Your Brain is a Silent Witness: Implementing fMRI into Domestic Abuse Cases

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ABSTRACT

The American law enforcement and criminal justice system have internalized misconceptions regarding victims of domestic abuse, leading to skepticism towards genuine cases and a disproportionate emphasis on physical over mental abuse. Consequently, many domestic abuse cases are dismissed due to lack of physical evidence, despite the significant impact of mental abuse in intimate partner violence. The introduction of fMRI technology holds promise in providing evidence for mental abuse, but its implementation necessitates the development of progressive policies. This paper examines data from five countries, analyzing the correlation between their policies and domestic violence rates to determine their effectiveness. The findings suggest that investing in these policies could yield positive outcomes in addressing domestic violence. A journal article will summarize these findings, offering new solutions to combat the high dismissal rates of domestic violence cases and advocating for a holistic approach that considers the mental, political, social, and economic dimensions of abuse.

Introduction

In domestic violence cases, where victims often suffer in isolation, a silent, but crucial witness stands by their side, their brain. With a low conviction rate of 15 to 18 percent, victims often lack witnesses and struggle to collect physical evidence due to the nature of abuse. Consequently, they prioritize neurological impacts over physical ones (Epstein & Goodman, 2018). The absence of physical evidence contributes to dismissal rates, as many prosecutors believe it determines the validity of abuse (Lapsey et al., 2022). However, the introduction of Functional Magnetic Resonance Imaging (fMRI), a neuroimaging technique measuring blood oxygenation, can address this evidence gap. fMRI is a neuroimaging technique that presents neural activity through the measurement of blood oxygenation. By accurately interpreting the distributed activation across voxels, event-related fMRI and multi-voxel pattern analysis (MVPA) in domestic violence cases will decrease the high dismissal rates. Through accurate interpretation of the patterns, law enforcement will be able to better accept and acknowledge the psychological aspects of abuse and adjust its policies accordingly. The purpose of this paper is to address current issues within the police system related to misconceptions about victims, propose how the use of event-related fMRI with MVPA can aid victims in domestic abuse cases, and outline necessary policies for a successful implementation.

Literature Review

Background

In the 1920s, domestic abuse was seen as a private matter (Bailey, 2010). Overtime, prosecutors began engaging in these cases, yet in the 1970s, feminist scholars, such as Carol Hanisch, spoke out about the mistreatment

domestic abuse victims receive from officers (Bailey, 2010). The majority of victims do not report their assault to the police because they believe law enforcement will not do anything about it and/or have experienced negative encounters (Sinozich & Langton, 2014). The majority of plaintiffs often lack witnesses, and even if they do, the type of witness plays a pivotal role in these conviction rates, with cases involving a victim's relative witnessing the incident facing a rejection rate of 49 percent (Nelson, 2013). In light of these statistical insights, victims tend to shift their focus to another aspect of their case, the collection of physical evidence. Unfortunately, many of these victims encounter difficulties in collecting physical evidence due to the nature of domestic abuse, causing them to prioritize the neurological impacts over physical ones (Epstein & Goodman, 2018). Consequently, a significant proportion of domestic abuse cases find themselves lacking physical evidence, resulting in high dismissal rates. This situation is exacerbated by the popular belief among many prosecutors that the presence of physical evidence or physical injuries determines the legitimacy of the abuse (Lapsey et al., 2022).

Twenty years after the feminists spoke out, fMRI was invented. This tool utilizes magnets to generate a magnetic field, which prompts protons within the brain area to align accordingly. Activation of the radiofrequency stimulates these protons, causing them to deviate from their equilibrium and counteract the magnetic field's influence. Upon deactivation of the radiofrequency field, the fMRI detects the emitted energy as the protons realign with the magnetic field (National Institute of Biomedical Imaging and Bioengineering [NIBIB], 2022). When a brain region is activated by a cognitive task, blood flow increases to supply the activated brain regions with oxygen. This process is called the hemodynamic response. There are three types of fMRI: resting, block, and event-related. Resting state fMRI is when the patient is not doing any tasks under the scan.
Block and event-related are similar in the way that data is gathered when the patient is completing tasks under the scan. However, block data is when the patient is doing continuous tasks whereas event-related is when the individual completes tasks in intervals (Henry & Gates, 2017). A common strategy for inferring data is reverse inference, where analysts deduce that a brain region was involved in a task based on its activation pattern. However, this approach overlooks the probability of activation when the task is not performed (Machery, 2014). Meaning that activation in a particular brain region during a cognitive task may not be as significant as it seems, as it could also be activated during numerous other cognitive tasks. Various analysis methods like MVPA have been developed to help certain study designs that are more nuanced, to help avoid reverse inference, but it was not specifically developed to address reverse inference. MVPA employs machine learning tools to decode the mental state from specific imaging data accurately (Poldrack, 2011).

Although these tools would benefit the cases of victims, there has been a push against the implementation of fMRI into the legal field because of an ideology named 'substance dualism.' This ideology claims that physical evidence is superior to mental evidence. The indoctrination of this ideology into the justice system, has been one of the main reasons for the high dismissal rates of domestic abuse (Rosenthal, 2018). Given the scarcity of physical evidence in most cases, relying on mental evidence would seem a logical recourse for victims. However, internalized beliefs among prosecutors that abuse is only credible with physical injuries or evidence perpetuate harmful stereotypes and hinder the acceptance of mental evidence. Demonstrating the effectiveness of fMRI in domestic abuse cases highlights the mental impact of abuse, challenging prosecutors to reassess their misconceptions about abuse.

Law Enforcement's Internalization of Abuse Stereotypes

One of the main contributors to the high dismissal rates of domestic abuse cases are the misconceptions law enforcement and the criminal justice regime believe about victims. When prosecutors are examining a domestic abuse case, their first priority is to collect physical evidence (also known as forensic evidence). Nevertheless, due to the frequent absence of forensic evidence, law enforcement often resorts to relying on various case attributes that are influenced by specific factors, including prevalent abuse myths and stereotypes (Lapsey Jr et

al., 2022). A widespread misconception among jurors and law enforcement is that a 'true' victim of abuse would have resisted. (Leverick, 2020). Despite this common belief, the majority of victims do not fight back unless there is no other option (Goodmark, 2008). Since the expectations of how abuse 'looks' does not align with the reality of victims' experiences, jurors will think that the majority of domestic abuse cases are falsely accused, even though only 5% to 10% of cases are falsely accused (Belknap, 2010). One might contend that even though forensic evidence is frequently lacking for prosecutors, a significant portion of them may not endorse these misconceptions about victims. Yet, a qualitative study, involving mock trials, claimed that the majority of jurors and prosecutors believed many abuse myths (Leverick, 2020). As a consequence, prosecutors quickly dismiss domestic abuse cases due to biased beliefs, expecting victims to conform to their views on how abuse unfolds, despite these expectations not aligning with most victims' experiences, contributing to the high dismissal rates of domestic abuse. Additionally, alongside the entrenched biases within law enforcement and the criminal justice system, victims of domestic violence often encounter another notable obstacle in accessing justice: their unfamiliarity with legal procedures and their rights within the legal system.

Victims' Lack of Knowledge About Legal Proceedings

Some argue that it might take a substantial amount of time for law enforcement to overcome their internalized biases.

Therefore, these individuals recommend that victims concentrate on utilizing alternative forms of evidence in the meantime. While a reasonable choice for victims, only a minority have access to evidence or legal advice regarding the most useful forms for court (Epstein & Goodman, 2018). The limited access to information about what evidence holds significance in court deprives victims of the understanding that physical evidence carries greater weight than psychological evidence, reflecting the legal system's prioritization of physical aspects of abuse over psychological ones. If victims were aware of the most helpful type of evidence for their case, they could prioritize collecting it during the abuse. Majority of victims' begin their victim testimony by mentioning the mental aspect of the abuse first rather than the physical (Epstein & Goodman, 2018). Yet, if these individuals were aware of the legal system prioritizing physical abuse, they would be prepared to mention the physical aspects of the abuse first to align with the judges' misguided beliefs.

Consequences of Unfamiliarity with Legal Procedures

The absence of legal expertise among many victims results in their cases being deemed unsubstantiated, prompting judges to rely solely on the victim's testimony in making their decisions. Just as prosecutors lean on their preconceived notions in the absence of evidence, judges' adoption of abuse myths influences their assessment of the credibility of victims (Epstein & Goodman, 2018). Such reliance is problematic, as women who conform to abuse stereotypes are more likely to be believed, despite these misconceptions not reflecting reality (Nelson, 2013). Because most victims don't fit the legal definition of a 'real' victim, judges often dismiss their cases, contributing to high dismissal rates. In many cases, judges have punished victims for mentioning the psychological aspect of their abuse first because it does not align with their expectations of what a 'genuine' victim of abuse looks, thinks, or acts like (Epstein & Goodman, 2018). Punishing victims for mentioning the mental aspect of their abuse first is unreasonable, given that the majority perceive the psychological effects as more detrimental than the physical ones, thus it is reasonable for them to prioritize recounting the aspect of the abuse that impacted them the most (World Health Organization, 2012). Victims' unfamiliarity with legal procedures leaves them unprepared to counter judges' prejudiced beliefs, often resulting in case dismissals due to misalignment between the judge's and victim's perspectives. This disconnect leads judges to overlook victims' experiences, prompting the integration of fMRI in domestic abuse cases. Its aim is to underscore the significance of

psychological abuse, challenging entrenched myths and offering alternative evidence presentation methods beyond physical evidence.

Event-Related fMRI and MVPA in Domestic Abuse Cases

A concern with fMRI's use in the courtroom is the accuracy of the data. Reverse inference has become popular although it is very problematic. The combination of event-related fMRI with MVPA can help combat that.

Proposed Study Design for Domestic Abuse Cases

The study design will contain visual stimuli consisting of two sets of images: photographs of the victim's abuser and photographs of unfamiliar individuals. Each set will contain 30 images, randomized and presented for 5 seconds each. The experiment will consist of multiple runs, each lasting around 10 minutes. Each run includes trials of randomly presented visual stimuli which are either an image of the victim's abuser or an unfamiliar individual (there are equal numbers of abusers and unfamiliar individual images in each run). A blank image will appear for 2 to 6 seconds between each trial. This time variation is implemented to prevent the victim from predicting the timing of the next image, as such anticipation could potentially disrupt the accuracy of the fMRI results. The victim is only told to view these images and is not assigned any other task.

Event-Related fMRI in Domestic Abuse Cases

Event-related approaches in fMRI facilitate the segmentation of experimental components into distinct points in time, enabling separate analysis of each component. This approach allows researchers to investigate the contributions of various brain regions to specific processes. For instance, in a decision-making study, participants were tasked with identifying options as risky or safe. Through isolating fMRI activation linked with different events such as stimuli and responses, researchers have delineated the involvement of distinct brain regions in decision-making processes (Huettel, 2012). Relating this to the study design this paper proposes, event-related fMRI can be used to link which brain regions contribute to viewing unfamiliar faces vs the abuser's face. According to Dr. Luiz Pessoa and Dr. Peter Bandettini, there could be activation in the victim's amygdala (a brain region that deals with emotion) due to viewing a abuser's face, however it should be emphasized that there could be other contributors to this response strength (L. Pessoa, personal communication, October 30, 2023; P. Bandettini, personal communication, December 16, 2022). Demonstrating that the amygdala's activation is linked to a traumatic event can bolster the evidence supporting the victim's case. However, it's crucial to underscore that these data results are not definitive, and at the current stage of fMRI development, this paper merely explores the future potential applications of fMRI as it progresses.

MVPA in Domestic Abuse Cases

Alongside event-related fMRI, MVPA will be used in this study design to aid the victim's case. MVPA can be used to discover how sensitive the hippocampus was to the vividness of the details during the episodic stimulation (Thakral et al., 2020). Episodic memory involves remembering personal events, and this study revealed that individuals with more vivid memories exhibited increased hippocampal activations, detected by MVPA. This finding suggests that MVPA's ability to gauge hippocampal sensitivity to memory detail retrieval may be applicable to assessing the vividness of abuse recollection. Additionally, the data indicated a positive correlation between memory retrieval and vividness, highlighting the significance of hippocampal activation in vivid memory recall (Thakral et al., 2020). Presenting to the jury as well judges that event-related fMRI paired with

MVPA is able to present how vivid the details were for the victim as they recalled their abuse, will add additional evidence to the fact that the abuser did in fact abuse the victim. This will push forward the idea that mental evidence is as important as physical evidence and that offenders should be sentenced for not only the physical abuse but as well as the mental abuse they commit. Additionally, instead of looking for a specific increase in activation in a region of interest (ROI), this study design will look at the different patterns in neural activity. It has been discovered that whole-brain classification has a higher classification accuracy than ROI classification. fMRI data can be measured at the individual level, but rather than focusing on one ROI, it requires information from the distributed patterns of brain activation, which can be gathered by MVPA (Varkevisser et al., 2023). Dr. Luiz Pessoa has also supported this idea of looking at different patterns in neural activity than a specific increase (L. Pessoa, personal communication, October 30, 2023). Using MVPA enables the collection of information from distributed brain activation patterns, making it suitable for experiments like this one. By presenting victims with control and abuser images, analysts can discern differences in neural activity patterns. While some argue that applying this study design to a single domestic abuse case isn't sufficient, it's important to recognize that the legal system operates on stare decisis. This means that if a case shares identical facts with another, it will be decided similarly to the prior case. Continued awareness of fMRI in domestic abuse cases will establish a precedent for similar cases in the future.

Necessary Policies Before fMRI's Implementation

Before fMRI is employed in domestic abuse cases, the legal field must address the current issues within U.S policies to ensure a successful implementation. Currently, the only federal law the US has in place that addresses domestic abuse is the Violence Against Women Act (VAWA). VAWA defines domestic violence as "felony or misdemeanor crimes of violence committed by a current or former spouse or intimate partner of the victim, by a person with whom the victim shares a child in common, by a person who is cohabiting with or has cohabited with the victim as a spouse or intimate partner" (Goodmark, 2021). VAWA only addresses the physical aspect of abuse. However, as mentioned earlier, many victims focus on the psychological aspect of abuse rather than the physical. Only addressing the physical part of abuse in U.S's federal law does not align with most experiences of victims, where they undergo emotional harm as well. In 2015, Scotland introduced a bill proposing a specific offense for domestic abuse, aimed at encompassing various forms of abusive behavior within relationships, including emotional and psychological abuse (Burman & Brooks-Hay, 2018). Acknowledging the significant harm non-physical abuse can cause, moves to seek to disrupt the prevailing notion that prioritizes physical violence as the most severe form of harm (Bishop, 2016). Reauthorizing VAWA to include psychological/emotional harm, modeling Scotland's policies, will include all experiences victims undergo and reflect their priorities. In addition, this reauthorization will aid in forcing legal professionals to disregard their belief that physical harm is superior because they will have to follow the federal law that states domestic violence includes psychological abuse as well as other forms. Moreover, as we shift away from biased attitudes that prioritize physical aspects of abuse, it is crucial to consider the allocation of funding, particularly the discrepancy between resources allocated to police training and those for social services. This disparity may inadvertently reinforce prejudicial attitudes towards victims, underscoring the necessity for a more equitable distribution of funding.

Disproportionate Funding Towards Police Training

85% of VAWA funding benefitted the criminal legal system, resulting in a smaller dollar amount appropriated for social services in 2013 than in 1994" (Goodmark, 2022). The current version of VAWA allocating its funding mainly towards the criminal system, rather than social services, is because they prioritize the prosecution of the offender rather than the safety of the victim. Scotland policies, unlike VAWA, focus more on ensuring

women are safe rather than immediately trying to prosecute the offender and this has shown victims were more willing to contact law enforcement (Burman & Brooks-Hay, 2018). VAWA should relocate its funding towards social services to increase contact between law enforcement and victims. Some may contend that funding towards law enforcement decreases violence however studies have shown it does not (Smithey et al. 2002). This funding has contributed to mandatory arrest policies, which have increased in arrests of victims (Miller, 2005). Many of the victims arrested because of such policies are fighting back against abusive partners (Durfee 2012). These fundings have unintentionally targeted victims of these situations, causing women to be even more reluctant to contact the legal system during dangerous situations. VAWA should incorporate a policy, modeling Scotland's, to ensure the focus of law enforcement should not be prosecuting the offender, but rather ensuring women are safe. VAWA also provides support for no-drop prosecution policies, allowing prosecutors to pursue any case that they believe can have a successful prosecution, regardless of the wishes of the victims (Goodmark, 2022). VAWA enabling prosecutors to disregard victims' wishes contributes to victims' reluctance to engage with law enforcement. Instead of prioritizing prosecution regardless of victim preference, policies should mandate officers to listen to victims' wishes first. While some argue that prosecution deters future violence, studies suggest convictions have limited efficacy in preventing recidivism (Sloan et al., 2013). Given these findings, VAWA should reconsider making prosecution its primary focus and adopt policies similar to those in Scotland.

Economic Aspects of Domestic Abuse

Instead of U.S policies, specifically VAWA, allocating majority of their fundings to the criminal justice system, they should invest in economic interventions. The lower the income a woman has, the more likely she is to be abused (Breiding et al. 2014). Since women in low-income areas are more likely to experience rape, sexual assault, and/or intimate partner violence, allocating fundings toward these communities will tremendously help victims rather than continuosly funding the legal system without prioritizing domestic abuse victims. It was reported that domestic violence calls increased in the early weeks of the pandemic but dropped off significantly in the week that economic stimulus checks were sent out (Goodmark, 2022). It is important to note that correlation does not mean correlation, however, this correlation brings attention toward how funding can be allocated to different areas rather than the majority of it going towards the justice system. Especially, when more than half of the victims of rape, sexual assault, and intimate partner violence never call police or interact with the criminal legal system, the funding towards these systems become wasteful, as victims do not even use them (Morgan & Truman 2020). As the legal system continues to evolve, integrating fMRI technology into domestic abuse cases can play a pivotal role in reshaping attitudes towards victims and improving the efficacy of legal responses.

Methods

The aim of this paper was to investigate whether enhanced policies could reduce the incidence of dismissals in domestic abuse cases and whether such policies would foster greater sensitivity within the legal system towards the experiences of victims. To address this question, a meta-analysis was done, examining 16 articles from five different countries: Canada, Sweden, Australia, Spain, and Norway. These nations were chosen due to their reputation for implementing more progressive policies concerning domestic violence. These articles comprised five sets: penal codes, budget reviews, articles on police training, and one summarizing domestic violence rates across the countries. Each set was analyzed for specific variables. Penal codes were analyzed to determine the extent to which each country acknowledges different aspects of domestic violence (Appendix A). Articles on police training were assessed for descriptions of the training provided to officers, particularly regarding education on domestic violence (Appendix B). Budget reviews were examined to note the percentage of resources allocated to social services addressing domestic abuse and to identify other measures taken by these countries

to combat domestic violence (Appendix C). The final article provided domestic violence rates for the countries, allowing for analysis of the potential impact of the aforementioned variables on these rates (Appendix D). All articles were sourced from Google Scholar.

Results

A common misconception regarding domestic violence (DV) is that only the physical aspects are significant and/or is the only aspect that affects the victim. This misconception has been implemented into legislation in various countries including the United States, implementing a perspective that does not align with the reality of DV. The majority of victims are reported to find the mental/emotional aspects of abuse more impactful than physical aspects. Currently, the United States has not acknowledged psychological abuse as a part of DV, however all the countries in this analysis (Canada, Sweden, Australia, Spain, and Norway) have recognized mental abuse as a part of DV (Table 1).

Another important aspect of combating DV is how police are trained in this department and if they receive education on DV or not. All countries, except Australia, have a specialized unit in DV to enforce specialized training on this specific crime to improve management of DV cases better (Table 2). Canada, specifically, forces their police to spend some with community based victim services, partner agencies, and community groups. This allows police officers to realign their views of DV with the reality that victims face and begin to reject common misconceptions of DV. Four out of the five countries that have their law enforcement receive education on DV are forced to go to workshops about DV, unlike the United States and Norway has a mandatory module for its law enforcement to go through to ensure they have effective responses to every domestic violence situation possible.

Another facet in the battle against domestic violence involves assessing the allocation of the country's budget, specifically examining the proportion directed towards social services in contrast to legal aid. When converted to US dollars, Norway was found to spend the most on social services pertaining to DV ($835,020,004) (Table 3). In addition to allocating money to social services, these countries were observed on their other plans to combat DV, disregarding law enforcement plans. Out of all the countries, Norway was found to be the most progressive as it provided programs to enhance knowledge about violence in close relationships in health centers, schools, and preschools, alongside national conferences for municipalities and family counseling services. The other 4 countries have provided programs to assist victims with financial troubles, provide safe spaces and shelters, but none of them, besides Norway, have combated DV by addressing the socialization aspect of DV.

Table 1. Definitions of domestic abuse in various countries penal codes

Source	Does the definition of domestic abuse acknowledge physical aspects of abuse	Does the definition of domestic abuse acknowledge emotional/psychological aspects of abuse	Does the definition of domestic abuse acknowledge verbal aspects of abuse	Any other aspects of abuse that are mentioned in the definition
"Canada's Criminal Code"	yes	yes	yes	It mentions sexual and economic aspects of abuse

"The Swedish Criminal Code"	yes	yes	yes	It mentions sexual aspects of abuse
"Domestic Violence Laws in Australia"	yes	yes	yes	It mentions sexual aspects of abuse
"On integrated protection measures against gender violence"	yes	yes	yes	Does not mention any other aspects of abuse
"Council of Europe Task Force to Combat Violence Against Women, Including Domestic Violence"	yes	yes	yes	Does not mention any other aspects of abuse

Table 2. Analysis of law enforcement's training pertaining to domestic abuse

Source	Description of police training	Does law enforcement receive education on domestic abuse
"Does Training Matter? Exploring Police Officer Response to Domestic Dispute Calls before and after Training on Intimate Partner Violence"	Special teams of trained police officers in North America deal with serious domestic violence cases. Studies show these teams are better at arresting and convicting offenders compared to regular officers. Victims usually feel happier with how these teams handle their cases, but sometimes they want different help than what the police offer. Special training helps these teams understand and manage domestic violence situations better.	This department does receive education on domestic abuse. They learn information on domestic violence and other public safety agencies. They also are forced to spend some with community based victim services, partner agencies, and community groups. The domestic violence unit of the police department provides workshops on domestic violence to provide even more specialized training and information.
"Sweden's work to combat men's violence against women"	The Swedish police have increased the number of people in the unit that investigates law enforcement. The police also make sure they pay attention to the available methodology manual, which has increased prosecution orders. Their training includes police officers learning the basic knowledge about crimes in close relationships, restraining orders, and threat and risk assessments. There is	For education, the police officers have to learn about the basic knowledge of domestic violence and the common myths about domestic violence. The Swedish law enforcement also arranges seminars for prosecutors and anybody else in law enforcement to listen to victims share their experiences of domestic abuse.

	also specific training on advanced work with victims of the violence.	
"Policing domestic violence: A review of the evidence"	The Australian police has processes to enforce that police officers are mentored and monitored in domestic violence procedures and practices. Australia law enforcement does not have much specialized training for domestic abuse cases or even sexual abuse cases.	The Australian police does not consistently assess workforce capabilities or gaps in workforce skills and knowledge about domestic violence policing. It does not hold workshops or force police officers to learn about domestic abuse and/or its myths.
"Assessing police attitudes toward intervention in gender violence: The role of training, perceived severity, and myths about intimate partner violence against women."	The Spanish police have specialized domestic abuse units so that select officers can afford to give all their focus to one type of crime and the training for that crime. Police officers in this department receive specialized training and are allowed to only focus on this type of crime.	The Spanish police are constantly taking courses and attending workshops to update their knowledge on domestic abuse. All training courses include gender-based violence and there are a lot of online courses for police officers to learn from. This education is mandatory but professionals in this department voluntarily want to learn more about this issue and ask for more courses or training.
"Fighting Domestic Violence: Pro Bono Initiative"	The Norwegian police has practices in its training to ensure police officers know how to effectively respond to every possible situation regarding domestic violence. They learn how to improve presentation of evidence at trial and application of measures to protect both victims and witnesses.	The Norwegian police are required to attend workshops for domestic violence and attend courses on this specific type of crime. They also have to go through a certain module created by the United Nations to ensure they have effective responses to every domestic violence situation possible.

Table 3. Analysis of countries' budgets on domestic abuse

Source	What percentage of budget or how much is allocated to social services pertaining to domestic abuse	What other ways do these countries combat domestic violence
"Budget 2023: Statement and Impacts Report on Gender, Diversity, and Quality of Life"	290,948,513 CAD is allocated to social services pertaining to DV.	In Canada, there is a restorative engagement program within the public service that provides employees with a safe space to share experiences of discrimination, violence, and harassment.
"Victim Support Services in the EU: An overview and assessment of victims' rights in practice"	SEK 600 million	Sweden has developed evidence-based approaches and tactics for prevention, risk mitigation, protection, and assistance, alongside capacity-building initiatives to address violence in custody, living situations, and contact matters. Efforts have been intensified to combat sexual exploitation of children, prostitution, and human trafficking. Coordination and monitoring are enhanced to prevent and combat female genital mutilation, with multiple government agencies involved. Gender equality perspectives are applied to analyze the housing market, and support for gender mainstreaming is sustained across government agencies, county administrative boards, and higher education institutions.

"Budget Review 2022–23"	$222.6 million AUD	Australia has plans to create cultural change in regards to DV even though change in the community can take a long time. They currently have 4 action plans, the first plan is evidence about the impact and effectiveness of the plan. The Second Action Plan will take account of what has worked in the first three years and improve the strategies based off of that. The evidence will guide the enhancement of current strategies and actions, as well as the creation of new approaches if certain areas are not yielding the expected progress. During this stage, governments will progress as cultural change advances and the rate of women reporting violence rises, facilitating increased attention and action. The Third Action Plan will achieve significant and ongoing advancements in implementing best practice policies, with governments benefiting from vastly improved data collection and analysis, resulting in data of greater detail, accuracy, and depth. The enduring initiatives initiated in the initial two Action Plans are anticipated to yield outcomes. The engagement of various community groups is expected to enhance receptivity, support, and involvement in strategies aimed at diminishing violence against women. Consequently, this will empower governments to leverage increased community awareness and support. The anticipated outcomes of the Fourth Action Plan include tangible reductions in domestic violence and sexual assault rates, decreased instances of children witnessing violence, and a higher proportion of women feeling safe in their communities. Governments and communities will mark a turning point by recognizing the significance of respectful relationships and the necessity for shifts in norms and behaviors that perpetuate violence, extending beyond the duration of the National Plan.

"The Economic and Social Costs Of Domestic Violence Against Women in Andalusia"	628 million Euro	The program provides tailored assistance for women during their integration into the workforce, offering training in both basic and professional skills, as well as incentives for self-employment ventures and for companies to hire women who have experienced gender-based violence. Financial support for victims of gender-based violence is assured under certain conditions, and since 2011, temporary residence and work permits have been extended to women and their children affected by gender-based violence, including foreign women with undocumented status, in cases of exceptional circumstances.
"The Council of Europe Campaign to Stop Domestic Violence against Women"	51,179, 000 norwegian korn	The right to free legal consultation for cases of violence within close relationships is guaranteed under the regulations governing victim advocacy. Family violence coordinators are established in all police districts, with full-time positions and support teams in larger districts. A plan based on the Norwegian Centre for Violence and Traumatic Stress Studies (NKVTS) survey is being prepared to ensure nationwide availability of help and treatment programs for individuals experiencing violence and aggression, with the Alternative to Violence (ATV) Foundation playing a central role. A national conference on experiences with perpetrator intervention programs is held, and guidance and skill development for the Norwegian Child Protection Unit address children exposed to violence. Efforts are made to enhance knowledge about violence in close relationships in health centers, schools, and preschools, alongside national conferences for municipalities and family counseling services. Information campaigns targeting the public are developed in collaboration with NGOs and the business sector. The Norwegian Centre for Violence and Traumatic Stress Studies (NKVTS) undertakes various research and development tasks during this period, focusing on issues such as violence against women with disabilities, violence against men, and challenges faced by users of crisis centers, including children and young people.

Table 4. Countries' domestic violence rates

Source	Canada DV rates	Sweden DV rates	Australia DV rates	Spain DV rates	Norway DV rates
"Global, regional and national prevalence estimates for intimate partner violence against women and global and regional prevalence estimates for non-partner sexual violence against women"	44%	30%	20%	47%	27%

Discussion

Out of all the countries, Australia was found with the lowest DV rate of 20%. However, Norway with a DV rate of 27% was found to be the most progressive in its approach to combating DV. They acknowledge physical and emotional aspects of DV, provide specialized training/workshops to law enforcement, allocate the most funding out of the 5 countries to social services pertaining to DV, and approach DV by addressing the socialization aspect of DV which is young boys are not taught how to properly treat women and regulate their emotions. Even though Spain has more of a progressive approach to addressing DV than the United States, its DV rate of 47% is higher than the US's DV rate of 41%. The hypothesis of this paper claims that with legislation addressing the psychological aspects of abuse and offering proper police training, that the United State's DV rate will decrease. Given the examination of the following factors: recognition of psychological abuse in domestic violence, specialized training/workshops for law enforcement, funding allocation for social services, and additional strategies to tackle domestic violence, it cannot be asserted that this hypothesis is definitively proven. Nations like Australia and Norway, known for their progressive policies, exhibit lower rates of domestic violence. However, Spain, despite its progressive policies and dedicated law enforcement units for domestic violence, experiences a higher incidence of domestic violence compared to the United States, which lacks such progressive policies. In summary, it cannot be definitively asserted that the presence of these factors will decrease rates of domestic violence. However, it remains a sound investment to pursue this approach in attempting to reduce instances of domestic violence.

One of the primary limitations of this study stems from the difficulty encountered in promptly gathering data from a wider array of countries. As a result, the scope of the study is constrained, preventing a thorough evaluation of how these factors impact domestic violence rates worldwide. Another constraint arises from the lack of precise details provided by many countries regarding their police training programs. This lack of specific information made it challenging to conduct a thorough assessment of their training practices. It's important to acknowledge that external factors play a role in the discussion of domestic violence rates in these countries. Factors such as their historical background, political and social culture, and general societal norms can influence these rates. For instance, while Spain's legislation recognizes emotional abuse as domestic violence, its cultural attitudes do not align, contributing to its higher rate. A question stemming from this research is whether implementing programs addressing domestic violence in preschools and elementary schools will contribute to reducing domestic violence rates. Overall, it is difficult to claim that addressing all these factors (recognition of psychological abuse in domestic violence, specialized training/workshops for law enforcement, funding allocation for social services, and additional strategies to tackle domestic violence) will definitely lower America's DV rates, but it is the right step towards bridging the gap between the legal system and victims.

Conclusion

The mistreatment of domestic abuse victims went unnoticed until the early 1970s, yet the legal system's response has seen minimal effective changes. Victims are often marginalized due to biased beliefs of prosecutors and limited resources, leading to baseless cases. Introducing fMRI into domestic abuse cases will compel legal professionals to acknowledge the mental aspect of abuse and develop policies reflecting this recognition. Stare decisis will ensure future judges recognize mental injuries, eradicating the notion that physical evidence is superior to mental evidence. This transition towards viewing physical evidence and mental evidence equally can significantly reduce dismissal rates of domestic abuse cases, aligning the justice system with its true purpose. As Justice Ruth Bader Ginsburg noted, "Precedent is not merely the past; it is the compass that guides us through the uncharted waters of legal interpretation, ensuring justice is not just an ideal but a navigable reality."

Acknowledgments

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