><b>Mental health</b></p> <ul style="list-style-type: none"> <li>■ Depression</li> <li>■ Posttraumatic disorders</li> <li>■ Anxiety</li> <li>■ Insomnia</li> <li>■ Inability to concentrate</li> <li>■ Mood swings</li> </ul>	<ul style="list-style-type: none"> <li>■ Depression and PTSD two most commonly diagnosed mental health conditions among women experiencing DV.<sup>1,10</sup> <ul style="list-style-type: none"> <li>– Studies have found prevalence of depression and PTSD to be as high as 70% and 84% respectively</li> </ul> </li> <li>■ Women with DV history 3X more likely to have a mental health condition than non-abused women.<sup>10,11</sup></li> <li>■ Mental health patients have higher rates of lifetime abuse compared to the general population.<sup>12</sup></li> <li>■ DV, health risk behaviors, and mental health conditions are highly correlated.<sup>7,13</sup></li> <li>■ Mental health conditions persist long after the abuse ended.<sup>10</sup></li> </ul>
<p><b>Health risk behaviors</b></p> <ul style="list-style-type: none"> <li>■ Smoking</li> <li>■ Overeating</li> <li>■ Excessive alcohol consumption</li> <li>■ Substance abuse</li> </ul>	<ul style="list-style-type: none"> <li>■ DV exposure leads to health risk behaviors that, in turn, increase risk for preventable chronic illnesses (e.g., cardiovascular disease, diabetes and asthma).<sup>1,7,14</sup></li> <li>■ Women experiencing DV more likely to become alcohol/drug dependent compared to non-abused women.<sup>12,15,16</sup> <ul style="list-style-type: none"> <li>– Studies have found prevalence of substance abuse among DV survivors to be as high as 72%</li> <li>– Women experiencing abuse 6X more likely to have a substance abuse diagnosis than non-abused women</li> </ul> </li> <li>■ Women dependent on substances are at higher risk for DV.<sup>1,12,13</sup> <ul style="list-style-type: none"> <li>– A study of women attending a methadone clinic found that 90% had experienced lifetime abuse</li> <li>– Women with excessive alcohol consumption 3X more likely to experience DV compared to those who drink occasionally.</li> </ul> </li> <li>■ Substance abuse may be a coping mechanism or a form of coercion.<sup>12,13</sup></li> </ul>
<p><b>Women's Health</b></p> <ul style="list-style-type: none"> <li>■ Unintended pregnancy</li> <li>■ Sexually transmitted diseases</li> <li>■ Poor pregnancy symptoms: low rate of weight gain, anemia, increased risk of infections, placental abruption, preeclampsia and preterm labor.</li> <li>■ Poor pregnancy outcomes: premature birth, low birth weight, prolonged neonatal intensive care unit stays, and fetal death</li> <li>■ Coercive sex</li> <li>■ Reproductive coercion</li> </ul>	<ul style="list-style-type: none"> <li>■ Unintended pregnancies 2-3X more likely to be associated with DV than planned pregnancies.<sup>1</sup></li> <li>■ Violence is often concurrent with sexual and drug-related STI/HIV risk, including coercive sexual risk.<sup>17</sup> <ul style="list-style-type: none"> <li>– 1 in 4 women report being forced to have sex without a condom.</li> <li>– Relative to non-abuse women, those with abuse histories 4X more likely to report fear of requesting condoms, and 11X more likely to report fear of refusing sex.</li> </ul> </li> <li>■ Women experiencing DV and reproductive coercion (male partner's verbal threats and controlling behaviors to influence contraceptive adherence and pregnancy outcomes, becoming pregnant, continuing or terminating a pregnancy) are 3X more likely to seek multiple pregnancy tests, STI testing, and emergency contraception.<sup>9,18</sup></li> </ul>

## **DV elevates health care costs and utilization**

There is increasing evidence that DV elevates health care costs and health care utilization,<sup>19,20,21,22</sup> although there is little consensus in the field regarding what costs should be included and estimation methods.<sup>23</sup> In the available literature, health care utilization is largely defined as: emergency department (ED), primary care, and hospital outpatient services. There is limited evidence on DV's impact on long-term health care utilization trends and related costs, as well as use of behavioral health services.

Key findings in this area include:

### **DV imposes a substantial burden on the health care system.**

- A comparison of three cost estimation methodologies that employed survey data (National Violence Against Women Survey (NVAWS) (1995-1996) and Medical Expenditure Panel Survey (MEPS) (2000-2003) data estimated the medical cost burden of DV among US adult women, within the first 12 months of victimization, to range from \$2.3 to \$7.0 billion.<sup>24</sup>
- A study conducted among a random sample of 18-64 year old women members (n=3,333) of a nonprofit HMO serving Washington State and Northern Idaho, found the adjusted annual total health care costs to be 19% higher among women with a history of abuse compared to women with no abuse history. Excess costs due to DV were estimated at \$19.3 million annually for every 100,000 women enrollees.<sup>25</sup>

### **Women experiencing DV are more likely to use the ED over other health care services.**

- Two studies linked administrative data for Medicaid eligible women with IPV Case databases from the state to retrospectively examine health care utilization trends for women identified as victims of violence.<sup>26,27</sup> Both studies found that leading up to and right after a woman's DV experience, ED use escalated more than other health care services. In one of these studies (n=964), 64% of the sample received at least one ED visit during the year of assault, and 81% of these women generated a total of 4456 ED visits in three years.<sup>27</sup>

- A study among a random sample of homeless women in New York (n=389) found that DV history was associated with higher ED use but neither primary care use nor outpatient use even after controlling for socio-demographics, childhood abuse, and having a psychiatric diagnosis.<sup>28</sup>

### **Higher health care utilization and costs persist even after DV exposure has ended.**

- The few studies examining trends in health care utilization and costs by timing of abuse found that costs were highest during abuse, for the first 12 months following abuse, and as much as 20% higher among abused women compared to non-abused women even five years after the abuse had ended.<sup>25,29</sup>
- A study among a random sample of 18-64 year old women members (n=3,271) of an integrated group practice in the Pacific Northwest had slightly different findings. Higher health care costs among abused women versus non abused women were sustained for three years following the end of exposure.<sup>30</sup> However, the trend reversed by the 4th year following the end of exposure to violence, and health care costs among abused and non-abused women remained similar for the next 10 years.

### **Physical violence increases health care utilization more than other types of abuse.**

- A study among a random sample of 18-64 year old women (n=3,333) from a health plan in a metropolitan area found that physically abused women had the highest utilization of all health care services compared to non-abused women and women experiencing other forms of abuse (emotional and sexual).<sup>29</sup> Annual health care costs were 42% higher for women with ongoing physical abuse as compared to never abused women.

### **DV exposure elevates the need for mental health services.**

- A study using 2009 data from the California Health Interview Survey found that one in three adults reporting lifetime experience of DV indicated a need for mental or behavioral health services.<sup>11</sup> DV survivors were also 2.5 times more likely to report having seen a provider in the past year for mental/behavioral health problems as compared to non-abused Californians.

- A study among 18-64 year old female primary care patients (n=97) of a clinic in the Midwest found that DV exposure leads to higher levels of anxiety, depression and PTSD, which, in turn, leads to increased outpatient, mental health service, and ED utilization.<sup>6</sup>

### **Current cost estimates are likely to underestimate the true cost of DV.**

Cost estimates largely rely on survey data and administrative data, both of which have limitations.<sup>24</sup> Survey data, are based on self-reports and suffer from recall bias. Administrative data, suffer from gaps in DV identification, diagnosis coding and documentation.<sup>22,27,31,32</sup> The gaps are attributed to patient under-reporting due to safety concerns and missed opportunities by providers to screen for DV, either due to a lack of training on how to screen and/or how to code DV visits.

Additionally, most cost estimates exclude costs incurred by adolescents even though prevalence of DV among adolescents is known to be high.<sup>1</sup> Importantly, costs resulting from psychological and emotional abuse and relating to chronic and behavioral health conditions from long-term DV exposure are also largely excluded from estimates due to limited data availability.

### **DV affects non-health outcomes and has implications beyond DV survivors**

In addition to adverse and long-term health outcomes and higher health care utilization and costs, DV survivors may experience many non-health outcomes.<sup>20,33,34</sup> This includes reduced quality of life and lifetime potential, loss of productivity, lost wages from missing work, need for housing services, and increased risk for future victimization, among others.

Indirect exposure to DV or witnessing abuse has been found to affect children's health and well-being across the lifespan. Emerging research finding include:

- A study examining children's health care utilization trends (n=1,391) found that children whose mothers experienced DV had higher health care utilization and costs even if their mother's abuse ended before they were born.<sup>35</sup> Costs were significantly higher for

mental health, primary care, and laboratory services. Children directly exposed to abuse (after birth) had greater ED and primary care utilization, and were three times more likely to use mental health services even after exposure ended as compared to children whose mothers did not experience DV.

- The landmark adverse childhood experiences study (ACEs), demonstrated the additive dose-response relationship between number of ACEs experienced and adult adverse health risk behaviors (e.g., smoking, alcoholism, drug use) and chronic health outcomes (obesity, depression, diabetes, heart disease, stroke, COPD).<sup>36,37,38</sup>
- Evidence has also established the correlation between witnessing DV in childhood and risk of adult victimization, adult violence perpetration, and criminal activity.<sup>33,38</sup>

### **Intervention research largely focuses on process outcomes**

Interventions integrating DV response systems with health care consist primarily of screening, counseling and referral. As annotated in Figure 1, rigorous evaluations of these interventions are limited. The evaluations that do exist mostly focus on process outcomes (e.g., number of providers reporting screening for DV, number of women screened, number of women referred) and the diagnostic accuracy of screening instruments and approaches, rather than intervention impact on reducing DV and/or improving health outcomes. Other limitations of intervention research include: lack of true control groups, self-reported measures, and high loss to follow-up. Further, to our knowledge, there are no studies of the cost effectiveness of health care interventions to address DV among US populations.

There are some promising international studies in this area,<sup>39</sup> including one systematic review of the evidence on the effectiveness of screening and interventions in health care settings. This review includes data from the UK, Canada and Australia and the US and found mixed results.<sup>40</sup>

## Lessons from other sectors

The health care sector is in the midst of an unprecedented period of transformation and innovation. In addition to coverage expansion through the ACA, unsustainable costs and the rapid move toward value-based payment have sparked many thought-leaders to conclude that “In health care, the days of business as usual are over... It’s time for a fundamental new strategy” (Harvard Business Review). Part of that strategy is a move towards better accounting for and responding to social factors that influence health and safety outcomes. This strategic shift is reflected in national initiatives such as CMMI’s Accountable Health Communities and State Innovation Models initiatives, and state and local efforts such as California’s Whole-Person Care Pilots and Accountable Communities for Health grants.

One issue that has received consistent attention and resources in this time of innovation efforts is housing. Housing and DV are distinct, though not unconnected, issues. There are many lessons for DV advocates and strategists to learn from the manner in which housing leaders developed and consistently employed evidence to elevate their issue. Specific lessons include:

### Highlighting the overwhelming cost burden to health and other sectors

Multiple cities and counties have demonstrated the enormous costs accrued by a very small number of homeless individuals. Figure 2 shows the composite costs across public sectors in LA. This analysis only includes direct service costs for individuals and doesn’t reflect other expenses such as public works and library staffing that are expended for the homeless as a population. Nonetheless, the monthly expenditures that are captured for the top decile of homeless individuals illustrate the scale of the issue and the impact on public finances.

### Demonstrating the cost-effectiveness of solutions

A wealth of studies have been conducted over the past 10 years to demonstrate the cost effectiveness and savings of targeted housing initiatives. For example:

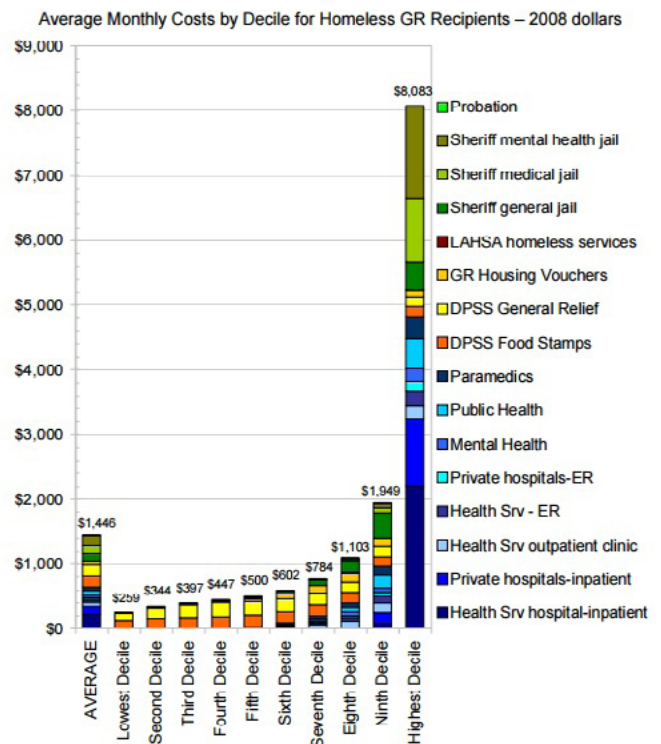
- A review of studies of initiatives in five states found cost declines ranging from 28-79% after entry into supportive housing.<sup>41</sup>
- A 2014 study from Charlotte, North Carolina found that during the first year of supportive housing,

tenants experienced a 70% reduction in hospital and emergency room use, and average annual hospital bills per tenant dropped from \$41,542 to \$12,472.<sup>42</sup>

- Hennepin Health, an Accountable Care Organization in Hennepin County, Minnesota, has housed over 200 high-utilizing individuals. Initial data indicates a 79% reduction in hospitalization costs and 52% reduction in ER costs and significant net savings after accounting for housing and administration costs.<sup>43</sup>

### Consistently tracking the issue

The outcomes above would not be possible if housing status were not consistently captured in health and social service data sets. This was a deliberate decision on the part of cities such as LA and San Francisco. With a robust push toward Electronic Health Records, and the development of social risk assessment tools such as the National Association of Community Health Centers’ PRAPARE tool, data capture and analysis will become much easier.



**Figure 2.** Monthly costs of homelessness in Los Angeles by sector and utilization decile in 2008 dollars.

Source: Flaming D, Burns P, et al. Where We Sleep: Costs when Homeless and Housed in Los Angeles. Economic Roundtable; 2009

## Conclusion

The evidence is clear: DV is widely prevalent and a critical health issue with immediate, short, and long-term health effects including injuries and chronic health, mental health, and substance abuse conditions. DV not only affects survivors but also their families, in particular children who witness abuse. Emerging research is beginning to uncover the complexity of the relationships between DV, mental health outcomes, substance abuse patterns, and other socio-economic stressors.

There is also a large and growing body of evidence on how DV elevates health care utilization and costs. Though not conclusive due to non-standardized cost classifications, variations in estimation methodologies, and data availability limitations stemming from undisclosed or undiagnosed abuse, it is hard to ignore the estimates of the substantial burden that DV is imposing on the health system.

That said, there are also major gaps in the evidence base that need to be addressed. Data collection on DV-related health care utilization and costs is not consistent, and largely excludes costs relating to long-term health care utilization and use of behavioral health services. There is limited evidence on the effectiveness of interventions in reducing DV, improving health outcomes and/or reducing health expenditures over time. And, finally, the lack of data exchange and privacy issues limit understanding of the link between DV and costs in other sectors.

Unsurprisingly, these limitations exist because of the complex challenges in DV research: confidentiality, reporting, and safety concerns with data collection and data sharing; challenges with following DV survivors over time; and ethical considerations in conducting rigorous evaluations wherein control groups do not receive interventions that they clearly require. There are, however, promising efforts to address these research challenges and increasing examples of collaborative and community-based research efforts that have successfully developed approaches to balance these concerns with the need to track people over time to assess impact.

Building on the existing literature to form a solid and persuasive evidence base is critical to elevating DV in policy and practice-change discussions and securing expanding resources to mitigate, address, and prevent DV.



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