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Kivivuori, J.; Markwalder, N.; Liem M.C.A.

Article

European Homicide Monitor: Research, New Developments, and Future

Janne Kivivuori[1], Marieke Liem[2], and Nora Markwalder[3]

Abstract

Homicide as the most serious form of lethal violence has always represented an important research focus in criminology. Much of the existing research, however, is based on aggregated homicide data and is limited to macrolevel analyses. The European Homicide Monitor (EHM) is an initiative promoting standardized international data collection, with the aim of collecting disaggregated and detailed data on homicide. Originally developed by researchers from the Netherlands, Sweden, and Finland, the EHM coding scheme is currently applied in several European countries. In this article, we take stock of the use of the EHM approach by describing its key principles and aims. We also review research conducted within the EHM framework and identify the most significant developments in its use, such as expanding to the Global South, to the historical past, and to more accurate measurement of drug-related incidents. We conclude this investigation by discussing the challenges facing future research in this domain.

Keywords

homicide, European Homicide Monitor, international criminology, comparative criminology, historical criminology, Historical Homicide Monitor

[1]University of Helsinki, Finland
[2]Leiden University, The Netherlands
[3]University of St. Gallen, Switzerland

Corresponding Author:
Janne Kivivuori, Institute of Criminology and Legal Policy, University of Helsinki, FI-00014,
University of Helsinki, Finland.
Email: janne.kivivuori@helsinki.fi

Introduction

Homicide is the most serious form of lethal violence, and its prevention is thus a crucial aspect of criminal policy. Homicide rates, besides quantifying the prevalence of homicide in a given country, are also an indicator for other forms of non-lethal crimes and can be seen as the "tip of the iceberg" for the actual level of violence experienced by its residents (Liem, 2022; Nivette, 2011; van Breen, Devarakonda, & Liem, 2023; van Breen, Rabolini, & Liem, 2023). However, research in this domain is typically based on aggregated homicide rates. If disaggregation is undertaken, it is often limited to core variables such as gender, age, or geographical units. Yet, research based on administrative statistics provides limited information about the homicide offenders, their victims, and the circumstances of the offense. These shortcomings point to the need for increasing knowledge about homicide incidents on a disaggregated level, as the obtained findings can better inform effective prevention measures.

In the 1990s, various European countries such as the Netherlands, Finland, Sweden, and Switzerland started to develop more comprehensive research-based and research-enabling homicide datasets (including all completed homicide cases) at the national level (Markwalder, 2012; Walser et al., 2022). To make these emerging data sources comparable internationally, researchers from the Netherlands, Sweden, and Finland engaged in a cross-national collaboration with the view of compiling disaggregated homicide data that extends the national boundaries. They sought and received funding from the European Union for a 3-year project to establish a shared coding scheme and a joint database on homicide among the member countries to promote detailed comparisons and analyses of homicide (Granath et al., 2011). As a result of this project, the European Homicide Monitor (thereafter EHM) coding manual was established, allowing for standardized and internationally comparable analysis of homicide cases within this framework.[1]

Principles of the EHM

The EHM is a collaboration project and a network of scholars promoting a standardized international homicide data collection process. The EHM coding manual includes 85 variables and leaves room for modular additions (including country-specific additions, or detailed drug variables, see the EHM drug-related variables: data protocol). It relies on four key principles (Granath et al., 2011) outlined below.

First, it is a general homicide monitor that includes all types of homicides. Homicide is defined as "an intentional criminal act of violence by one or more human beings resulting in the death of one or more other human beings" (Granath et al., 2011, p. 32). This means that the definition of homicide is independent of the lethal intention. The act of violence must be intentional, but the outcome of death does not have to be. Justified killings, typically by law enforcement officials, are excluded from the EHM.

Second, the EHM ideally includes unsolved homicide cases (Granath et al., 2011). Thus, the data are not limited to incidents which result in arrest or conviction. Usually, this means that the police investigation stage is a central datapoint. According to this

"suspicion principle," EHM-based datasets ideally include cases where the offender is not known, cases where the offender has committed suicide, and homicides committed by persons without legal culpability (e.g., persons who are not taken to court due to serious mental health issues).[2]

Third, the EHM contains disaggregated data at a case level and includes information on various offender-, victim-, and incident-related variables. This granularity allows for detailed analyses of different types and constellations of homicides and their occurrence across various time spans. Although data sources can vary among countries, data collection mostly relies on police, court, or autopsy reports, while including newspaper articles and other open-source information to facilitate triangulation (Granath et al., 2011).

Fourth, the EHM is an open system that is not limited to European countries, allowing researchers or institutions from non-European countries to join. The participating countries share the syntaxes and adhere to the same coding manual. However, due to the EU data protection restrictions, there is no general EHM database including all homicide cases from the different participating countries. The EHM is thus not a database, but a data collection system.

The EHM is currently managed by the Steering Committee, which includes homicide researchers from Finland, the Netherlands, Sweden, and Switzerland. In its practical work, the participating countries adhere to the principle of *flexible standardization*. This means that necessary or pragmatic deviations from the core principles are possible if they are openly reported. Thus, some countries exclude categories such as "assault leading to death" which are in principle included in the EHM framework. Similarly, some countries such as Switzerland include justified killings in their national applications.

Research Use of the EHM

Since the publication of the EHM pilot study in 2011, there has been a steady influx of studies using or citing the approach. A tentative search in Google Scholar using the exact phrases "European Homicide Monitor" and "European Statistical Database on Lethal Violence" yielded 222 hits as of March 15, 2024.[3] The primary report (Granath et al., 2011) has been cited 111 times, and the article based on it (Liem et al., 2013) 96 times. This can be considered as relatively good research impact, given that generating new numerical data from textual source material is a labor-intensive process. Arguably, the EHM has become the European gold standard in this research domain, even though many scholars still prefer to use national or other coding schemes.

Most of the EHM-based studies are descriptive in nature, reflecting the fundamental goals of the instrument itself. However, it bears noting that the difference between description and explanation depends on what is meant by explanation. For instance, if we have a general homicide rate-based decrease or increase in homicide, we do not yet know what component of the total homicide phenomenon "explains" or "accounts for" the trend shift. Therefore, the act of disaggregation is a form of explanation, as it locates differences between areas or periods to subtypes.

In what follows, we examine some of the central topics in the EHM-based research by exploring examples from the current literature corpus. The review is thus narrative rather than systematic. We focus on studies in which the authors used the EHM in more than one country. We therefore exclude studies in which EHM or EHM-compatible data pertaining to individual countries are analyzed.

Cross-National Comparison of General Homicide Patterns

The first original report published by Granath et al. (2011) offered a general comparison of homicide patterns in Finland, the Netherlands, and Sweden in the 2003−2006 test period. In this report as well as that produced by Liem et al. (2013), the rate differences between these countries were disaggregated. For instance, the Dutch homicide patterns were much more focused on young age groups, crime-related offenses, and public places than the Finnish patterns, while Sweden was between these opposites. A later comparison by Lehti et al. (2019) observed similar differences within the Nordic area, with Denmark and Norway also having a more youth-oriented homicide victimization pattern than Finland.

Disaggregating Trends

In a more recent article on the decline in homicide rates, Suonpää et al. (2024) examined homicide trends in seven European countries—Denmark, Estonia, Finland, the Netherlands, Scotland, Sweden, and Switzerland—between 1990 and 2016. The core aim of the analysis was to explore the generality versus specificity of the observed downward trend in homicide rates in these countries. The authors found that the decline in homicide was general rather than type specific. In other words, the observed decline, while mostly driven by male victimization, was visible in different subtypes such as family homicide, criminal milieu homicide, and crime-related homicide.

Homicide Types

Several research articles focused on specific subtypes of homicide. Looking at female homicide, Liem et al. (2024) found low and declining rates in six participating countries: France, Denmark, Sweden, Finland, the Netherlands, and Switzerland. Their findings also emphasized a heterogeneity in female homicide victimization: about half of the women in the entire sample were killed in an intimate partner homicide. The other half were killed in child homicides, parent homicides, disputes, robbery homicides, or sexual homicides. As a part of an earlier (smaller) study on intimate partner homicide in Sweden, Finland, and the Netherlands, Liem et al. (2017) found that intimate partner homicides in Finland stood out due to the strong association with alcohol use. In a recent paper, Krüsselmann et al. (2023) examined firearm homicides in Denmark, Finland, the Netherlands, Sweden, and Switzerland. The reported results indicate that, while the firearm homicide rate varies among these countries, two distinct profiles can be identified. In the first group—comprising Denmark, the

Netherlands, and Sweden—firearm homicides are largely concentrated in the criminal milieu and thus often take place in public and urban areas, involving male victims and perpetrators. In the other—consisting of Finland and Switzerland—firearms are mostly used in domestic homicides and result in a large proportion of female victims (Krüsselmann et al., 2023). The comparative study on drug-related homicides in Finland, Sweden, and the Netherlands conducted by Schönberger et al. (2018) is also noteworthy, as these authors specifically assessed the relationship between drugs and homicide. Their results indicated that systemic drug-related homicides (i.e., those related to the drug market) were most prevalent in the Netherlands, whereas psycho-pharmacological influences (i.e., perpetrator and/or victim being under the influence of drugs) were most pronounced in Finland. These findings appeared to mirror the nature and scope of drug markets and drug use in other European countries.

Reactions to Homicide

The EHM system also facilitates examination of reactions to homicide, which was the focus of the study conducted by Liem et al. (2019). The authors analyzed the clearance rates in Finland, the Netherlands, Sweden, and Switzerland for the 2009−2014 period. The homicide clearance rates varied from 77% in the Netherlands to 98% in Finland. Public place, nighttime, and firearm-related homicides were least likely to be cleared, and the national differences reflected the prevalence of these homicide patterns. However, these analyses do not capture the more recent gun and gang-related homicide problems of Sweden, which are often linked to low clearance rates, while the causal influence remains unclear.

New Developments

The EHM project is flexible in the sense that it can be extended to cover new locations and new aspects of homicide. Following the principle of flexible standardization, the scope of application is also open if the variables are not changed. Thus, it is fully acceptable to use only some of the EHM variables to address specific research questions, even though the full EHM or its short version (see below) should ideally be used for regular monitoring practices. In this section, we discuss three recent developments: topical concentration, drug-related homicide module, and the historical expansion backwards in time. The geographical expansion beyond Europe is discussed in a separate chapter more extensively.

Focusing on the Nucleus: The EHM−Short Version

The original EHM coding manual includes an extensive list of 85 variables. Its research use can be time-consuming and labor-intensive, as it usually involves transforming textual data into numerical format. To overcome these issues, an abbreviated form of the EHM that includes only the most relevant (so-called nucleus) variables was created. The short version of EHM includes 28 variables related to the incident, location,

time, modus operandi, individual offender and victim characteristics, and the motives and consequences of homicide (Granath et al., 2021). The Caribbean and South African homicide projects, described below, rely on the short EHM coding manual for data collection.

Drug-Related Homicide Module

Consistent with the principle of flexible standardization, the EHM allows new topical modules to be incorporated. Thus, if specific parts of the homicide phenomenon are considered as problems warranting special research attention, the EHM is a vehicle that can help in their analysis. A case in point is the newly created drug-related homicide module that reflects the broadening as well as deepening of a special dimension of the project (de Bont et al., 2018).

Historical Homicide Monitor

Originally, the EHM was designed as a prospective data collection and research tool with the view that datasets would increase in size with the passage of time. Countries could adopt the EHM framework to analyze their current data sources on homicide and continue with those investigations as further data become available. However, standardized and comparative homicide research can also be extended backward to cover different historical periods.

A project to extend EHM-compatible data collection to historical periods was launched in the Nordic area in 2018, funded by the Nordic Research Council for Criminology (Kivivuori, Rautelin, et al., 2022). That project aimed at substantial and methodological advances in long-duration homicide research, extending quantitative analysis to the pre-statistical age. To that effect, the project created the Historical Homicide Monitor (HHM, see Kivivuori, Rautelin, et al., 2020), a coding manual which is compatible with the EHM. The early modern period was chosen to focus on the steepest homicide decline in the Nordic area. Using original court protocols pertaining to this period, the patterns of early modern homicide in Finland, Denmark, and Sweden were disaggregated using the HHM and compared with those in the 2007−2016 period.

According to the obtained results, early modern homicide was closely linked to everyday routines and time cycles (Kivivuori, Lehti, et al., 2020). In terms of long-term changes, a clear trend of social marginalization of homicide was noted. Surprising findings included the relative scarcity of intimate partner homicide in the early modern period, possibly linked to the efficacy of informal social control in local communities. In addition to long-term comparison, the HHM was used to disaggregate short-term homicide peaks. The two short-term homicide peaks observed in the 17th-century data reflected a rise in "abnormal" homicides, that is, those committed in the context of other crime, across rank differences, and at night. These patterns were ascribed by the authors to temporary crises and routine activity disturbances in situations where central state control was temporarily weakened (Kivivuori, Kolttola, et al., 2022).

The Nordic historical project produced a coding manual for long-term violence analyses—the "Historical Homicide Monitor 2.0"—an open access resource also incorporating EHM-transformations for variables which are not directly comparable to those included in the EHM (Kivivuori, Rautelin, et al., 2020). The HHM coding manual was designed to be theory relevant. The feasibility of long-term comparisons was grounded in theories exploring human universals in motivation, social cognition, memory functions, and behavioral drivers (Daly & Wilson, 1988; Eisner, 2011). To enable the theoretical study of historical changes in homicide rates and patterns, the manual incorporated operationalizations of key criminological and historical theories explaining violence (Kivivuori, Rautelin, et al., 2020). The repository site[4] of the HHM provides the instructions, theory linkages, and ready-made empty observation matrices in SPSS and CVD formats. The HHM network has a website where information about the resources and publications is collated.[5]

Beyond Europe

The primary expansion of the EHM from its three-country core commenced with the participation of several European countries in joint research projects based on the shared standard. Recently, efforts to extend the EHM scope beyond Europe have been initiated. One involves a South African township, the other Dutch Caribbean islands.

South African Township

In 2021, the Institute of Criminology and Legal Policy (KRIMO) at the University of Helsinki (Finland) initiated a research cooperation with the South African university of KwaZulu-Natal (Durban) to examine patterns of homicide in global extremes. The aim was to compare homicide patterns in a township of Durban with Finnish urban homicide trends, as a methodological exercise assessing EHM feasibility outside Europe. The study results indicated that the EHM model is feasible in African conditions. Moreover, analyses revealed that the South African homicide age profile was much younger than in Finland. Other prominent features in Durban homicide included a higher share of criminal and revenge motives and the use of firearms in public places. The role of alcohol and drugs appeared to be more salient in Finnish urban homicide, a finding that requires replication (Kivivuori, Shing, et al., 2024).

The Dutch Caribbean

The Dutch Caribbean Islands consist of six small islands: Curacao, Bonaire, Aruba, Sint Eustatius, Saba, and Sint Maarten. These islands, particularly Curacao and Sint Maarten, serve as transit points for transnational crime, especially smuggling of illicit narcotics. Stark inequality between the small rich elite and the large group of people living below the poverty line is a fact of life on the islands.

Based on a pilot study conducted several years ago, covering homicide in Curacao between 2014 and 2018, the homicide rate was estimated at 18 per 100,000 individuals. In contrast, in the same time frame, the homicide rate in the Netherlands fell just below 1 person per 100,000 inhabitants. Preliminary work suggests that homicides in this region can mostly be ascribed to disputes between gangs and other conflicts within the criminal milieu (van der Zee, 2022). Yet, relatively little is known about the background and causes of these homicides (van der Zee, 2022). An ongoing project seeks to address this shortcoming by gathering empirical data on homicides in the Dutch Caribbean for the 2012−2022 period, making use of the EHM framework. This does not imply, however, that the EHM was simply copied and pasted to this transatlantic small island setting.

First, the issue of linked homicides needed to be addressed to account for perpetrators later becoming homicide victims—frequently in retaliation for their original crime. In closed communities such as small islands, individuals involved in homicides are thought to be linked more extensively. In addition, preliminary findings showed that several homicides in the Dutch Caribbean originated from drug-related conflicts in the Netherlands, prompting one of the parties to leave the country to evade retaliation only to be murdered in Curacao or one of the other islands. As a result, even though the EHM does contain a specific field allowing for a brief description of a linked homicide, for the purposes of this research project, another variable was inserted to structurally capture this aspect.

A second factor that is unique to this setting is the sensitivity in reporting. In most years, in some of these islands—particularly Bonaire, Aruba, Sint Eustatius, and Saba—only a handful of homicides take place. As a result, it becomes almost impossible to make these cases non-identifiable in any generated reports. This problem was addressed via joint reporting with the bigger islands, or by using aggregate results and applying 3- or even 5-year moving averages, as was previously done in similar circumstances (Lehti et al., 2021).

Discussion

As criminology is a research field covering multiple disciplines, such as psychology, sociology, law, history, psychiatry, public health, and medicine, the same is true for the study of homicide. Homicide as a social phenomenon can be analyzed through various lenses. Its trends and patterns can be explored from a sociological or criminological perspective, its impact on society as a whole can be examined or focus can be given to individuals directly affected by it, and its legal control or its historical change over time can be investigated. All these dimensions of homicide are covered by scholars with a different disciplinary background. What unites these varied research angles is that they would hugely benefit from disaggregated, detailed individual-level data on homicide, which is ideally internationally comparable. This is a challenge we wanted to meet when we started to develop the EHM 15 years ago. Yet, our work is hardly done. We conclude this stock-taking article by discussing some of the key challenges in the future development of homicide research and monitoring data.

Methodological Challenges

Three prominent challenges in the future development of the EHM approach are linked to methodological obstacles or hurdles pertaining to data generation, data merger, and data analysis.

Generating Data. Much of the work involved in creating EHM-based datasets pertains to transforming textual data into numerical format, which is a labor-intensive task. One solution to this issue is limiting the number of variables, as in the EHM−short version. In the future, new methods of analyzing big textual data could be explored as a means of generating numerical data from qualitative sources. In historical work, automatic text recognition tools are already being harnessed to transcribe handwritten text (Kivivuori, Kolttola, et al., 2022). Yet, this is hardly the key problem in modern data, where the challenge lies in the sheer quantity of the text and its quantification. In the future, natural language processing and topic modeling tools might and should be tested to facilitate data generation.

Merging Data. Due to national regulations on data protection, the EHM pilot study (Granath et al., 2011) remains the only study based on a merged datafile. Subsequent research has been based on sharing the syntaxes of the analyses and running them separately in each participating country. In the future, possibilities to merge data again should be explored. Another means of using merged data is to resort to distant historical periods. The Historical Homicide Monitor Database (HHMD), covering cases from 17th-century Denmark, Finland, and Sweden, is a merged dataset. In that regard, individual-level research potentialities should be explored if research funding becomes available. For modern data, new AI solutions such as creating a synthetic version of the EHM datasets are being explored (Liem et al., 2023).

Analyzing Data. As considerable effort is needed to create individual-level datasets, we would expect to see more individual-level analyses in the future. Thus far, the EHM has not fostered many such analyses, probably because the available datasets do not include case controls (persons who did not die, or who did not kill), thereby precluding homicide risk analyses. Case control designs are in principle possible using homicide monitoring systems (cf. Tiihonen et al., 2015), but other individual-level approaches could also be used, such as latent class analysis (Kivivuori, Tanskanen, et al., 2024), or regression analysis for research questions where the temporal order between independent and dependent variables is straightforward to interpret. Examples of such research topics include the suicide of the offender after the homicide (Kivivuori & Lehti, 2003), or the time lapse from the violent incident to the death of the victim, a variable with considerable variation in historical data (Kivivuori, Kolttola, et al., 2022).

Future Institutional Needs

For many EU countries, there is no systematic comparable, disaggregation-enabling data on lethal violence. Detailed, individual-level data that allows for

in-depth analyses of homicide patterns is available in only a handful of countries. The national databases that do exist are not compatible with one another, and reports such as those supplied by the United Nations Office on Drugs and Crime (UNODC) are helpful for rough statistics but lack the degree of disaggregation that enables the study of specific dynamics underlying homicides. An important aspect of the EHM is also its generality within homicide. In other words, it includes all cases of intentional lethal violence. This is a significant benefit for anyone wishing to understand and study particular victim groups, such as violence against children or women. If we would rely only on group-specific data, we would be unable to explain if and why country rates are elevated or low. Thus, moving forward, we should join efforts in creating a data clearinghouse that would facilitate more sophisticated analyses, using general but disaggregation-enabling data.

The EHM in its present state, including seven European countries (Denmark, Estonia, Finland, France, the Netherlands, Sweden, and Switzerland), provides *the best available platform to meet this aim*. In its present form, and depending on the country, the EHM spans up to two—and in some countries even three—decades of data. We aspire to continue data collection to facilitate more detailed trend analyses, while allowing other countries to join this initiative. Expanding the temporal and geographical scope of the monitor would provide unique opportunities to follow and make assessments of trends in and factors that foster lethal violence from a pan-European perspective.

The EHM is currently coordinated by four scholars representing three universities (Universities of Helsinki, Leiden, and St Gallen) and one governmental research agency (the Swedish National Council for Crime Prevention). Acquiring permissions for data access, data collection, and data coding is a time-consuming and laborious process. To ensure that individual, detailed homicide data can be kept up-to-date, and render this process less dependent on individual appointments, grants, and affiliations, one option would be for a supra-national agency, perhaps under the auspices of the European Union or the United Nations, to take over this responsibility. Collecting and maintaining such data on a European level would greatly improve the opportunities for EU-level initiatives to work in different ways to prevent and reduce lethal violence and to follow up the measures that are introduced. With combined and sustained efforts, the EHM can reach its full potential.

Future Research Needs

In terms of substantial research questions, several areas of homicide research warrant particular attention. One of these areas consists of the criminal justice response to homicide. Even though Europe is increasingly becoming legally, politically, and economically unified, there is still a large discrepancy in how we deal with those who commit violent offenses. Past research shows that punishments for homicide vary widely throughout Europe, ranging from life imprisonment to several years' confinement (Liem & Campbell, 2014). To conduct a pan-European comparison of the types

of punishments given, accurate and reliable data collection is required that captures information on the main law enforcement, judicial, and correctional institutions involved, including the police, prosecution, courts, and prisons—following a case through the entire criminal justice funnel (Liem et al., 2020). Data on individual offenses and suspects should be collected at each stage of the process, so that criminal justice responses can be measured and compared across European countries (United Nations Office on Drugs and Crime, 2023).

Recent and ongoing research has highlighted the high human and social costs of violence against and by young persons. Youth homicide may have a particularly strong link to drug use and drug markets, and thus to criminal milieus (Aarten et al., 2024; Kivivuori, Tanskanen, et al., 2024). Related to this relationship, there is also reason to explore the co-morbidity phenomena or "syndemics" linking different outcomes such as homicides and drug overdose-related deaths (van Breen & Liem, 2022, 2023). While the EHM is limited to lethal violence, it could be used to explore correlations of homicide subtypes with adverse health outcomes. Analogously, the system could have a special additional module on youth homicide, just as it has such a module for drug-related homicide.

As noted above, the expansion of the EHM from its West European core was inaugurated with the Dutch Caribbean and South African pilot studies. These endeavors should be extended to other contexts in South America, Africa, Asia, and Oceania. Eventually, this endeavor could result in a *Global Homicide Research Model*. Interestingly, the challenges involved in this extension resemble some of the issues encountered in the creation of the historical data in the HHM pilot, because the past is in many respects "a foreign land" when seen from the perspective of modernity. A case in point is the classification of occupations. The scholars involved in the HHM project resorted to the International Standard Classification of Occupations (2024) classification of occupations, which is intended to be globally applicable in the contemporary world, yet included codes for occupations that no longer exist in the modern West. Motives such as witchcraft are another case in point, even though modern witchcraft-motivated homicide (Cusson et al., 2017) can hide more mundane economic motives.

Another area of attention constitutes the evaluation of policies aimed at violence reduction, including homicide reduction. This research is particularly pertinent in high-homicide areas such as the Global South. However, the Global North is far from exempt from high-homicide rate concentrations, as evident from data related to some of the U.S. cities, but also parts of Sweden. There is increasing evidence that forms of focused deterrence are effective in serious violence prevention (Braga & Kennedy, 2020). More research is needed on this and other fronts, such as measuring the effect of domestic violence interventions, parenting programs, and alcohol and drug abstinence programs. Given that there is little knowledge and reliable data on such programs, research on the impact of these interventions has the potential to generate evidence-based policy to further reduce the burden of homicide throughout the continent and beyond.

Declaration of Conflicting Interests

Funding

Notes

1. For general information about the European Homicide Monitor (EHM), see the project website www.europeanhomicide.com.
2. In Finland, police investigation is also conducted in cases where the suspect is not culpable due to being a minor (under 15 years old). Thus, use of police registers broadens the data scope compared to prosecution and sentencing stages which automatically exclude minors.
3. This number represents raw hits with the indicated search phrases; we did not check the context in which these phrases were used and did not exclude duplicate entries. The "European Statistical Database on Lethal Violence" was the working title of the database during the original pilot project. Two articles (Caman et al., 2017; Kivivuori & Lehti, 2011) were included because the authors used that title for the EHM.
4. https://helda.helsinki.fi/items/8d889143-dab4-4637-926a-659994e884dd.
5. https://blogs.helsinki.fi/historicalhomicidemonitor/.

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Author Biographies

Janne Kivivuori is a Professor of criminology at University of Helsinki, Finland. His research focuses on homicide, the development of survey-based crime indicators, and history of criminology. He has recently directed an international project expanding standardized homicide monitoring to the past (*Nordic Homicide in Deep Time*, Helsinki University Press, 2022). He serves in the Steering Committees of the *European Homicide Monitor* and the *International Self-Report Delinquency Study*.

Marieke Liem is a Professor of Violence and Interventions at Leiden University, the Netherlands. Her research interests include homicide, other types of violent crime and the effects of incarceration of violent offenders. She is a member of the Steering Committee of the *European Homicide Monitor*.

Nora Markwalder is a Professor of Criminal Law and Criminology at the University of St. Gallen, Switzerland. Her research focuses on homicide and violent crime, victimization surveys and empirical studies of the criminal process. She is chair of the *European Homicide Research Working* Group and member of the Steering Committee of the *European Homicide Monitor*.