



Female Incarceration Rates and Violence Against Women Predict Estimated Prevalence of Modern Slavery

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Abstract

Globally, female incarceration rates are rising faster than those of men. Prisons are highly masculinized environments and often disregard female inmates' gendered physical and mental healthcare needs. Gendered deficiencies can result in higher recidivism and mortality rates and increased psychological and physical illness for women. Widespread intersecting factors such as structural failures and personal and collective identities have played a role in women's susceptibility to violence, oppression, and incarceration. We propose that incarceration can be a form of gender-based oppression and violence against women (VAW) and that incarceration serves as a risk multiplier for existing vulnerabilities, including modern slavery victimization. The present study expands on existing literature that explores the complex relationship between VAW, gender inequality, and gendered susceptibility to modern slavery by including an investigation of female incarceration rates. Results indicate that VAW and female incarceration rates significantly predict the estimated prevalence of modern slavery. Further, female homicide, interpersonal violence, and lifetime prevalence of VAW were strong single predictors of modern slavery but not female incarceration. While differences regarding the gendered vulnerabilities to incarceration for women exist across countries, evidence has suggested—and our findings support—that VAW can increase susceptibility to incarceration status for women.

Keywords Modern slavery · Incarceration · Violence against women · Rape rate · Female homicide

Results indicate that violence against women and female incarceration rates as addressed by SDG-5 are significantly related to the estimated prevalence of modern slavery across UN member countries. Women worldwide are disproportionately affected by violence, incarceration, and exploitation. Trauma-informed prison

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programming is needed to address this urgent human rights and global health problem.

Globally, female incarceration rates have increased by 53% since 2000 (Fowler et al., 2021; Walmsley, 2017). Thailand has the highest female incarceration rates, followed by the USA (Kajstura, 2018). Overall, women and girls are more likely to be imprisoned for non-violent crimes, such as sex work, theft, property crimes, and substance use, and often experience gendered pathways to prison that include poverty, gender-based oppression, and violent victimization (Bartlett & Hollins, 2018; Parry, 2020). Prisons are primarily designed for male inmates and often disregard the gendered parental roles and healthcare needs of female inmates (Franco et al., 2020). Detention can lead to increased abuse, trauma, adverse health outcomes, familial and community rejection, separation from children, reduced educational and economic opportunities, and increased mental-illness prevalence (Bartlett & Hollins, 2018; Jones et al., 2018; Sharlein, 2018). Therefore, imprisonment of women may be more punitive than rehabilitative overall. Scholars have long demanded that prisons be more trauma-informed and gender-responsive (Jewkes et al., 2019). We propose that incarceration can be a form of gender-based oppression and violence against women (VAW) and that the incarceration of women serves as a risk multiplier for existing vulnerabilities, including modern slavery victimization.

While much recent attention has been given to the hegemonic, racist, and patriarchal structures that maintain and perpetuate the industrial prison complex (Adams et al., 2020; Davis, 2003; Kennedy et al., 2018), theories addressing the disproportionate effects on females are emerging. However, past research has heavily focused on the carceral vulnerability of men and boys, rarely including women and girls in the discourse (Crenshaw, 2012). Moreover, macro-level factors associated with the widespread oppression of women are part of gendered pathways to incarceration for many females. Male hegemony has perpetuated the feminization of poverty and female victimization through a lack of access to adequate healthcare and family planning, a dearth of safe and affordable housing, and few educational and economic opportunities for women. These factors, along with ethnic minority status, continue to have profound negative, intersectional effects on women whose experiences within criminal justice systems have strong associations with structural violence (Belknap, 2015; Davis, 2003; Haley, 2016; Owen & Bloom, 1998; Wattanaporn & Holtfreter, 2014). These same factors, steeped in male hegemony, increase women's vulnerability to exploitation and modern slavery victimization (Sidun & Flores, 2020; Walk Free Foundation, 2018).

Violence Against Women

VAW is widely recognized as an ongoing global human rights violation that disproportionately affects women and girls who are already vulnerable due to poor social and economic circumstances (UN Development Fund for Women, 2006). In 2018, 30% of global females aged 15 years and older were victims of some form of personal violence (Women UN, 2019). The bidirectional nature of VAW is inherent in that violence can contribute to gender inequality and result from gender

disparities. For example, Oklahoma has the highest rate of incarcerated females as well as the highest reported rates of domestic violence in the USA and consistently ranks lowest in state rankings for women's mental health provisions, women's economic security, and access to health insurance and higher education (Carson et al., 2018; Hess et al., 2015; World Population Review, 2022). Additionally, violence is employed worldwide as a tool to exert power over women, enforce their subjugation, and preserve female oppression for the benefit of men (Gender Equality Index [EIGE], 2017; United Nations Office of the High Commissioner for Human Rights [OHCHR], 2014). While there has been a growing global trend toward improving the legal protection of women from violence, many countries still maintain systemic oppression of women through a lack of protective legislation (World Bank Group [WBG], 2022). Given the United Nations' commitment through Sustainable Development Goal 5 (SDG 5) to increase gender inequality and empower women and girls globally by 2030, trauma-centered incarceration practices are central to discussing human rights for women (United Nations Office of Drugs and Crime [UNODC], 2015).

Female Incarceration

Internationally, women are the fastest-growing prison population (Fowler et al., 2021). Five percent of the world's women are currently incarcerated, and 30% of the worldwide total of incarcerated women are in the USA (Kajstura, 2018). Female incarceration in the USA has increased at twice the rate of men since 1980 (The Sentencing Project, 2022), with the highest increase among Native American and Latinx women. Researchers, organizations, and activists have long advocated for humane treatment, social justice, and alternative reformation programs for women worldwide (Jewkes et al., 2019; Norris et al., 2021). However, most prison environments continue to be highly masculinized and lack gender-appropriate programming and support services to address the unique needs of imprisoned women. These gendered deficiencies can result in higher recidivism and mortality rates and increased mental and physical illness for women (Ondeng et al., 2021; Titterton et al., 2019).

Studies have indicated that incarcerated women are more likely than men to experience psychiatric disorders and comorbidities and untreated pre-existing mental health problems associated with trauma (Harner & Riley, 2013). Untreated trauma is the foundation for a *trauma-to-prison* pathway for women and has been associated with criminal behavior and recidivism for women (Green et al., 2016). Further, women experience higher rates of physical and sexual violence in prisons than men (Daniel, 2019; Light et al., 2013). Additionally, women with a sexual assault history have fewer resources to adjust to prison life and tend to experience social discomfort, difficulty sleeping, and anger (Bridges et al., 2020; Chen et al., 2014; Islam-Zwart and Vik, 2004). This effect holds true across cultures. Further, incarcerated women worldwide experience depression at significantly higher rates than imprisoned men and non-incarcerated peers (Bartlett & Hollins, 2018).

The *United Nations Rules for the Treatment of Women Prisoners and Non-Custodial Measures for Women Offenders* specifically identify a requirement for attending

to the “special problems women offenders encounter, such as pregnancy and child care” (United Nations Office on Drugs and Crime, 2010, p. 6). However, primarily designed for men, prisons often lack the necessary facilities to care for incarcerated women’s unique mental and physical healthcare needs, particularly those who are pregnant (Friedman et al., 2020). Three-quarters of incarcerated women are of reproductive age, and many are mothers with minor children. Further, many incarcerated pregnant women are shackled while giving birth, with 56.7% of facilities in the USA placing women in restraints *mere hours* after giving birth (Kelsey et al., 2017). However, data regarding outcomes for infants and incarcerated mothers remains scarce (Nair et al., 2021), with the unique needs of incarcerated women of reproductive age remaining largely unaddressed worldwide.

Contextual Pathways to Prison

Gender-based vulnerabilities and lifetime victimization can serve as conduits to women’s incarceration but vary across contexts (Nuytiens & Jenneke, 2016; Parry, 2020). Research has indicated several possible pathways to crime for women in the USA, with recurring themes of trauma, adversity, and substance abuse (DeHart, 2018). For example, child sexual abuse, abusive home life, intimate partner violence, sexual victimization, mental health problems, and tumultuous familial relationships are identified risk factors for female incarceration (Bucerius et al., 2021; Karlsson & Zielinski, 2020; Kennedy et al., 2018; Roos et al., 2016). Similar themes of risk can be seen globally. For example, in South Africa, social constructs of female-gendered vulnerabilities interwoven with oppression, violence, and poverty have been identified as risk factors for female incarceration (Parry, 2020).

Additionally, female incarceration in the Netherlands and Australia has similar pathways as the USA and South Africa (Joosen et al., 2016). Further, in Argentina, exposure to severe violence is the strongest predictor of incarceration status for women (Salisbury et al., 2018). Women and girls, disproportionately vulnerable to abuse and violence, experience increased susceptibility to incarceration in societies where social and governmental structures perpetuate gendered abuse and violence, where criminalization and feminization of poverty are prevalent and where women are viewed as objects of social control.

Post-release Outcomes

Given the numerous adverse post-release outcomes for incarcerated women, it is doubtful that female incarceration serves to benefit society overall, particularly for minor or non-violent crimes (Coyle & Fair, 2018; Davis, 2003). Compared to men, time and experience in prison can result in increased lasting harm for women, particularly when considering moderate or severe psychological distress (Bartholomaeus & Strelan, 2021). Additionally, women often misuse drugs and alcohol as a coping mechanism while imprisoned (Boppre & Boyer, 2021; Jones et al., 2018) and post-release (Bartlett & Hollins, 2018). Further, female mortality rates post-release are several times higher than women without a history of incarceration (Norris et al.,

2021). Furthermore, robust research has connected female incarceration to increased mental disorders, disabilities, economic and racial marginalization, posttraumatic stress disorder (PTSD), problematic substance use, disease procurement, and further or continued delinquent behavior post-release (DeHart, 2008; Gehring, 2018; Knittel et al., 2021; Sharlein, 2018).

Thus, there are vulnerabilities from conditions that precipitated incarceration and adverse effects resulting from incarceration, supporting bidirectional avenues of vulnerability. Globally, women are often offered few supports to ease the transition into life after incarceration (Cale et al., 2019; Moles-López & Añaños, 2021). Also, disproportionate to men, women can face shame for incarceration (Mair, 2021). In many circumstances, women are often highly stigmatized for having been incarcerated, affecting their prospects for work, family support, and ability to regain custody of their children (Dixey et al., 2015; Paynter et al., 2019). Incarceration status often falls outside of societal gender expectations for women. Additionally, studies indicate that women post-incarceration are at an increased risk of suicide (Bartlett et al., 2018; Mennicke et al., 2021).

Modern Slavery

The definition of modern slavery, while controversial, is well established in the human exploitation literature and is conceptualized here as a reference term to describe varying forms of exploitation and enslavement of individuals for the benefit of others. These exploitative practices can include human trafficking, compulsory commercial sex work, bonded labor, forced domestic labor, forced marriage, and involuntary organ donation (Choi-Fitzpatrick, 2017; Walk Free Foundation [WFF], 2018; UNODC, 2020). Women and girls comprise approximately 71% of worldwide modern slavery victims and represent 99% of sex trafficking victims (International Labour Organization [ILO], 2017). Recent global estimates suggest over 40 million current victims of modern slavery, and the worldwide prevalence continues to rise (Bryant & Landman, 2020). However, due to the subversive and illicit nature of trafficking—along with the fact that rates tend to be higher in countries where reporting of crimes against women is lower—the precise frequency and severity of trafficking across the globe is unclear (Cameron et al., 2020; Hume & Sidun, 2017; ILO, 2017).

Human trafficking is a complex social problem, with research indicating that vulnerability to exploitation encompasses a complex milieu of factors across economic, political, social, and cultural arenas (Blanton & Blanton, 2020; Cameron et al., 2020). While specific risk factors and vulnerabilities have been challenging to ascertain, research shows that women and children are widely considered more vulnerable (Cameron et al., 2020; Noyori-Corbett & Moxley, 2017; Sidun & Flores, 2020). Despite the UN commitment to end modern slavery by 2030, global humanitarian organizations and government agencies struggle to implement effective solutions (Landman & Silverman, 2019; UNODC, 2015). There is an urgent need to understand better the social mechanisms and variables contributing to this growth, such as particular social issues and victim vulnerabilities across cultures and geographic regions (ILO, 2017).

The Present Study

The present study expands on existing literature that explores the complex relationship between VAW, gender inequality, and gendered susceptibility to modern slavery by including an investigation of female incarceration rates. We propose that female incarceration is often a form of VAW, amplifies existing female vulnerabilities, and is part of a complex web of factors that contribute to the disproportionate vulnerability of women to exploitation. We also propose that increased post-release vulnerability further increases women's susceptibility to exploitation. Past literature has linked VAW and the prevalence of modern slavery, and we hypothesize that female incarceration rates and selected indicators of VAW will predict the estimated prevalence of modern slavery across countries.

Method

Our study examined the relationship between specific indicators of VAW, female incarceration rates, and the estimated prevalence of modern slavery across countries. Publicly available archival country-level data sets were obtained from several organizations. Indicators of VAW were obtained from the UN Office of Drugs and Crime (UNODC, 2022) and the UN Office of Economic and Community Development (OECD, 2022). Data regarding female incarceration rates were obtained from the World Prison Brief (2022) and the Prison Policy Initiative (2022), organizations that aggregate incarceration data according to gender. Data regarding the estimated prevalence of modern slavery was obtained from the 2018 Global Slavery Index (GSI; WFF, 2018), which reports the estimated prevalence of modern slavery across 198 countries. A detailed technical document for the GSI can be found at <https://www.globallslaveryindex.org/about/the-index/>

Procedure

Data sets were combined, and regression analysis with backward removal was used to determine the magnitude and direction of the relationships between VAW, female incarceration rates, and the estimated prevalence of modern slavery across countries. Backward removal eliminates each regression equation if the individual beta value is $p > 0.10$. Two analyses were conducted.

For analysis 1, the outcome variable was female incarceration rate across countries. For analysis 2, the estimated prevalence of modern slavery was the outcome variable, with female incarceration rates as an additional predictor. Both analyses included VAW lifetime prevalence for women (OECD, 2022), percentage of women age 15+ in the population who have experienced intimate partner violence of any kind (UNODC, 2020), female homicide rate (age 15+; UNODC, 2022), and percentage of women ages 20–24 married by age 18 (child marriage; UNICEF, 2022).

Results

SPSS v.26 was used to determine descriptive statistics and conduct analyses (IBM Corp, 2020). Descriptive statistics can be found in Table 1. Correlation analysis was conducted to examine relationships between the variables (see Table 2). The assumptions of normality, homoscedasticity, linearity, and absence of multicollinearity were met. Results supported the hypothesis.

Table 1 Descriptive statistics

	<i>N</i>	Minimum	Maximum	Mean	Std. deviation
Child marriage	125	1.60	76.30	23.36	14.90
Modern slavery	164	0.29	104.56	6.80	11.76
Female homicide	191	0.00	100.00	24.93	13.53
Female incarceration	127	0.00	219,000	4155	21,863
VAW lifetime	129	1.90	85.00	28.96	16.34
IPV	107	6.10	67.60	28.37	13.76

Table 2 Correlations

		1	2	3	4	5	6
1.1.1.1.1.Female incarceration	Pearson correlation	1					
	Sig. (2-tailed)						
	<i>N</i>	127					
2.2.2.2.2.Modern slavery	Pearson correlation	-0.063	1				
	Sig. (2-tailed)	0.505					
	<i>N</i>	114	164				
3.3.3.3.3.IPV	Pearson correlation	-0.016	0.128	1			
	Sig. (2-tailed)	0.892	0.228				
	<i>N</i>	70	91	107			
4.4.4.4.4.Child marriage	Pearson correlation	0.032	0.196*	0.124	1		
	Sig. (2-tailed)	0.789	0.041	0.298			
	<i>N</i>	74	109	72	125		
5.5.5.5.5.VAW lifetime	Pearson correlation	0.069	0.351**	0.988**	0.236*	1	
	Sig. (2-tailed)	0.501	0.000	0.000	0.030		
	<i>N</i>	96	124	90	85	129	
6.6.6.6.6.Female homicide	Pearson correlation	-0.064	-0.137	-0.045	0.000	-0.093	1
	Sig. (2-tailed)	0.481	0.079	0.651	0.996	0.299	
	<i>N</i>	125	164	104	123	127	191

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed)

VAW violence against women, IPV interpersonal violence

Analysis 1

For analysis 1, regression analysis with backward removal indicated four models. Models 2–4 were significant. Model 2 had the largest effect size and included the lifetime prevalence of VAW, female homicide rate, child marriage, and intimate partner violence, $F(3, 33)=3.37$, $p=0.030$, adj. $R^2=0.17$, and predicted 17% of female incarceration rates across countries (see Table 3). The final model contained the single VAW predictor of female homicide $F(1, 34)=7.05$, $p=0.012$, adj. $R^2=0.15$, and predicted 15% of female incarceration rates across countries (see Table 4). Results were consistent with our hypothesis that specific indicators of VAW in a country would significantly predict female incarceration rates.

Analysis 2

For analysis 2, regression analysis with backward removal indicated that all models were significant. The full model predicted 25% of the variance in the estimated prevalence of modern slavery across countries $F(5, 29)=3.23$, $p=0.019$, adj. $R^2=0.25$ (see Table 5). The final model contained lifetime prevalence of VAW and IPV and had the highest effect size, $F(2, 32)=8.78$, $p=0.001$, adj. $R^2=0.31$, predicting 31% of the estimated prevalence of modern slavery (see Table 6). Results were consistent with our hypothesis that VAW and female incarceration rates would significantly predict the estimated prevalence of modern slavery across countries.

Table 3 Results analysis 1: model 2

	<i>t</i>	β	<i>p</i>	<i>df</i>	<i>F</i>	Adj. R^2
			0.030	3, 32	3.37	0.169
Female homicide	1.43	0.23	0.162			
Child marriage	-1.03	-0.16	0.310			
Lifetime VAW	0.90	0.14	0.376			
IPV	-0.28	-0.04	0.780			

* $p < 0.05$. *IPV* interpersonal violence, *VAW* violence against women

Table 4 Results analysis 1: final model

	<i>t</i>	β	<i>p</i>	<i>df</i>	<i>F</i>	Adj. R^2
Overall model			0.012	1, 34	7.05	0.147
Female homicide	2.44	0.32*	0.019			

* $p < 0.05$

Table 5 Regression analysis 2: full model

	<i>t</i>	β	<i>p</i>	<i>df</i>	<i>F</i>	<i>Adj. R</i> ²
			0.019	5, 29	3.23	0.25
IPV	−2.33	−2.33	0.004			
Child marriage	0.325	0.051	0.747			
Female homicide	−0.205	−0.035	0.839			
Lifetime VAW	3.57	2.58	0.001			
Female incarceration	0.205	0.036	0.839			

**p* = < 0.05. *IPV* interpersonal violence, *VAW* violence against women

Table 6 Regression analysis 2: final model

	<i>t</i>	β	<i>p</i>	<i>df</i>	<i>F</i>	<i>Adj. R</i> ²
Overall model			0.001	2, 32	8.78	0.31
IPV	−3.52	−2.32	0.001			
Lifetime VAW	3.93	2.59	< 0.001			

**p* = < 0.05

Discussion

Results confirmed the hypothesis, suggesting that several forms of VAW significantly predict global female incarceration rates. Together, VAW and global female incarceration rates predict the estimated prevalence of modern slavery, with female homicide, IPV, and lifetime prevalence of VAW as predictors. Results support previous research indicating that incarcerated women have a high prevalence of lifetime sexual and physical violence (Karlsson & Zielinski, 2020), with current results indicating that lifetime prevalence of VAW and IPV can predict both female incarceration rates and the estimated prevalence of modern slavery.

While differences regarding the gendered vulnerabilities to incarceration for women exist across countries, evidence suggests—and our findings support—that VAW can increase susceptibility to incarceration status for women (Jones et al., 2018; Kennedy et al., 2018; Roos et al., 2016). Further, results indicate that violence and previous incarceration status can increase vulnerability to modern slavery. Furthermore, results corroborate past research identifying gendered vulnerabilities to incarceration and female exploitation. Females are the fastest-growing prison population (Fowler et al., 2021), and considering that modern slavery victimization continues to rise for women, these findings indicate an urgent public health and human rights crisis.

Given female homicide's connections to gender inequality, oppressive gender-role expectations, systemic gender-based discrimination, and widespread misogyny (Dawson & Carrigan, 2021; Walklate et al., 2019), it is not surprising that findings identify the homicide of women as a significant predictor of both incarceration and estimated prevalence of modern slavery. Countries where the murder of women is perpetuated by a lack of protective legislation are countries where women are also

vulnerable to systemic injustices that perpetuate oppression and violence in the forms of incarceration and exploitation. Reasons for the incarceration of women vary in different contexts. Women who are undervalued and lack universal fundamental human rights are more likely to be incarcerated for controlling female behavior as a society-level form of gender-based oppression and social control. Thus, an increased threat of violence and death from incarceration does not mitigate female incarceration rates (Gadoth & Heymann, 2020; OHCHR, 2014).

The discourse regarding the gendered vulnerabilities of women to incarceration must not overlook the intersectional social markers of inequality such as race, class, and socioeconomic and citizenship statuses. However, intersectionality collectivizes an overwhelming global majority, transcending common categories of disparity and amplifying women's lived experiences across the globe. Subsequently, women often experience systems of oppression such as government-sanctioned caste systems, the industrial prison complex, and modern slavery at higher rates than men. Additionally, the global criminalization and feminization of poverty (Gimenez, 2020) have contributed significantly to women's intersecting vulnerabilities. Historically, this conversation has also included an examination of patriarchal and capitalist structures that provide incarceration as an answer to social crises for both men and women (Lester, 2021). Within these systems, women have been widely identified as objects of social control. Further, incarceration has been used as a form of social punishment within global neoliberal systems to control individuals from lower or less-desirable social and economic classes (Wacquant, 2009).

In addition to these intersectional vulnerabilities, prison facilities are typically masculinized environments that do not address the gender-specific needs of females (Ondeng et al., 2021; Titterton et al., 2019). For example, women who are pregnant or give birth while incarcerated face additional hardships that exacerbate existing vulnerabilities, such as increased rates of adverse mental health problems. Further, incarcerated women experience higher rates of psychological problems than men, often related to separation from families and children (Bartlett & Hollins, 2018; World Health Organization [WHO], 2011). Studies also indicate that incarcerated women often have pre-existing mental health conditions that remain untreated and become exacerbated throughout their prison tenure (Harner & Riley, 2013). A global lack of services and interventions to address incarcerated women's unique physical and mental health needs indicates that incarceration can be more of a punishment than a rehabilitative process for women and serves as a risk multiplier for existing vulnerabilities.

Additionally, incarcerated women with a sexual assault history along with IPV and lifetime VAW were significant predictors in our analyses. Women have fewer resources to adjust to prison life and tend to experience high rates of social discomfort, fear, difficulty sleeping, and intense anger (Islam-Zwart and Vik, 2004). Incarceration has been identified as a source of traumatic stress for women, and incarcerated women with a history of sexual trauma exhibit a decreased ability to cope during and after incarceration (Bartholomaeus and Strelan, 2021). Furthermore, incarcerated women experience higher rates of physical and sexual violence while incarcerated than their male counterparts (Light et al., 2013; WHO, 2011), further supporting the position that incarceration for women may be more of a punishment

than a rehabilitative process as incarceration exposes them to increased forms of violence and other forms of trauma. Women continue to experience these problems and others post-release (Jewkes et al., 2019; Paynter et al., 2019).

Research indicates that women who have been imprisoned are more likely to abuse substances, experience disproportionate rates of VAW, and are more likely to attempt suicide (Light et al., 2013; Mennicke et al., 2021). Formerly incarcerated women also suffer from increased social stigma and the associated difficulties of reintegrating into society (Dixey et al., 2015). Additionally, post-release mortality rates are several times higher than for women who have never been incarcerated (Norris et al., 2021). Findings illustrate that conditions within a country, such as structural inequalities, that maintain women's vulnerability to violence and incarceration may also increase vulnerability to exploitation through modern slavery. Therefore, modern slavery vulnerability is yet another possible adverse outcome for incarcerated women and is part of a complex web of intersecting factors that contribute to human rights violations against women across the globe.

Limitations

Discrepancies within the definition of modern slavery and inconsistent reporting practices across countries likely affected the findings, creating limitations within our study. Additionally, the standardization methods for data utilized by the Global Slavery Index and reporting agencies for the United Nations may be inconsistent across countries (Hume & Sidun, 2017). For example, the estimated prevalence of modern slavery is interpreted at a national level without distinguishing between local and international victims. Therefore, issuing specific statements regarding countries and their practices may be inaccurate in some cases. Additionally, variations in how countries and the corresponding justice systems define illegal behavior, including VAW and modern slavery, may not allow for parallel comparisons of female incarceration rates and crimes against women across countries.

Conclusion

United Nations SDG-5 focuses on critical aspects of equality and women's empowerment. Addressing the incarceration of women may be another avenue to realizing the SDG-5 goals and challenging systemic barriers to female equality and empowerment. Considering the current findings that VAW and female incarceration rates predict the estimated prevalence of modern slavery, research is urgently needed to develop policies that reduce existing and intersecting vulnerabilities and ensure human rights protections for women worldwide. Global governmental systems have engaged in widespread intersectional and social failures at the cost of women's rights. The present findings provide a foundation for advocating for revised governmental, judicial, and organizational systems that implement alternative rehabilitation programs for women who commit crimes that warrant incarceration. Such programs will reduce harm, physical and psychological problems, vulnerability,

and susceptibility to exploitation. The overall topic of female incarceration urgently requires more research to understand better the intersecting factors that contribute to the disproportionate VAW, incarceration, and exploitation of women in the form of modern slavery worldwide.

Author Contribution All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed by Erinn C. Cameron, Janine M. Ray, Fiona J. Trend-Cunningham and Kristine M. Jacquin. The first draft of the manuscript was written by Erinn C. Cameron and Janine M. Ray, and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Data Availability The data sets analyzed during this study are publicly available from the U.N. Office of Drugs and Crime (<https://dataunodc.un.org/>), the U.N. Office of Economic and Community Development (<https://data.oecd.org/inequality/violence-against-women.htm>), the World Prison Brief (<https://www.prisonstudies.org/world-prison-brief-data>), the Prison Policy Initiative (<https://www.prisonpolicy.org/global/women/2018.html>), and the Walk Free Foundation (<https://www.globallslaveryindex.org/resources/downloads>).

Declarations

Informed consent Informed consent was not applicable for this analysis of country level data.

Conflict of Interest The authors declare no competing interests.

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