

Multivariate event history analysis of domestic abuse incidents by Home Office Outcome Code

This project employs advanced multivariate techniques on police data on violence against women and girls/domestic abuse incidents to model subsequent incidents as a function of multiple offender characteristics or outcome codes.

Key details

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Police region	North West
Collaboration and partnership	• Cheshire Police • Merseyside Police
Level of research	Professional/work based
Project start date	July 2026
Date due for completion	June 2027

Research context

The first recommendation of the Domestic Abuse Commissioner's 2025 report called for 'a review of outcome codes, particularly 15 and 16 to address the "stark picture" that fewer than half of DA [domestic abuse] cases recorded by the police lead to prosecution, and just 6% to conviction'. There is a priority for police to increase charge (and conviction) rates in cases of violence against women and girls (VAWG) or domestic abuse. Police currently use a variety of risk assessment tools

and there are academic studies of the assessment of risk posed by perpetrators (Dutton and Krop 2000, Godfrey and Richardson 2023).

We offer a different approach to predict whether and when future DA offending occurs factoring in the disposal of previous incidents (as evidenced for each Home Office Outcome Code). The limited existing evidence base suggests that predicting future 'call outs'/reoffending can be done on basic frequency and nominal data, but that accuracy is mixed (Berk, He and Sorenson 2005, Yu and others 2023, Messing and Thaller 2012). Instead, our project processes large and rich police data sets in order to provide more accurate predictions of criminal trajectories in DA/VAWG cases (Saeed and Abdulmohsin 2023). The aim of this project is therefore to use large-scale quantitative data, for the first time, to assess the extent to which multivariate event history analysis can improve risk assessment. This is of considerable interest to criminologists, statisticians, data experts and academics working on criminal justice, as well as the [national centre on violence against women and girls and public protection](#) (NCVPP), who will return to the Chief Constables' Council in 2027 having gathered a wide evidence base, of which this research will form a part.

Research methodology

We will receive data that comprises an anonymised sample of VAWG/DA incidents reported to police (2021–2025) and carry out a descriptive analysis of the sample structured by their outcome codes (1–22). Next, we will use multivariate event history analysis on the data to predict whether, and if so how soon a next incident occurs, employing the available characteristics of the offender, victim and incident. The multivariate event history models will include offender age, offender and victim gender, offence type, and prior offending history, and will combine these in the prediction of a new DA incident with other available characteristics of the offender, victim and incident, such as alcohol, drugs, addiction, presence of children, unemployment, stalking and so on. We will apply a fuzzy correction, using estimated average imprisonment duration for arrests for serious crimes, for those offenders who are charged for crimes that may lead to imprisonment, to prevent us falsely categorising someone imprisoned as at low risk for DA reoffending.

The analysis will allow us to test whether:

- it is possible to construct prioritised lists of high-risk victim-survivors whose cases were closed with an outcome 16 record
- associations exist between victim-survivor, suspect, case context and outcome 16 disposals

- there are heterogeneous patterns in time to reconviction in the data
- our research findings demonstrate any possibility of intervention following VAWG/DA Outcome 16 incidents

There may be opportunities for police or the third sector to encourage victim-survivor engagement which will increase the charge rates for DA/VAWG incidents. We will assess the predictive performance of our model using a subset of cases that was excluded from model estimation. This out-of-sample evaluation will allow us to evaluate how well our model predicts future DA/VAWG incidents.

References

- Berk RA, He Y and Sorenson SB. (2005). [Developing a practical forecasting screener for domestic violence incidents](#). Evaluation Review, volume 29, issue 4.
- Godfrey B and Richardson J. (2024) [The shift in focus from victims to the most serious perpetrators of domestic abuse](#). Criminology and Criminal Justice, volume 26, issue 1, pages 158–174.
- Dutton D. and Kropp P. (2000). [Review of domestic violence risk instruments](#). Trauma, Violence, & Abuse, volume 1, issue 2, pages 171–181.
- Messing JT and Thaller J. (2012). [Average predictive validity of intimate partner violence risk assessment instruments](#). Journal of Interpersonal Violence, volume 28, issue 7, pages 1537–1558.
- Yu R and others. (2023). 'Development and validation of a prediction tool for reoffending in DV'. JAMA Network, volume 6, issue 7.