PUNGGAWA
GLOBAL RESEARCH:
JURNAL MULTIDISIPLIN

Punggawa Global Research: Jurnal Multidisiplin
Volume 1, Number 4, 2026
E-ISSN: 3164-0117
Open Access: punggawajournal.com/pgr

The Homicide Visibility Gap: Cross-National Discrepancies between UNODC-Recorded Intentional Homicide and Mortality-Based Violence

Zul Khaidir Kadir[1]
[1]Fakultas Hukum, Universitas Muslim Indonesia, Indonesia
Correspondence: zulkhaidir.kadir@umi.ac.id

Article Info
Article history:
Received July 25th, 2026
Revised Aug 23th, 2026
Accepted Sept 2th, 2026

Keyword:
Comparative criminology; Cross National Homicide; Intentional Homicide; Mortality-Based Violence; UNODC; WHO.

ABSTRACT
Cross-national homicide research has often treated recorded homicide rates as transparent descriptions of lethal violence, although those rates were also produced through institutional systems of registration, classification, coding, and reporting. This study examined cross-national disagreement between intentional homicide recorded by the United Nations Office on Drugs and Crime and mortality-based violence reported in the World Health Organization Mortality Database. It developed the Homicide Visibility Gap Index as a directional measure of relative source discordance and treated neither source as ground truth. The contemporary endpoint analysis covered 81 countries. The two measures were strongly correlated, but agreement was materially weaker. The mean World Health Organization minus United Nations Office on Drugs and Crime difference was -1.12 deaths per 100,000, with wide Bland-Altman limits of agreement. In parsimonious models using the absolute visibility gap, government effectiveness and rule of law were associated with lower disagreement, whereas death-registration completeness was not independently associated with smaller gaps. The findings supported an institutional-legibility interpretation of homicide statistics and positioned the index as a measure of source concordance rather than hidden or true homicide.

INTRODUCTION

Homicide occupies an unusual position in comparative criminology. It is commonly treated as the most measurable serious crime because a death is harder to conceal from institutions than many non-lethal offences, the event is consequential enough to attract administrative attention, and definitions of intentional killing appear more portable across legal systems than definitions of theft, sexual violence, or corruption. This relative confidence has made homicide a workhorse outcome in cross-national research. Yet it has also encouraged a subtle analytical shortcut: researchers often move from a national homicide rate to an interpretation of national lethal violence without examining how the rate was produced. Reviews of the field repeatedly show that source choice, missingness, operational definitions, and national reporting practices can alter both the level of homicide and its association with structural covariates (Marshall & Block, 2004; Nivette, 2011; Koeppel et al., 2015; Rogers & Pridemore, 2023; Kadir, 2026d).

The problem is not that international homicide statistics are unusable. The stronger claim is that they are generated inside a measurement ecology. A lethal event becomes a statistic only after passing through institutions that register the death, establish circumstances, assign a category, code the event, aggregate records, and transmit them into national and international statistical systems. Criminal-justice institutions may classify a killing through investigative and legal criteria, whereas mortality systems classify a death through medical certification of the underlying cause and ICD coding. These pathways

overlap but do not constitute the same administrative ontology. The homicide rate is therefore simultaneously a measure of lethal violence and an output of an institutional data-generating process. Treating the first dimension as substantive and the second as merely technical can obscure a form of cross-national variation that is itself criminologically meaningful (Kadir, 2026e).

This measurement problem is especially consequential because much comparative homicide scholarship has concentrated on substantive predictors while treating the outcome measure as comparatively settled. Poverty, inequality, development, institutional configuration, political legitimacy, democracy, and criminal-justice quality have all been tested as explanations for national differences in homicide. Findings vary with specifications and samples. Comparative mapping by homicide mechanism further shows that aggregate rates can conceal materially different lethal patterns (Kadir, 2026b). Pridemore (2008, 2011) showed how poverty measurement can change conclusions about inequality, while Ouimet (2012) and Pare and Felson (2014) demonstrated the sensitivity of social-structural interpretations to operationalization. Institutional approaches likewise connect homicide to governance, legitimacy, and the capacity of states to regulate conflict (Nivette & Eisner, 2013; Huebert & Brown, 2019; Tuttle, 2019). A parallel question receives less attention: if institutions shape the production of violence, might they also shape the statistical visibility through which violence becomes internationally comparable?

The civil-registration and vital-statistics literature provides a strong basis for taking that question seriously. Incomplete registration has long been described as a form of statistical invisibility (Setel et al., 2007), and cross-national research documents substantial variation in death-registration completeness, cause-of-death certification, and the policy utility of mortality statistics (Mahapatra et al., 2007; AbouZahr et al., 2015; Mikkelsen et al., 2015; Adair & Lopez, 2018). Even systems with high registration coverage can contain diagnostic ambiguity, ill-defined causes, and coding practices that alter cause-specific mortality profiles (Iburg et al., 2020; Naghavi et al., 2020; Johnson et al., 2021). Recent work further distinguishes registration completeness from cause-of-death quality. Karlinsky (2024) provides annual cross-national completeness estimates, while Adair et al. (2021, 2023) show that recording nearly all deaths does not automatically produce equally informative mortality data. Improvements in national coding practices can also occur independently of changes in registration coverage (Franca et al., 2020).

The UNODC side of the comparison requires equal conceptual discipline. The contemporary UNODC intentional-homicide series is not uniformly a police series: observations can derive from criminal-justice or public-health sources, and source series may be combined when national reporting structures warrant it. UNODC's statistical definition concerns unlawful death inflicted by another person with intent to cause death or serious injury. WHO mortality statistics, by contrast, are transmitted through national mortality systems and classify interpersonal violence through cause-of-death coding, principally the ICD-10 assault categories X85-Y09 and associated sequelae. The constructs therefore overlap substantially without being identical, a problem consistent with research showing that legal and socio-criminological homicide categories are not straightforward equivalents (Kadir, 2026c, 2026f). The same lethal event can encounter different evidentiary thresholds, coding conventions, temporal rules, or institutional pathways before appearing in the two international systems. Cross-source differences should consequently be interpreted as measurement discordance rather than as direct counts of homicides missed by one institution.

Existing comparisons reinforce this distinction. Andersson and Kazemian (2018) identified substantial cross-national similarity between UN and WHO homicide data but also meaningful differences in magnitude and source-specific properties. Earlier research likewise found that combining international sources can improve coverage without eliminating the measurement decisions embedded within them (Marshall & Block, 2004). High correlation therefore does not establish agreement. Two series may rank countries similarly while remaining systematically displaced from one another, and the size of that displacement may itself vary with the level of lethal violence. Conversely, convergence is not automatically proof of accuracy. Two sources can agree because both are accurate, because they share upstream information, or because they reproduce similar classification errors. Disagreement can also reflect legitimate construct differences. This makes concordance an empirical property to be evaluated rather than assumed.

This article develops that problem through the concept of institutional legibility: the capacity of administrative systems to render violent death into stable, transmissible, and mutually recognizable

statistical categories. The proposed Homicide Visibility Gap captures the distance between the UNODC representation of intentional homicide and WHO mortality-based violence. Visibility is statistical rather than metaphysical. A death may be fully known to local authorities and still be classified differently, assigned to a different period, coded under a different cause, or transmitted differently across international systems. The index is therefore not an estimator of latent or 'true' homicide, and WHO is not treated as an external ground truth. The signed gap records the direction of cross-system discordance, while its absolute magnitude captures the extent of disagreement irrespective of which source is higher. Conceptually, observed homicide statistics can be understood as lethal violence filtered through an institutional observation process that includes registration, classification, coding, source selection, and international transmission.

Two research questions organize the analysis. First, how large is the cross-national discrepancy between UNODC-recorded intentional homicide and WHO mortality-based violence? Second, is the magnitude of that discrepancy associated with death-registration completeness and broad indicators of institutional capacity, specifically government effectiveness and rule of law? The contribution is deliberately narrower than an attempt to recover an unobserved number of killings. It treats source discordance as an object of comparative criminological inquiry and asks when different institutional systems produce more or less concordant accounts of lethal violence. This shifts attention from the familiar question of which countries are most violent toward a prior epistemic problem: under what institutional conditions does lethal violence become statistically legible across measurement systems?

RESEARCH METHODS

The study uses a cross-national ecological method-comparison design. The empirical implementation is deliberately simpler than a latent-variable or errors-in-variables model because neither international series can be defended as a direct observation of a latent true homicide construct. The comparison instead asks whether two independently governed statistical infrastructures produce concordant national rates. The working sample contains 81 countries for which a contemporary endpoint value was available in both series. WHO mortality-based rates refer to the 2023 endpoint. The UNODC series extends to 2024, and the current endpoint value is used here. This one-year release asymmetry is made explicit because the estimand is contemporary database concordance, not a same-year causal effect. It is a limitation for rapidly changing homicide environments and is addressed in the interpretation by avoiding country-level causal claims. A synchronized country-year replication is the most important extension of the design.

WHO data are taken from the WHO Mortality Database, which compiles country-submitted CRVS data by year, sex, age, and cause of death. The interactive portal publishes country-years with at least 65% completeness and does not transform national reporting into a latent mortality estimate. The comparison measure is the mortality category for violence, corresponding to ICD-10 X85-Y09 and Y87.1 in the WHO cause grouping. UNODC intentional homicide is measured as victims per 100,000 population. Because UNODC may draw from criminal-justice or public-health inputs, the manuscript consistently uses the term UNODC-recorded intentional homicide rather than police-recorded homicide. This terminological correction prevents the source architecture from being simplified beyond what the data documentation supports.

Death-registration completeness is drawn from Karlinsky's International Completeness of Death Registration dataset, using 2019 or the nearest available pre-pandemic estimate within 2015-2019. The institutional covariates are Government Effectiveness and Rule of Law from the Worldwide Governance Indicators, using contemporary estimates. WGI provides broad, perception-based measures rather than direct audits of homicide-recording agencies; they are therefore treated as institutional correlates, not causal mechanisms. Handoyo (2023) provides a recent description of the WGI data structure. The use of pre-pandemic registration completeness reflects data availability and reduces contamination from exceptional mortality-registration disruptions associated with COVID-19; research on cross-national mortality during the pandemic shows why such disruption cannot be assumed away (Karlinsky & Kobak, 2021).

Table 1. Measurement and Data Architecture

Construct	Operational measure	Source / period	Role in analysis	Analytical status
UNODC intentional homicide	Victims per 100,000 population	UNODC current endpoint, through 2024	Comparison series	Mixed source architecture; not uniformly police-recorded
Mortality-based violence	Deaths per 100,000; ICD-10 X85-Y09, Y87.1	WHO Mortality Database, 2023 endpoint	Comparison series	Comparison measure, not ground truth
Signed HVGI	ln[(WHO + 0.1)/(UNODC + 0.1)]	Constructed	Direction of discordance	Positive = WHO higher; negative = UNODC higher
Absolute HVGI	|signed HVGI|	Constructed	Outcome for institutional models	Magnitude of relative discordance
Death-registration completeness	Percent of deaths registered	ICDR, 2019 or nearest 2015-2019	Institutional predictor	Coverage, not cause-of-death quality
Government effectiveness	WGI estimate	World Bank WGI, contemporary	Institutional predictor	Broad governance capacity
Rule of law	WGI estimate	World Bank WGI, contemporary	Institutional predictor	Broad legal-institutional quality

Measuring Cross-System Homicide Discrepancy

The signed Homicide Visibility Gap Index is defined as $HVGI_i = \ln[(WHO_i + 0.1)/(UNODC_i + 0.1)]$. The logarithmic ratio expresses relative rather than absolute disagreement. This matters because a difference of two deaths per 100,000 has a different substantive scale when national rates are 1 and 3 than when they are 30 and 32. The constant 0.1 prevents undefined ratios where an endpoint rate approaches zero and is small relative to the distribution of observed rates. An HVGI of zero indicates parity. Positive values mean the mortality-based rate is higher, while negative values mean the UNODC rate is higher. The index is intentionally directional and should not be interpreted as a quality score.

For the second research question, the dependent variable is absolute HVGI. This refinement is necessary for claim-data alignment. Generic institutional capacity should theoretically predict the magnitude of cross-system disagreement, not whether WHO happens to lie above or below UNODC. Regressing institutional capacity on the signed index would allow large discrepancies in opposite directions to cancel and would impose an implausible directional hypothesis. Absolute HVGI treats both directions as discordance while retaining the signed index for descriptive ranking.

Statistical Analysis

The first stage reports descriptive statistics, Pearson correlation, Spearman rank correlation, absolute rate discrepancies, and Bland-Altman agreement statistics. Correlation and agreement answer different questions. A high correlation indicates that countries tend to occupy similar relative positions across sources; it does not demonstrate that the sources return similar numerical values. Bland and Altman's (1986) method evaluates the distribution of within-country differences against the mean of the two measurements. Its use outside clinical measurement requires caution, but the logic is appropriate for a quantitative method-comparison problem. Giavarina (2015) and Gerke (2020) emphasize that limits of agreement describe observed disagreement rather than establish an external threshold of acceptability. No such normative threshold is imposed here.

The second stage estimates parsimonious OLS models with HC3 heteroskedasticity-robust standard errors. Model 1 includes death-registration completeness. Model 2 adds government effectiveness, while Model 3 substitutes rule of law for government effectiveness. The two governance indicators are not entered together in the main specification because their sample correlation is .947 and a combined model produces variance-inflation factors close to 10. Separating them makes the

institutional comparison more interpretable and avoids presenting unstable partial coefficients as if they represented distinct causal mechanisms. All models are associational. No fixed effects, multilevel structure, instrumental variables, or latent-variable estimation is used because the design is cross-sectional and the available measures do not support causal identification.

Data Sources and Availability

United Nations Office on Drugs and Crime (UNODC), Research Data Portal, Intentional Homicide Victims; World Health Organization (WHO), Mortality Database; World Bank, Worldwide Governance Indicators; Karlinsky International Completeness of Death Registration dataset. The analysis treats the UNODC and WHO series as comparison measures and does not designate either as ground truth. Public data documentation should be archived with the final replication package because international series are periodically revised.

RESULTS AND DISCUSSION

Cross-Source Concordance and Disagreement

Table 2 shows the distribution of the principal measures. Across 81 countries, the mean WHO mortality-based violence rate is 5.22 per 100,000, compared with 6.34 for the UNODC intentional-homicide series. Both distributions are strongly right-skewed, which makes the median and interquartile range important complements to the mean. The median absolute rate discrepancy is only 0.45 deaths per 100,000, but the mean absolute discrepancy rises to 2.50 because a smaller number of countries display large differences. The signed HVGI has a mean of -0.221 and a median of -0.156, indicating that the UNODC endpoint is somewhat higher than the WHO endpoint in the typical directional comparison. The mean absolute HVGI is 0.400.

The two homicide measures remain strongly associated. Pearson's r is .806 ($p < .001$), and Spearman's rho is .882 ($p < .001$). The stronger rank correlation indicates that source disagreement does not generally destroy the ordering of countries. Figure 1 nonetheless shows why correlation cannot be treated as concordance. Several observations lie well away from the 45-degree line of equality. A researcher interested only in whether high-homicide countries remain high-homicide countries across databases might regard the sources as broadly consistent; a researcher interpreting a national rate as a precise institutional count would reach a more cautious conclusion.

Table 2. Descriptive Statistics

Variable	N	Mean	Median	SD	IQR	Min	Max
WHO mortality-based violence rate	81	5.223	1.110	8.757	4.360	0.100	39.750
UNODC intentional-homicide rate	81	6.340	1.500	10.915	5.500	0.050	51.300
Absolute rate discrepancy	81	2.499	0.450	6.057	1.720	0.000	34.140
Signed HVGI	81	-0.221	-0.156	0.519	0.520	-1.775	1.606
Absolute HVGI	81	0.400	0.298	0.401	0.407	0.000	1.775
Death-registration completeness (%)	78	93.231	97.000	9.963	7.750	55.000	100.000
Government effectiveness	75	0.493	0.386	0.805	1.255	-1.580	2.320
Rule of law	74	0.443	0.435	0.881	1.429	-1.280	1.970

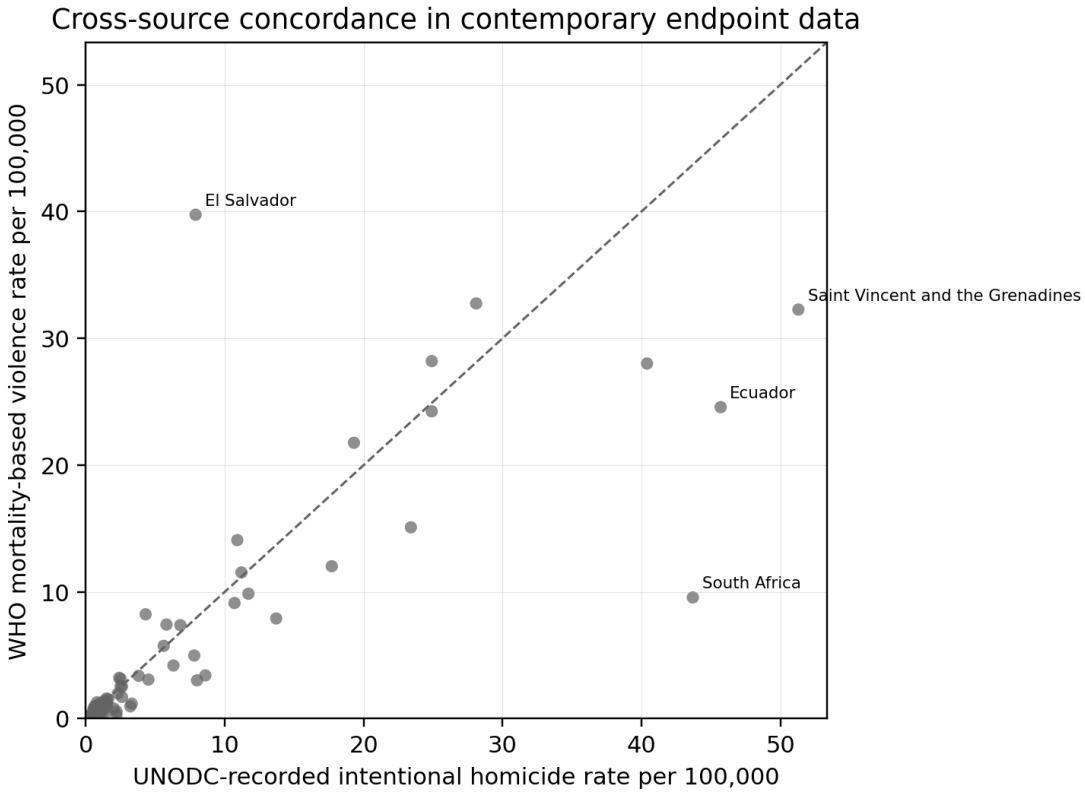

Figure 1. UNODC-Recorded Intentional Homicide Versus WHO Mortality-Based Violence

Note. The dashed 45-degree line denotes exact numerical agreement, not a fitted regression line.

The Bland-Altman analysis sharpens this conclusion. The mean WHO-minus-UNODC difference is -1.12 deaths per 100,000, while the standard deviation of the differences is 6.46. The corresponding empirical 95% limits of agreement extend from -13.78 to 11.55. Those limits are wide relative to the medians of both source distributions. Figure 2 also shows scale dependence on the absolute-rate metric. The Spearman association between the mean rate and the absolute rate difference is .695 ($p < .001$): countries with larger homicide rates tend to exhibit larger discrepancies in raw rate units. That pattern does not appear for the absolute log-ratio HVGI, whose association with the mean rate is essentially zero. The distinction supports use of a relative discrepancy metric when comparing countries located at very different levels of lethal violence.

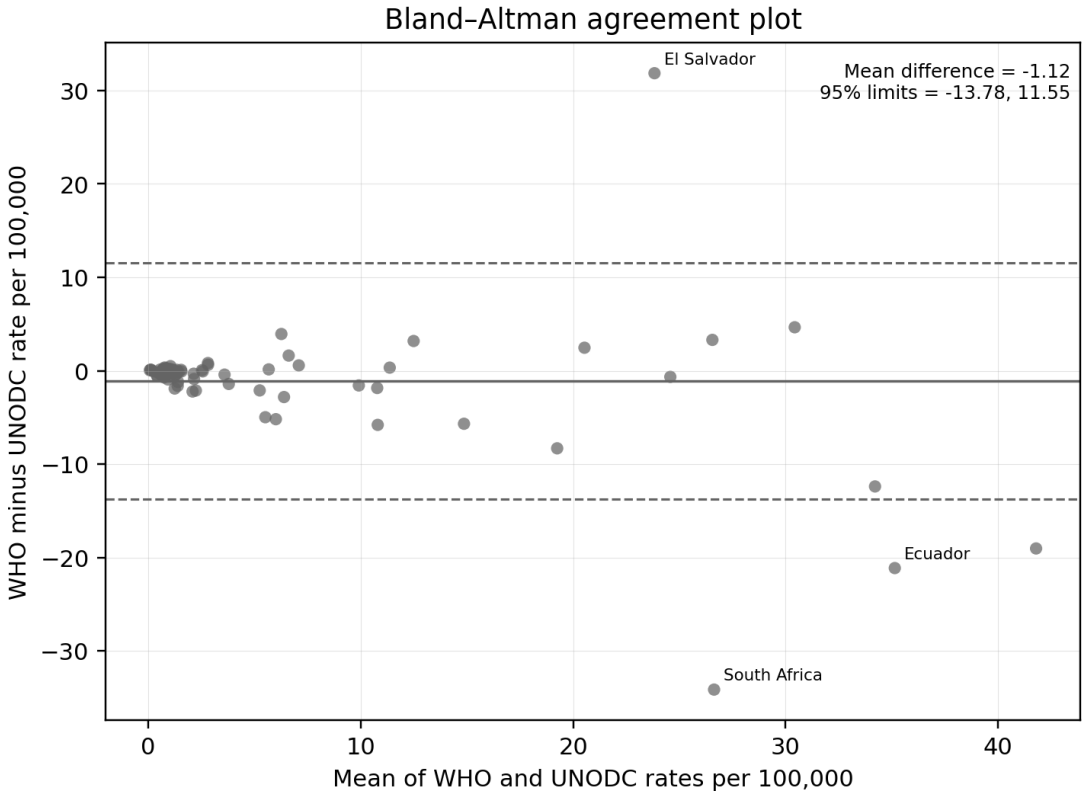

Figure 2. Bland-Altman Plot of the Contemporary Endpoint Comparison

Note. The solid line denotes the mean WHO-minus-UNODC difference, and dashed lines denote empirical 95% limits of agreement. Extreme observations are shown to characterize agreement, not to identify hidden homicide.

Figure 3 ranks countries by the signed HVGI. The ranking is deliberately descriptive. Large positive values indicate that the WHO mortality-based endpoint exceeds the UNODC endpoint proportionally; large negative values indicate the reverse. The tails demonstrate that cross-system disagreement is not uniformly directional. This is precisely why the index cannot be translated into a number of missing homicides. A positive gap may reflect criminal-justice under-recording, but it may also reflect mortality classification, source timing, or definitional differences. A negative gap may arise from the inverse configuration. The empirical object is therefore institutional asymmetry in statistical representation, not a validated hidden body count.

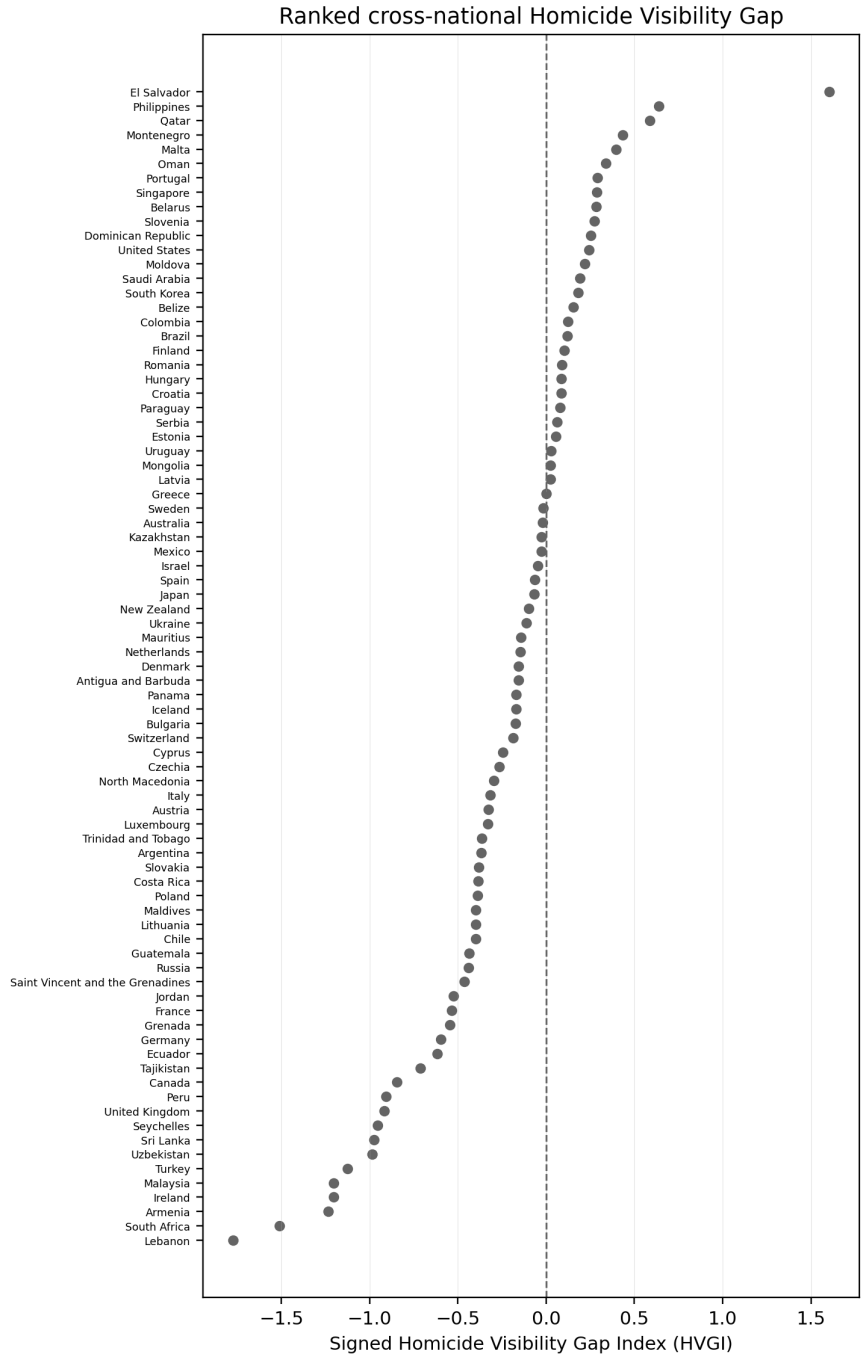

Figure 3. Ranked Signed Homicide Visibility Gap Index

Note. Zero denotes source parity. Positive values indicate WHO > UNODC; negative values indicate UNODC > WHO. Rankings are descriptive and sensitive to endpoint availability and source architecture.

Institutional Correlates of Discrepancy Magnitude

The institutional models use the absolute HVGI and the 73 countries with complete information on the outcome and the relevant predictors. Model 1 provides little evidence that death-registration completeness alone explains cross-source disagreement. A ten-percentage-point increase in completeness is associated with a -0.069 change in absolute HVGI, but the estimate is not statistically distinguishable from zero ($p = .147$). This null result is substantively informative because the WHO comparison sample is already selected toward countries with reportable mortality systems. Death-registration completeness has limited dispersion in the analytic sample, with a median of 97%. Range restriction makes a large independent association difficult to detect and reinforces the distinction between registering a death and classifying its cause consistently.

Models 2 and 3 show a different pattern for broader institutional quality. Government effectiveness is associated with a smaller absolute visibility gap (b = -0.143, HC3 SE = 0.067, p = .033) after adjustment for death-registration completeness. Rule of law yields a similar association in the alternative specification (b = -0.120, HC3 SE = 0.056, p = .033). The adjusted R-squared values remain modest, at .080 and .066. The results therefore support a limited institutional-concordance interpretation rather than a strong prediction model. Generic state capacity appears related to closer cross-system alignment, but most cross-national variation in the gap remains unexplained by these broad indicators.

Table 3. OLS Models Predicting Absolute HVGI (HC3 Robust Standard Errors)

Predictor	Model 1	Model 2	Model 3
Death-registration completeness (per 10 pp)	-0.069 (0.047)	-0.037 (0.041)	-0.037 (0.043)
Government effectiveness	—	-0.143* (0.067)	—
Rule of law	—	—	-0.120* (0.056)
Constant	1.047* (0.449)	0.825* (0.382)	0.809* (0.398)
N	73	73	73
Adjusted R^2	.016	.080	.066

Note. Outcome = |ln[(WHO + 0.1)/(UNODC + 0.1)]|. HC3 standard errors in parentheses. * p < .05. Government effectiveness and rule of law are estimated in separate models because of high collinearity (r = .947).

Institutional Legibility and Measurement Implications

High cross-national correlation between homicide sources does not imply close numerical agreement. The two series identify a similar broad geography of lethal violence, yet country values can diverge enough to alter substantive description. Rogers and Pridemore (2023) likewise show that cross-national homicide results can depend on source selection. This study extends that concern by treating disagreement itself as an outcome and separating direction from magnitude. Signed HVGI identifies which system reports the higher relative rate; absolute HVGI captures how far apart the systems are without presuming which one is correct.

This distinction matters for theory. Comparative criminology often treats administrative data quality as a nuisance to be controlled or resolved by selecting an apparently superior source. Institutional legibility suggests another approach: statistical observability is itself part of state capacity. A violent death must be made administratively recognizable, and different chains of institutions can generate source-specific classifications. Their discrepancy can be understood as classification friction produced by legal definitions, certification, coding, reporting, source substitution, and harmonization. A related conversion problem appears in homicide investigation, where technical information does not automatically become institutionally actionable evidence (Kadir, 2026a). This also clarifies why death-registration completeness is weak while broader governance indicators are more consistent. Completeness captures entry into the mortality system, not the full pathway by which a death becomes homicide in one architecture and violence in another.

The models explain only a modest share of cross-national variation, so the data do not support a deterministic hierarchy in which high-capacity states always produce small gaps. Well-governed states may still disagree because low event counts make ratios sensitive, legal and medical categories differ at the margin, or source series differ. Lower-capacity systems may also appear concordant when both series share upstream records. Concordance is therefore not validity. HVGI is better read as an audit signal identifying cases where two statistical representations warrant closer investigation.

The findings also qualify a common assumption about WHO mortality data. Cause-of-death systems offer conceptual advantages because they are organized around individual deaths rather than offence recording, and prior comparative work often regards WHO mortality data as comparatively stable (Andersson & Kazemian, 2018; Rogers & Pridemore, 2023). Yet mortality systems have their own failure modes. Coverage, medical certification, ill-defined codes, and redistribution practices can affect cause-specific rates (Iburg et al., 2020; Naghavi et al., 2020; Johnson et al., 2021). The WHO measure is thus an indispensable comparison source, not a ground truth. Treating it as ground truth would simply relocate the measurement problem from criminology to mortality statistics.

The institutional results are compatible with research linking legitimate and effective states to homicide or compliance (Nivette & Eisner, 2013; Huebert & Brown, 2019; Tuttle, 2019), but the mechanism examined here is different. These models ask whether institutional capacity is associated with agreement between measurement systems after violence has occurred. The negative coefficients for government effectiveness and rule of law are consistent with reduced classification friction; they do not show that governance makes either source more accurate. Testing that mechanism would require event-level linkage among investigative records, forensic findings, and death certificates.

Limitations and Future Research

Several limitations should discipline interpretation. The first is temporal. The empirical implementation compares a 2023 WHO endpoint with the current UNODC endpoint extending through 2024. For countries undergoing rapid homicide change, one year can create apparent source disagreement that is partly temporal rather than institutional. This design is defensible as a comparison of contemporary database-facing values, but it is not a substitute for synchronized country-year analysis. The second limitation is source heterogeneity within UNODC. Some national observations originate in criminal justice, others in public health, and source combinations may occur across time. Future work should stratify the HVGI by source provenance rather than treating UNODC as a single institutional channel. Third, ICDR completeness ends before the outcome period, and WGI measures broad governance rather than the agencies that certify or investigate violent death.

A stronger next design would use matched country-years over 2015-2022, require several overlapping observations, and estimate country-average signed and absolute gaps. That would reduce sensitivity to short-run shocks while allowing tests of heteroscedastic disagreement, alternative constants in the log ratio, and UNODC source provenance. None of these extensions requires a latent-homicide model unless the latent construct and source-specific error can be identified. Here, methodological credibility depends more on construct validity and transparent estimands than on model complexity.

CONCLUSION

Cross-national homicide statistics are not merely counts of violence. They are outputs of institutions that decide which deaths are registered, how intent and unlawfulness are classified, which codes are assigned, and which source is transmitted internationally. The Homicide Visibility Gap Index makes that institutional layer empirically visible without pretending to recover an unobserved true homicide rate. In the contemporary sample, UNODC and WHO rates are strongly correlated but exhibit substantially weaker numerical agreement. Broader measures of government effectiveness and rule of law are associated with smaller relative discrepancies, while death-registration completeness alone does not account for the gap.

The substantive implication is narrower and more useful than a claim about hidden murders. Researchers should distinguish lethal violence from the institutional capacity to represent lethal violence consistently. HVGI offers a diagnostic measure of that second phenomenon. Used with source provenance, synchronized years, and careful sensitivity analysis, it can help identify where international homicide comparisons are most dependent on the administrative machinery that makes violent death statistically legible.

REFERENCES

AbouZahr, C., de Savigny, D., Mikkelsen, L., Setel, P. W., Lozano, R., Nichols, E., Notzon, F., & Lopez, A. D. (2015). Civil registration and vital statistics: Progress in the data revolution for counting and accountability. The Lancet, 386(10001), 1373-1385. https://doi.org/10.1016/S0140-6736(15)60173-8

Adair, T., Gamage, U. S. H., Mikkelsen, L., Joshi, R., & Lopez, A. D. (2021). Are there sex differences in completeness of death registration and quality of cause of death statistics? Results from a global analysis. BMJ Global Health, 6(10), e006660. https://doi.org/10.1136/bmjgh-2021-006660

Adair, T., & Lopez, A. D. (2018). Estimating the completeness of death registration: An empirical method. PLOS ONE, 13(5), e0197047. https://doi.org/10.1371/journal.pone.0197047

Adair, T., Mikkelsen, L., Hooper, J., Badr, A., & Lopez, A. D. (2023). Assessing the policy utility of routine mortality statistics: A global classification of countries. Bulletin of the World Health Organization, 101(12), 777-785. https://doi.org/10.2471/BLT.22.289036

Andersson, C., & Kazemian, L. (2018). Reliability and validity of cross-national homicide data: A comparison of UN and WHO data. International Journal of Comparative and Applied Criminal Justice, 42(4), 287-302. https://doi.org/10.1080/01924036.2017.1370676

Bland, J. M., & Altman, D. G. (1986). Statistical methods for assessing agreement between two methods of clinical measurement. The Lancet, 327(8476), 307-310. https://doi.org/10.1016/S0140-6736(86)90837-8

Franca, E., Ishitani, L. H., Teixeira, R., Duncan, B. B., Marinho, F., & Naghavi, M. (2020). Changes in the quality of cause-of-death statistics in Brazil: Garbage codes among registered deaths in 1996-2016. Population Health Metrics, 18(Suppl 1), 20. https://doi.org/10.1186/s12963-020-00221-4

Gerke, O. (2020). Reporting standards for a Bland-Altman agreement analysis: A review of methodological reviews. Diagnostics, 10(5), 334. https://doi.org/10.3390/diagnostics10050334

Giavarina, D. (2015). Understanding Bland Altman analysis. Biochemia Medica, 25(2), 141-151. https://doi.org/10.11613/BM.2015.015

Handoyo, S. (2023). Worldwide governance indicators: Cross country data set 2012-2022. Data in Brief, 51, 109814. https://doi.org/10.1016/j.dib.2023.109814

Huebert, E. T., & Brown, D. S. (2019). Due process and homicide: A cross-national analysis. Political Research Quarterly, 72(1), 190-204. https://doi.org/10.1177/1065912918785059

Iburg, K. M., Mikkelsen, L., Adair, T., & Lopez, A. D. (2020). Are cause of death data fit for purpose? Evidence from 20 countries at different levels of socio-economic development. PLOS ONE, 15(8), e0237539. https://doi.org/10.1371/journal.pone.0237539

Johnson, S. C., Cunningham, M., Dippenaar, I. N., Sharara, F., Wool, E. E., Agesa, K. M., et al. (2021). Public health utility of cause of death data: Applying empirical algorithms to improve data quality. BMC Medical Informatics and Decision Making, 21, 175. https://doi.org/10.1186/s12911-021-01501-1

Kadir, Z. K. (2026a). Better Forensics, Fewer Solved Murders? Explaining the Homicide Clearance Paradox. Punggawa Social Inquiry: Journal of Crime, Culture, and Social Dynamics, 1(2), 1-10. https://doi.org/10.67707/psi.v1i2.99

Kadir, Z. K. (2026b). Beyond Firearms: Mapping Global Patterns of Non-Firearm Homicide in Comparative Criminological Perspective. Punggawa Global Research: Jurnal Multidisiplin, 1(2), 1-10.

Kadir, Z. K. (2026c). Defining Murder Across Legal Traditions: Toward a Transsystemic Theory of Intentional Homicide. LEXARA: Journal of Law and Legal Studies, 1(1), 1-10.

Kadir, Z. K. (2026d). Mapping Recorded Homicide in Indonesia: An Ecological Criminological Analysis Using BPS data. Punggawa Law Review, 1(2), 9-18.

Kadir, Z. K. (2026e). Melampaui Kajian Pembunuhan: Urgensi Kekerasan Mematikan (Lethal Violence) sebagai Bidang Analisis Kriminologis Tersendiri. Jurnal Pendidikan Sosial dan Humaniora, 5(3), 3992-4008.

Kadir, Z. K. (2026f). The Social Anatomy of Homicide: Relationships, Situations, and Legal Categories in Indonesia. SOCILEXIA: Journal of Social Sciences and Legal Studies, 1(1), 1-10.

Karlinsky, A. (2024). International completeness of death registration. Demographic Research, 50(38), 1151-1170. https://doi.org/10.4054/DemRes.2024.50.38

Karlinsky, A., & Kobak, D. (2021). Tracking excess mortality across countries during the COVID-19 pandemic with the World Mortality Dataset. eLife, 10, e69336. https://doi.org/10.7554/eLife.69336

Koeppel, M. D. H., Rhineberger-Dunn, G. M., & Mack, K. Y. (2015). Cross-national homicide: A review of the current literature. International Journal of Comparative and Applied Criminal Justice, 39(1), 47-85. https://doi.org/10.1080/01924036.2013.836676

Mahapatra, P., Shibuya, K., Lopez, A. D., Coullare, F., Notzon, F. C., Rao, C., & Szreter, S. (2007). Civil registration systems and vital statistics: Successes and missed opportunities. The Lancet, 370(9599), 1653-1663. https://doi.org/10.1016/S0140-6736(07)61308-7

Marshall, I. H., & Block, C. R. (2004). Maximizing the availability of cross-national data on homicide. Homicide Studies, 8(3), 267-310. https://doi.org/10.1177/1088767904265455

Mikkelsen, L., Phillips, D. E., AbouZahr, C., Setel, P. W., de Savigny, D., Lozano, R., & Lopez, A. D. (2015). A global assessment of civil registration and vital statistics systems: Monitoring data quality and progress. The Lancet, 386(10001), 1395-1406. https://doi.org/10.1016/S0140-6736(15)60171-4

Naghavi, M., Richards, N., Chowdhury, H., Eynstone-Hinkins, J., Franca, E., Hegnauer, M., et al. (2020). Improving the quality of cause of death data for public health policy: Are all garbage codes equally problematic? BMC Medicine, 18, 55. https://doi.org/10.1186/s12916-020-01525-w

Nivette, A. E. (2011). Cross-national predictors of crime: A meta-analysis. Homicide Studies, 15(2), 103-131. https://doi.org/10.1177/1088767911406397

Nivette, A. E., & Eisner, M. (2013). Do legitimate polities have fewer homicides? A cross-national analysis. Homicide Studies, 17(1), 3-26. https://doi.org/10.1177/1088767912452131

Ouimet, M. (2012). A world of homicides: The effect of economic development, income inequality, and excess infant mortality on the homicide rate for 165 countries in 2010. Homicide Studies, 16(3), 238-258. https://doi.org/10.1177/1088767912442500

Pare, P.-P., & Felson, R. (2014). Income inequality, poverty and crime across nations. The British Journal of Sociology, 65(3), 434-458. https://doi.org/10.1111/1468-4446.12083

Pridemore, W. A. (2008). A methodological addition to the cross-national empirical literature on social structure and homicide: A first test of the poverty-homicide thesis. Criminology, 46(1), 133-154. https://doi.org/10.1111/j.1745-9125.2008.00106.x

Pridemore, W. A. (2011). Poverty matters: A reassessment of the inequality-homicide relationship in cross-national studies. The British Journal of Criminology, 51(5), 739-772. https://doi.org/10.1093/bjc/azr019

Rogers, M. L., & Pridemore, W. A. (2023). A review and analysis of the impact of homicide measurement on cross-national research. Annual Review of Criminology, 6, 447-470. https://doi.org/10.1146/annurev-criminol-030521-102909

Setel, P. W., Macfarlane, S. B., Szreter, S., Mikkelsen, L., Jha, P., Stout, S., & AbouZahr, C. (2007). A scandal of invisibility: Making everyone count by counting everyone. The Lancet, 370(9598), 1569-1577. https://doi.org/10.1016/S0140-6736(07)61307-5

Tuttle, J. (2019). Murder in the shadows: Evidence for an institutional legitimacy theory of crime. International Journal of Comparative and Applied Criminal Justice, 43(1), 13-27. https://doi.org/10.1080/01924036.2017.1397037