University of Kent

# Kent Academic Repository

**Gityamwi, N., Toma, M., Bertoncin, C., Dicerto, S., Lapite, O. and Armes, J. (2025)** ***An innovative Data sharing and Visualisation Tool (DAVIT) to improve domestic abuse data insight and multi-agency collaborations: An explorative study of acceptability, relevance and implementation considerations.*** **Public Health in Practice, 9 . ISSN 2666-5352.**

## Downloaded from

https://kar.kent.ac.uk/109795/ The University of Kent's Academic Repository KAR

## The version of record is available from

https://doi.org/10.1016/j.puhip.2025.100603

## This document version

Publisher pdf

## DOI for this version

## Licence for this version

CC BY (Attribution)

## Additional information

## Versions of research works

### Versions of Record

If this version is the version of record, it is the same as the published version available on the publisher's web site. Cite as the published version.

### Author Accepted Manuscripts

If this document is identified as the Author Accepted Manuscript it is the version after peer review but before type setting, copy editing or publisher branding. Cite as Surname, Initial. (Year) 'Title of article'. To be published in ***Title of Journal*** , Volume and issue numbers [peer-reviewed accepted version]. Available at: DOI or URL (Accessed: date).

## Enquiries

If you have questions about this document contact ResearchSupport@kent.ac.uk. Please include the URL of the record in KAR. If you believe that your, or a third party's rights have been compromised through this document please see our Take Down policy (available from https://www.kent.ac.uk/guides/kar-the-kent-academic-repository#policies).

Public Health in Practice 9 (2025) 100603

Contents lists available at ScienceDirect

Public Health in Practice

journal homepage: www.sciencedirect.com/journal/public-health-in-practice

# An innovative Data sharing and Visualisation Tool (DAVIT) to improve domestic abuse data insight and multi-agency collaborations: An explorative study of acceptability, relevance and implementation considerations

N. Gityamwi [a,b,*], M. Toma [b,c], C. Bertoncin [d], S. Dicerto [d], O. Lapite [d], J. Armes [a,b]

[a] School of Health Sciences, University of Surrey, Guildford, Surrey, United Kingdom
[b] NIHR Applied Research Collaboration - Kent, Sussex, Surrey, (ARC - KSS), United Kingdom
[c] School of Social Policy, Sociology and Social Research, University of Kent, Kent, United Kingdom
[d] Office of Data Analytics, Surrey County Council, Surrey, United Kingdom

ARTICLE INFO

*Keywords:*
Domestic abuse
Domestic violence
Data insight
Data visualisation

ABSTRACT

*Objectives:* Domestic Abuse (DA) is a public health concern impacting multiple sectors. Partnerships and coordinated responses from statutory agencies are vital to ensure DA survivors' needs are met, but this is impeded by the accessibility of quality DA data. We present an innovative data sharing and visualisation tool (DAVIT) and its perceived potential to improve DA insight and multi-agency collaborations.

*Study design:* Qualitative exploratory study.

*Methods:* DAVIT was developed by Surrey County Council (SCC) through a consultation and prioritisation process with multi-agencies interested in DA. Focus group discussions (FGDs) were conducted on Zoom with representatives of agencies responding to DA in Surrey area to obtain their views regarding the relevance, acceptability and the potential for implementing DAVIT into practice. Qualitative data analysis was guided by the updated Consolidation Framework of Implementation Research (CFIR).

*Results:* Fifteen individuals representing seven agencies participated in 1-h long FGDs. Participants perceived DAVIT as well-designed, simple to use and adaptable to the local context but it needed improvements in data quality and comprehensiveness. Our findings suggest that DAVIT could enable intelligent planning and allocation of resources, delivery of targeted interventions and commissioning of DA service. Organisations' networks and connections, favourable data governance structure, policies, and regulations (outer settings); availability of resources, knowledge & information (inner settings); and individuals' capacity, competence and support from high-level leaders will all influence the implementation of DAVIT into practice.

*Conclusions:* DAVIT is acceptable and if improved and successfully implemented into practice could improve DA services. Provision of minimal training to data officers in organisations will maximize the utility of DAVIT. A clear data governance structure and data sharing framework will help the implementation of DAVIT.

**What this study adds**

- Our research demonstrates an innovative approach enabling a unified and collective view of domestic abuse incident data.
- Despite the consensus on the significance of multi-agency collaboration in addressing domestic abuse issues, differences in organisational culture, governance and understanding of legal requirements on data sharing impact multi-agency working.
- There are inadequacies in the quality and comprehensiveness of domestic abuse data collected by agencies limiting their usability for planning and commissioning of services.

* Corresponding author. School of Health Sciences, University of Surrey, Kate Granger Building, Priestley Road, Guildford, GU2 7YH, Surrey, United Kingdom.
*E-mail address:* Nyangi.gityamwi@surrey.ac.uk (N. Gityamwi).

https://doi.org/10.1016/j.puhip.2025.100603
Received 3 June 2024; Received in revised form 20 February 2025; Accepted 13 March 2025
Available online 26 March 2025
2666-5352/© 2025 The Authors. Published by Elsevier Ltd on behalf of The Royal Society for Public Health. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

*Implications for Policy and Practice*

- A unified and collective view of domestic abuse incidents will help improve domestic abuse response through intelligent planning, better resource allocation, service commissioning and the delivery of targeted interventions.
- There is a need for a clearly defined and unified framework for data sharing between agencies and responders to domestic abuse. This includes a balance between protecting individual privacy and enabling effective data sharing for public safety.
- Implementation of robust technological solutions (ensuring security, integration and interoperability) that facilitate seamless data sharing and sharing of resources and skills between organisations are key in efficient data sharing and multi-agency working.

## 1. Introduction

Domestic Abuse (DA) is a substantial social care issue, with significant harm to victims and concern for public health [1]. Approximately 1 in 20 people in the UK aged 16 and over experienced DA in the year ending March 2024. Although there has been a gradual decrease in domestic abuse over the last 10 years, from 6.5 % in 2014 to 4.8 % in 2024, DA has long-term consequences on individuals, affecting their psychological, economic, and physical well-being [2,3]. The UK Home Office [4], estimates the cost of DA to be around £78 billion annually which they attribute to physical and emotional harm, health services usage, lost output, and provision of victim services.

Domestic abuse is a complex and multifaceted issue that requires coordinated efforts and collaboration across various sectors and agencies to address and mitigate its impacts effectively [5,6]. Multiple entities in England respond to DA by commissioning, providing and coordinating DA services [7]. For example, organisations and charities like WomenAid (for women), Galop (for LGBTQ+), SignHealth (for deaf people) provide specialist/tailored support to meet the unique needs of DA survivors. NHS bodies offer healthcare services and support for victims of DA, whilst local authorities play a significant role in commissioning local DA services such as refuges and support programmes. Police forces and Police and Crime Commissioners (PCC) also fund and coordinate services related to law enforcement and victim support. The DA Commissioner for England and Wales oversees the overall provision of DA services, working closely with all these statutory agencies [8] to ensure a coordinated response which is vital to ensure DA survivors' needs are met [9]. Public Health England and local government organisations all stress the importance of multi-agency working in safeguarding against DA [10–12]. However, despite its potential, coordinated and collaborative approaches to DA face several challenges due to differences in organisational perspectives, goals and approaches to DA, including the requirements around reporting, data sharing and confidentiality [13]. Cross-agency data sharing faces complexities around data ownership and organisational controls, legal conditions, privacy and safeguarding concerns [14]. Thus, the traditional siloed approach of agencies in responding to DA is an ongoing challenge with agencies having different and often somewhat contrasting views of priorities based on the data they have available. However, DA data viewed in fragments and isolation, may limit understanding of DA. For example, police departments countrywide use descriptive data analytics to hotspot crime and mobilise resources to those areas. However, it is difficult to track DA trends with police data alone due to under-reporting [15]. The DA Commissioner's report [16] mapping DA service provision highlighted that almost 50 % of survey respondents said the first person they reported their DA to was a health professional. Looking at police data in tandem with DA data collected by other agencies, such as health services, charities or social services providing refuge to DA victims, would help to provide a more complete picture of DA by locality. This would also aid commissioning of services and help to end the postcode lottery that DA survivors report [16]. To provide evidence-based recommendations to the national government and local decision/policy-makers, the DA Commissioners' office collates data from a wide range of DA services to inform their understanding of the scale and nature of DA [17]. Comprehensive DA data is crucial in informing service planning, resource allocation and responses [18].

Surrey County Council (SCC), like all agencies involved in responding to DA, requires an understanding of local challenges and priorities for decision-making purposes. Acknowledging the potential of multi-sectoral collaboration and data insights in intelligent planning, the need to bridge the information gap across agencies to ensure a common understanding of issues has come to the fore for the Surrey DA response system. This is particularly in light of the requirement to allocate a finite number of resources to geographical areas and societal segments where these are likely to have the greatest effect.

A multi-agency consultation led by SCC was therefore held on 28/5/21 to explore how collaboration and data sharing across Surrey partner organisations could be enhanced. The forum brought together 17 representatives from key organisations including Surrey Police, Surrey County Council, Royal Holloway University of London, the Surrey DA Partnership, Probation Services and Surrey Heartlands. A key outcome of the discussion was a collective call for the development of a robust data-sharing mechanism to improve the reporting and sharing of Domestic Abuse (DA) intelligence across Surrey. Leveraging existing software (Sharepoint for sharing and Tableau for visualising data), CB and SD from Surrey County Council's Office of Data Analytics (SODA) collaborated with the aforementioned local DA stakeholders to create the DA data visualisation tool (DAVIT).

### 1.1. Description of DAVIT

DAVIT is a Tableau-based platform that enables organisations and agencies to contribute aggregated DA data from their databases. DAVIT allows sharing and geocoding of anonymised DA data to visualise hotspots and heat maps based on rates per local population. Research has demonstrated the potential of heat maps and hotspot mapping in providing valuable visuals and analytical insight into crime and DA issues in terms of identifying the high-risk areas [19], supporting contextual analysis and understanding of how social-economic, environmental and other demographics influence DA [20], establishing trends and prediction of DA [21,22]. This enables the development of sound DA policies, intervention strategies and appropriate allocation of resources to improve DA services [23]. Using actionable intelligence in this way can enable targeted coordination of response and support, improved health outcomes and reduced care cost savings [8]. Moreover, using data visualisation has the potential to drive the targeting of services/interventions to those most in need and facilitate multi-agency collaboration.

DAVIT provides a clear visual representation of DA-related records and indicators in specific areas. The current prototype of DAVIT presents DA data at the ward level, as a rate per 100,000 population or as a rank of rate per 100,000. It currently includes DA data from SCC Children's Social Care, SCC Adults' Social Care and Surrey Police. Data can be filtered by financial year, sex, age group of the survivor/victim, geographical location (ward or district and borough) and can be viewed as a single map (Fig. 1), double/comparison map (Fig. 2), or rank views (Fig. 3). All visualisations are intended as a springboard to support multiagency conversations that contribute local knowledge, an understanding of existing interventions and of any recent local events that help contextualise the trends identified and guide the DA response system towards viable and helpful interventions.

This article presents the findings of the study conducted to understand the perception of stakeholders of DA (described in the next section) on the relevance and utility of DAVIT, to explore how it might be implemented into routine practice. We also explored what is needed to

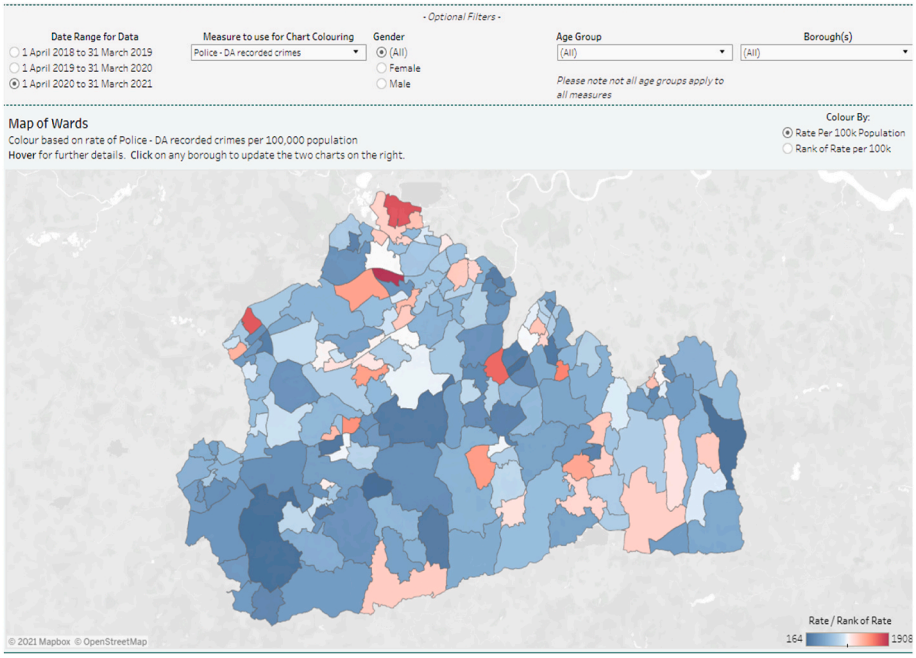


**Fig. 1.** A screenshot illustrating DAVIT's single map view and description of the view
A single-view dashboard enables users to view data on one specific indicator at a time, providing an understanding of the magnitude (prevalence) and distribution of that indicator in the region or among different demographics. DA incident rates are presented as a heat map changing from blue (lowest incidence) to red (highest incidence) for a chosen ward, date, age group, sex etc. Data from this dashboard can help decision-makers understand what different types of intervention might be appropriate for which area and segment of the population that an agency can implement independently of others.

increase its usability and ensure successful implementation.

## 2. Methods

### 2.1. Study design and participants

We adopted a qualitative design and conducted focus groups discussion (FGD) with professionals involved in reporting, assessing and intervening in cases of DA from different agencies within Surrey area. Participants were identified and approached by the research team through pre-established professional networks. In addition, people previously involved in consultation forum were invited by the research team through pre-established professional networks. In addition, people previously involved in consultation forum were invited by the research team to participate.

The use of focus groups allowed dialogue and dynamic interactions among participants from different agencies enabling the simultaneous collection of diverse viewpoints and perspectives on multiple issues [24] that might impact DAVIT's usability and implementation.

### 2.2. Data collection

The focus groups were conducted online via Zoom and on different days of the week (13–30$^{th}$ March 2023) to widen participation. They lasted for a maximum of 1 h and were facilitated by members of the research team (NG, JA & MT) using a topic guide aimed at ascertaining participants' perceptions on the utility of DAVIT and considerations for implementing DAVIT into routine practice. The topic guide (Supplementary file 1) was loosely structured to facilitate open and free-flowing discussion. Workshops began with a demonstration of DAVIT, followed by a discussion on the benefits and challenges of its use, and suggestions for potential improvements. With participants' consent, discussions were video recorded. Zoom automated transcriptions were anonymised and stored securely in a password-protected university server ensuring the removal of any identifying information.

### 2.3. Data analysis

The focus group discussions were analysed using an iterative and stepwise process, according to the principles of Framework Analysis [25] and facilitated by using Excel. In the first stage, two researchers (MT, NG) familiarised themselves with the transcripts. Open coding techniques were applied in the second stage, where relevant themes were identified, grouped and organised based on domains included in the updated Consolidated Framework for Implementation Research (CFIR) [26]. Although the focus group discussion guide was not informed by the CFIR constructs, we adopted the framework to ensure rigour in our data analysis. CFIR was selected to ensure we captured and considered all the relevant factors and generated findings that are comprehensive, actionable and can directly inform improvements and implementation [27]. In meetings, the research team (NG, MT, JA) discussed any disagreements, refined the coding and/or summarised the findings according to each identified domain and related construct.

### 2.4. Theoretical underpinnings

The recently updated CFIR is a well-established framework for systematically identifying influencing factors that determine whether implementation of an intervention/practice might succeed or fail. CFIR is a versatile tool, as it can be adapted and used flexibly according to the context of the research [27]. CFIR recognises that barriers may arise at any level or setting and can be used to identify strategies to overcome barriers. Overall, the updated CFIR contains 48 constructs and 19 sub-constructs across five interrelated domains. A summary of the adapted CFIR is presented in Supplementary file 2, but a detailed framework can be found in an article by Damschroder et al., [26]. Importantly, not all CFIR constructs are relevant to every situation, and therefore, based on the collected data, pragmatic decisions were made to choose determinants at multiple levels relevant to this specific study. For instance, in the context of the DAVIT, CFIR was ideally placed to identify potential static contextual determinants (both barriers and facilitators)

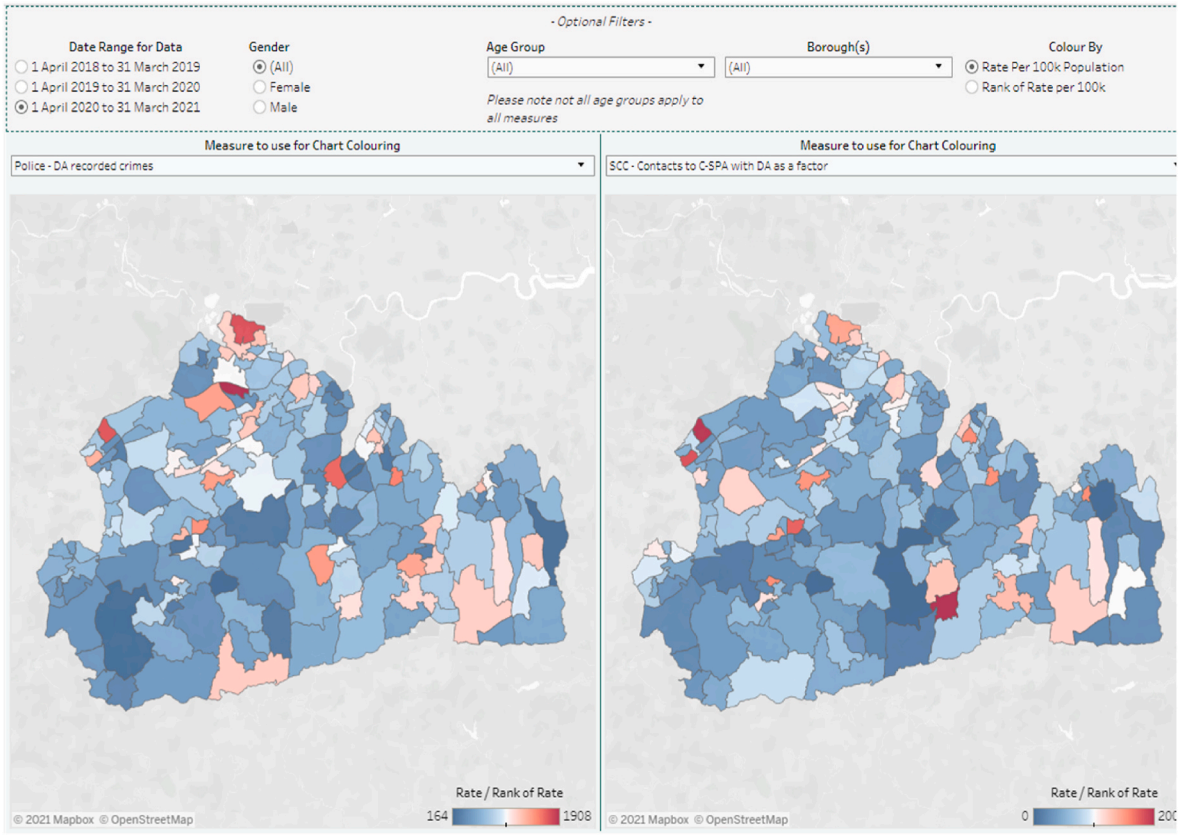


**Fig. 2.** A screenshot illustrating DAVIT's comparative view and description of the view
The image shows a comparative side-by-side view of "hotspots" for two indicators namely, "DA recorded crime" by Police vs. "contact to Children's single point of Access, (C-SPA)" at the Surrey County Council (SCC). This comparative view enables identifying areas of similarities between agencies, indicative of collaborative work and collective response. Where reported prevalence is zero for both indicators, this might be an indication of "blind spot" that requires investigation. Differences observed would mean that different targeted interventions are required, including investigations into the efficiency of DA identification, reporting and recording mechanism. This visual has the potential to support agencies in teasing out specific questions about patterns and trends in different areas or for different demographics from a multi-agency perspective.

across four of the five domains, namely: DAVIT characteristics (related to the characteristics of the overall DAVIT practices, including design, complexity and adaptability), inner setting (significant organisational factors that can facilitate or prevent DAVIT implementation efforts), characteristics of individuals (related to the characteristics of individuals involved with implementing DAVIT, who are not passive recipients of innovations, but instead intimately engage with and influence implementation efforts) and outer setting (which captures the impact of external influences, including relationships and interactions DAVIT might generate within the larger economic, political, and social context in which it resides). Since the implementation of DAVIT did not actually take place, the process domain (namely factors involved in the active change processes aimed at achieving individual and organisational implementation of practices) was omitted from the analysis.

## 3. Results

A total of 15 of 20 invited individuals, consented and attended focus group discussions, representing a range of organisations (see Supplementary file 3). However, the opinions presented are those of the attendees not of their employing organisations.

Our analysis identified themes which covered four domains and eight constructs of CFIR (Table 1). Participants' quotes are presented in Table 2.

### 3.1. Domain 1: The Innovation

#### 3.1.1. Constructs: DAVIT design and adaptability

Participants found DAVIT's design easy to navigate and use, as they could easily select an indicator of choice from a drop-down menu and visualise DA data by sex, age group and locality (e.g. electoral ward). Moreover, presenting DA data as a rate per 100K population gives a sense of the extent of the problem compared to the size of the population in the given area, and this was positively commended. (**Quote 1**, Table 2**).** DAVIT can be adapted according to the local context or need, and this was viewed positively as suggested improvements to DAVIT's design can be accommodated easily.

When participants were asked to describe how DAVIT might be used and benefit their work, most agreed that the tool would be useful for commissioning resources. Being able to view data visualizations according to demographics like age and gender, was seen as being advantageous as such information is relevant for designing and delivering targeted services. A side-by-side heat map comparison view of DA data from two different sources or localities (e.g. wards) was perceived to be beneficial as participants could instantly note similarities and differences in incidents reported by different agencies. This aroused their curiosity and stimulated discussions on possible reasons and what it meant for the services in terms of helping with the allocation of resources and delivering targeted services (**Quotes 2 and 3**, Table 2).

The mapping visualisation of DA was also thought to be very useful for thinking about where to locate DA communication campaigns led by social care services in public spaces like on billboards and train stations.

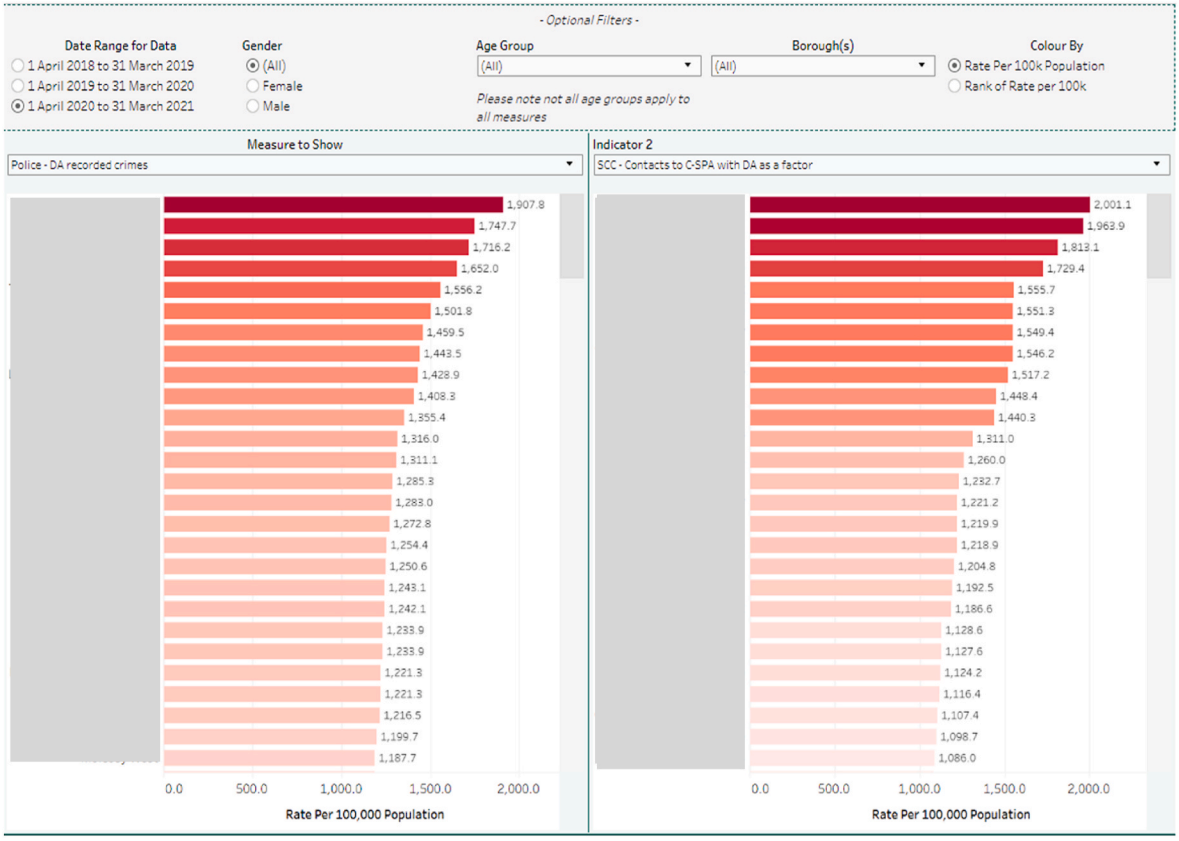


**Fig. 3.** A screenshot illustrating DAVIT's rank view and the description of the view
This visualisation presents incident rates of DA indicator per 100,000 population and at the same time, its ranking in geographical areas or demographics. The bars represent DA incident rates ranked from highest to lowest for a chosen ward, date, age group, sex etc. Ward names have been masked for anonymity. In this view, a geographical area can be selected to see its relative position and rate per population as highlighted in both bar chart, helping to gain a detailed understanding of actual prevalence in a local area. This is particularly important given that sub-sets of the main dataset (e.g. specific age groups for specific areas) can potentially result in a small number of reported incidents. For example, selecting to view the data for only one sex and one age category might make the only ward that has data for that selection look "high" prevalence compared to other areas, but the rate per population would provide additional detail to give reassurance about the actual reported prevalence per 100,000 population.

Knowing areas of highest risk would help in deciding where to concentrate services, such as DA outreach providers and safe accommodation providers (**Quote 4**, Table 2).

To improve its relevance and usage, participants suggested improving its data comprehensiveness by including demographic data (e.g. ethnicity), and a description of the type/nature of DA reported (e.g. violence, coercive control, financial control). Including the perpetrators' age and gender would be valuable for the services that work with this group. Participants also recommended adding DA reports from health data (e.g. mental health services, acute services, general practice and community health services) to provide a more comprehensive overview (**Quote 5**, Table 2).

NHS services were suggested as a potential source of DA data that could be included as they are trusted by people as a safe place to disclose DA. Participants highlighted the presence of the Hospital-based Independent Domestic Abuse Adviser (HIDVA) who collects monthly DA data which could be added to DAVIT (**Quote 6**, Table 2).

Other identified sources for health data were Local Care Records, which bring together aggregate data from local integrated care systems, and other care services such as GPs, ambulance services, children services. Surrey Fire & Rescue Service was suggested as another potential source of DA data. Participants also acknowledged that whilst outreach services provide DA data to commissioners, their data privacy policies do not support data sharing with other bodies. Although DAVIT is based on aggregate data, it requires it to be submitted in a form where sex, age group, and location data are overlayered. This was deemed inappropriate by the outreach services.

It was also suggested that DAVIT be modified to enable the visualisation of trends in addition to the current prevalence of DA. Also, participants suggested making the data labelling clearer so it is possible to identify if the data presented is that of the victim or perpetrator. From the perspective of the police service, inclusion of DA data on an annual basis (current process for DAVIT) is too historic because of the fast pace at which they operate (**Quote 7**, Table 2).

### 3.2. *Domain 2: The outer setting*

#### 3.2.1. *Construct: Partnerships & connections*

Networking and working in partnership with external entities, including the complex organisational networks involved in responding to DA, was identified as an important aspect in ensuring the implementation of DAVIT. Participants called for systemic changes describing how different partners might work together pre- and post-implementation to provide relevant high-quality data that will ultimately make DAVIT an effective multi-agency tool. Our findings suggest that the practical implementation of DAVIT requires integration of data across different sectors which may be complex (**Quote 8**, Table 2).

#### 3.2.2. *Construct: Policies and laws*

Implementing change often requires effective extra-individual influences aimed at driving and coordinating action to trigger and maintain engagement with an intervention. Participants appeared to view

**Table 1**
CFIR domains and constructs relevant to DAVIT, identified from focus group discussions.

| Construct definition | Findings from focus group discussion |
|---|---|
| 1. **THE INNOVATION DOMAIN (Characteristics of DAVIT as an innovation)** | |
| **DAVIT Adaptability**<br>The innovation can be modified, tailored, or refined to fit local context or needs | DAVIT can be modified, tailored, or refined to fit the local context or needs. |
| **DAVIT Design**<br>The innovation is well designed and packaged, including how it is assembled, bundled, and presented | DAVIT is well-designed and packaged, including how it is assembled, bundled, and presented. |
| 2. **OUTER SETTING DOMAIN** | |
| **Partnerships & Connections**<br>Networks with external entities, including referral networks, academic affiliations, and professional organization networks | There is a network of external entities, including complex organisational networks involved in responding to DA |
| **Policies & Laws**<br>Legislation, regulations, professional group guidelines and recommendations, or accreditation standards support implementation and/or delivery of the innovation | Legislation, regulations, professional group guidelines and recommendations exists that support the potential implementation and/or delivery of DAVIT |
| 3. **INNER SETTING DOMAIN** | |
| **Available Resources**<br>Resources are available to implement and deliver the innovation | Resources are available to implement and deliver DAVIT in the future |
| **Access to Knowledge & Information**<br>Guidance and/or training is accessible to implement and deliver the innovation | Guidance and/or training is accessible to implement and potentially deliver DAVIT |
| **INDIVIDUAL DOMAIN** | |
| **High-level Leaders**<br>Individuals with a high level of authority, including key decision-makers, executive leaders, or directors | There is potential for a "buy-in" from individuals with a high level of authority, including key decision-makers, executive leaders, or directors within organisations |
| **Capability**<br>The individual(s) has interpersonal competence, knowledge, and skills to fulfil role | The individual(s) within organisations have interpersonal competence, knowledge, and skills to fulfil their roles required for DAVIT implementation |

national policy notions of integrated care and transformation positively and as an important catalyst towards the successful implementation of DAVIT (**Quote 9**, Table 2).

Moreover, the development of secure data environments (SDEs) (e.g. Thames Valley and Surrey) was described as an external factor that could facilitate the implementation of DAVIT by enabling secure access to care data that otherwise would be difficult to access due to data security policies and information governance(**Quote 10**, Table 2).

### *3.3. Domain 3: The inner setting*

#### *3.3.1. Construct: Available resources*

Participants thought that the organisations could resource implementing and delivering DAVIT in the future as they recognised DAVIT's potential for identifying the demand and resource allocation to deliver good value-for-money interventions. However, a common issue raised was the significant length of time required to improve data quality and data collection processes and structures, often exacerbated by high workloads and the capacity within the system itself. To adopt and maintain DAVIT, participants need to make it work within the context of existing practices (**Quote 11**, Table 2).

#### *3.3.2. Construct: Access to knowledge & information*

Implementing change is not possible without the necessary expertise to introduce the innovation. Staff skills, experience and training needs regarding DAVIT were discussed and it was evident that guidance and/or training is desirable to implement DAVIT and that SODA could be

**Table 2**
Quotes from focus group discussion illustrating participants' persectives on usability, benefits and implementation issues relevant to DAVIT.

| Quote reference | Quotes and source |
|---|---|
| ***1*** | *"I think in terms of the design of the tool, as I said, because I have seen it, I think it is really easily … easy to use and good that you can have those sort of comparisons between the data that you're looking at, I think the tool's been designed well"* - Domestic Abuse Outreach Services, OS3 |
| ***2*** | *" …. certainly in terms of commissioning … …. … when you're looking at where does the majority of resources need to go in terms of administration. I think it's absolutely invaluable around awareness raising, in terms of recommissioning our services … …for example, if we've got high police incidents, but actually that the outreach data is not mirroring, that. You know, then, what are the barriers to people accessing those services for example. So I think it's really helpful, really helpful"* - Surrey County Council, SCC1. |
| ***3*** | *"NHS is viewed as a trusted place for people to report and make disclosures. So I would be really interested to know whether the blue areas are the places where they are no hospitals. Its just out of curiosity"* - Surrey and Borders Partnership NHS Foundation Trust, SBP1 |
| ***4*** | *"So if we know a particular geographical area, age group or demographics, means that they can target their social media posts to those particular cohorts"* - Domestic Abuse Outreach Services, OS2 |
| ***5*** | *"Because if we want to do targeted work, we know which wards are … have the highest incidents, but that's as far as it goes. Because the detail that you would need to be able to do like, really good, targeted work would be, as we've alluded to before, like the ethnic make-up of the victims, the age group of the victims"* –Domestic Abuse Outreach Services, OS1 |
| ***6*** | *"In our organisation when there is a disclosure, then staff will generate a "Datix (incident reporting and risk management system)", and then make appropriate referrals. So, it's a platform that we use, and there's a section that you've got a type of abuse, so they will select domestic abuse. It wouldn't go into specific details for example, coercive control, or what's sort of type of domestic abuse."*- Surrey and Borders Partnership NHS Foundation Trust, SBP1 |
| ***7*** | *"Just annually would be just too long of a time period for us to probably get any useful like really fast time, informative information"*. - Surrey Police – Public Protection Unit, SP4 |
| ***8*** | *".it may be worth first getting the multiagencies together and understanding what level of data they collect … but it rests with, if they will share the data needed or not and how easy it would be for them to just transfer data over to you. I think that's probably a lifelong challenge I should imagine, really, across all of the key statutory and extra agencies"* - Surrey Police Public Protection Unit, SP1 |
| ***9*** | *"I think all the providers are very keen to support the domestic abuse agenda. So that's why I was very interested in this project because we are encouraged to work with our local areas"* - Surrey Heartlands Integrated Care Board, ICB1 |
| **10** | *"You've got the Surrey care record, and then you've got one which is even above that, the Thames Valley secure data environment, so it would be Berkshire, Buckinghamshire and Oxfordshire, Frimley and Surrey Heartlands data which is going to be aggregated"* - Surrey Heartlands Integrated Care Board, ICB2 |
| **11** | *"I think it's fab, when you're looking at where does the majority of resource need to go in terms of administration. But it is going to be tough … you know, collecting or putting, asking for more data set from the "Datix (incidents reporting and risk management system)" people. It's their time and capacity, really"*- Surrey Heartlands Integrated Care Board, ICB2 |
| **12** | *"I just think that we need a very, so very simple instructions, at the most basic level if you like, how we can better support this, because, like I said, it's going to be a huge piece of work for us as a provider"*. Domestic Abuse Outreach Services, OS2 |
| **13** | *"I think, from our organisation perspective, I will have to have conversations with our chief nurse, and several services across the organisation … We've just started our own domestic abuse steering group, but I just wonder whether you could present it there and then our heads of safeguarding could take it back to the chief nurse … And get it through the door that way and seeing if we can get any buy in that way … but I think it's do-able"* - Surrey and Borders Partnership NHS Foundation Trust, SBP1 |
| **14** | "*We have two maps there. And there was some areas that were sort of dark blue for both of those. And I thought, if that's the same but all of these. so drops down options, all of the different data. If there's some areas that are low across the board in all of those areas, are we pulling those out? Is there kind of some bits of work to make us all aware of those areas"* - Domestic Abuse Outreach Services, OS4 |

relied upon to provide consistent guidance. The quality and longevity of the support provided were seen as key to instilling long-lasting change, as well as providing a network of support providing knowledge exchange opportunities (**Quote 12**, Table 2).

### 3.4. Domain 4: Individual

#### 3.4.1. Construct: Commitment and buy-in of high-level leaders

Individual and collective readiness to implement DAVIT varied from participant to participant. Their level of commitment was dependent on their overall change acceptance, how familiar they were with DAVIT's benefits and their understanding of its implications. Some participants also highlighted the importance of leadership buy-in as an important motivating factor in engaging with the tool. Participants reported that the values held by leaders would influence whether DAVIT was properly embedded in existing work processes. A successful implementation strategy would require strong leadership engagement, clear roles and responsibilities for everyone involved, and more strategic championing of DAVIT at the local and national levels (**Quote 13**, Table 2).

#### 3.4.2. Construct: Individual's capacity

Concerns were raised about staff lacking both confidence and experience in using the tool, holding discussions and making decisions, particularly on how to action some of the identified findings. Participants highlighted the need for training and resources to use data appropriately, calling for appropriate actions on the matter (**Quote 14**, Table 2).

## 4. Discussion

Our study aimed to understand perceptions of DAVIT and its potential for implementation through engagement with stakeholders responding to DA within Surrey. Our findings suggest that in general DAVIT is acceptable and has potential to improve DA services if successfully implemented. Our analysis, guided by the Consolidated Framework of Implementation Research [26], highlighted both facilitators and barriers to successful implementation of DAVIT in organisations responding to DA. Stakeholders described how the characteristics of DAVIT as an innovation, and the organisations' inner and outer settings might impact DAVIT's implementation.

The design and functionality of DAVIT were well perceived and thought to be a facilitator to implementation. Research shows innovation is more likely to be adopted if perceived to be relatively easier to use than alternative methods, or if they could help to improve the current performance of the work, or reduce the effort of doing work [28,29]. Moreover, the cost of performing the work; or the perceived cost of switching to/adopting the innovation needs to be minimal. In the case of DAVIT, because of its simple design, participants thought that organisations could contribute data and use the tool with minimal technical training. This means that there would be minimal investment or cost required to implement and use DAVIT. Moreover, through DAVIT, organisations could potentially improve planning and allocation of their resources to more impactful activities and identify opportunities for greater multi-agency collaboration. Collectively, this was perceived as an advantage in terms of value for money.

However, similar to other research on DA [30,31], it was acknowledged that reported prevalence data should be interpreted with caution as they may not be a reflection of the "true" incidence of DA or simply reflect the efficiency of the reporting and recording mechanism. For example, areas with greater public awareness of DA issues or with more professionals trained in identifying DA, particularly non-physical forms like coercive control, significantly increase the likelihood of accurately recording DA incidents that might otherwise be mis-recorded or overlooked [30]. Similarly, definitions of DA can vary, and studies have shown a wide range of prevalence rates depending on whether they include only physical violence or also consider emotional and psychological abuse [31]. Nevertheless, the comparison view (Fig. 2) might help users to explore further by comparing data from different agencies or by comparing different indicators of DA (for example physical abuse vs financial abuse). Similarities in data reported from different agencies or for different indicators, not only build confidence in the reliability of DA data but could also forge collaborative and collective responses from multi-agencies in addressing their common problem. Similarly, the observed discrepancies could stimulate further investigation and shared learning on the issue for appropriate intervention measures. For example, provision of training and awareness campaigns to correctly identify, report and record DA data where there is under-reporting.

The role of organisations' inner setting in the successful implementation of an innovation, as defined by the CFIR [26], was also discussed. Our findings suggest that organisations' readiness to implement DAVIT varied and this would be dependent on available resources (technical skills and manpower) and infrastructure to capture and record DA data in a manner that would be meaningful for DAVIT. Other studies have also pointed out the importance of an organisation's technical capacity in the successful adoption of technology [32], highlighting the need for training provision where technology maturity is identified as a barrier [33]. Participants explained that organisations will need to train their data management/analyst officers to contribute data efficiently to DAVIT. Nevertheless, it was anticipated that minimal training would be required and so, potentially, the long-term benefit of DAVIT in terms of intelligence planning and better allocation of resources might outweigh the initial, and this was perceived to be an advantage. Consistent with other implementation studies [34], it was also apparent that the acceptance and willingness of an organisation's leader would be key for DAVIT's adoption and implementation. This is particularly true if organisations are expected to allocate resources to implement DAVIT (e.g. for training). The organisational values and culture relating to implementing data-driven approaches and collaborative working, as described in another study [35], will also play a role in the implementation of DAVIT within organisations.

Successfully implementing DAVIT and multiagency collaboration in responding to DA will require improved data management processes within organisations [36]. However, participants collectively acknowledged the current limitations of having incomplete DA data from organisations whereby protected characteristics data (e.g. ethnicity) is not captured or reported due to data protection regulation requirements (GDPR) [37]. Under the UK GDPR [38] and the Data Protection Act 2018 [39], data can be lawfully processed and shared if there is a valid legal basis including the performance of tasks carried out in the public interest [40]. However, there is a need for legal clarification about what data can be shared and under what circumstances [41] and a robust data governance structure and framework for data sharing as the existing ambiguity, and inconsistencies in understanding and policy between organisations create barriers to effective implementation of DAVIT and collaborative working [42]. Moreover, organisations' trust around data security standards of DAVIT and its data-sharing mechanism will need to be established for it to be accepted and implemented into practice [37]. Considering the sensitivity of DA data and the concerns around data security, careful design choices were made when creating DAVIT to uphold the principle of minimisation by reducing the amount of information included and to mitigate the risk of re-identification. For example, while many stakeholders considered ethnicity to be a relevant factor, the current prototype does not include such data.

On a positive note, there is a push for changes in the way organisations work by fostering information sharing and multi-agency working in responding to DA as stipulated in the recent UK Government Domestic Abuse Statutory Guidance 2023 [7]. Participants thought that DAVIT would help their respective organisations respond to this DA policy initiative. Moreover, the development of secure data environments could benefit DAVIT by enabling secure access to care data and improving data comprehensiveness.

### 4.1. Strengths and limitations

The study is limited by a small sample size; however, it included a wide range of organisations responding to DA within Surrey. Moreover, we identified recurring themes and no new insights were generated in the third focus group, indicative of data saturation. Another limitation to highlight is that CFIR was also applied retroactively for data analysis, and our analysis did not include the full scope of constructs included in the updated version of CFIR. We acknowledge that it would have been beneficial to use the CFIR to inform the development of the topic guide to identify salient framework constructs to probe for during discussions and further strengthen the theoretical foundation and continuity across data collection, analysis, and interpretation. However, the present research was a pre-implementation exploratory study, and we aimed to identify key considerations for DAVIT to be useful and successfully implemented. The application of CFIR in our analysis ensured that all influences on DAVIT delivery and potential implementation were captured and interpreted in a coherent, systematic, and rigorous way. Because of the data governance requirements, participants were not given access to DAVIT to have hands-one experience of how DAVIT works, instead, we demonstrated it to them. It is therefore possible that responses in focus group discussions were influenced by the novelty and visual appeal of DAVIT rather than actual function/performance. The next step of this project will aim to evaluate the performance and impact of DAVIT in improving DA services.

## 5. Conclusion

The design of DAVIT is well-perceived and is believed to have the potential to facilitate data sharing and multi-agency collaboration to improve DA services. However, to reach its full potential, the data captured must be comprehensive. There is a need for training and capacity building to ensure DA data recorded by individual organisations is of high quality. Additionally, to successfully implement multi-agency collaboration, it is essential to establish data-sharing agreements or favourable information governance policies that facilitate data sharing across agencies. This will require buy-in from individual organisations and a commitment to collaborative working in responding to DA.

## Ethical approval

The study received a favourable ethics opinion from the University of Surrey Research Ethics Committee (FHMS 21–22 246 EGA).

## Funding

This research did not receive any specific grant. Authors' time was covered by their respective institutions - NG & MT by NIHR Applied Research Collaboration - Kent, Surrey and Sussex (ARC- KSS), and CB & SD by Surrey County Council (SCC). Jo Armes receives funding from the NIHR Applied Research Collaboration - Kent, Surrey and Sussex (NIHR ARC KSS). The views expressed are those of the author(s) and not necessarily those of the National Institute for Health and Care Research or the Department of Health and Social Care.

## Declaration of competing interest

Authors have no competing interests to declare.

## Acknowledgement

Authors thank all individuals and organisations who participated for their contribution to this research.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.puhip.2025.100603.

## References

[1] WHO. Global and Regional Estimates of Violence against Women: Prevalence and Health Effects of Intimate Partner Violence and Non-partner Sexual Violence, World Health Organization, 2013. [Available from: https://apps.who.int/iris/bitstream/handle/10665/85239/?sequence=1].
[2] J. McGarry, C. Simpson, K. Hinchliff-Smith, The impact of domestic abuse for older women: a review of the literature, Health Soc. Care Community 19 (1) (2011) 3–14.
[3] L. Bo, P. Yating, Long-term impact of domestic violence on individuals—an empirical study based on education, health and life satisfaction, Behav. Sci. 13 (2) (2023) 137.
[4] UK Home Office, Government response to 'A Patchwork of Provision: how to meet the needs of victims and survivors across England and Wales', Policy paper (2023). [Available from: https://www.gov.uk/government/publications/government-response-to-a-patchwork-of-provision-mapping-report/government-response-to-a-patchwork-of-provision-how-to-meet-the-needs-of-victims-and-survivors-across-england-and-wales-accessible-version].
[5] P. Davies, Tackling domestic abuse locally: paradigms, ideologies and the political tensions of multi-agency working, J. gender-based violence 2 (3) (2018) 429–446.
[6] J. McGarry, P. Ali, Domestic violence and abuse and working with other agencies. Domestic Violence in Health Contexts: A Guide for Healthcare Professions, 2020, pp. 123–135.
[7] UK Government. Domestic Abuse: statutory guidance 2023 [Policy paper]. Available from: https://www.gov.uk/government/publications/domestic-abuse-act-2021/domestic-abuse-statutory-guidance-accessible-version#chapter-6–agency-response-to-domestic-abuse.
[8] Domestic Abuse Commissioner's Office. Domestic abuse service provision [Available from: https://domesticabusecommissioner.uk/domestic-abuse-service-provision/.
[9] Hadley L. Transforming the Response to Domestic Abuse Consultation: Response from Women's Aid Federation of England 2018 [Available from: https://www.womensaid.org.uk/wp-content/uploads/2018/05/Transforming-the-Response-to-Domestic-Abuse-Consultation-Response-from-Womens-Aid-31-May-2018.pdf.
[10] Local Government Association. Adult Safeguarding and Domestic Abuse: A Guide to Support Practitioners and Managers, ADASS and LGA London, 2015. [Available from: https://www.local.gov.uk/sites/default/files/documents/adult-safeguarding-and-do-cfe.pdf].
[11] Public Health England. Disability and Domestic Abuse Risk, Impacts and Response, 2015. [Available from: https://www.gov.uk/government/publications/disability-and-domestic-abuse-risk-impacts-and-response ].
[12] Government H, in: HM (Ed.), Working Together to Safeguard Children A Guide to Inter-agency Working to Safeguard and Promote the Welfare of Children, HM Government, London, 2018. [Available from: https://assets.publishing.service.gov.uk/media/669e7501ab418ab055592a7b/Working_together_to_safeguard_children_2023.pdf ].
[13] R. Gjerstad-Sørensen, I. Studsrød, B. Gjerstad, P. Sosnowska-Buxton, K. Skoland, "It's Very Complex": Professionals' Work with Domestic Violence (DV) Report–FGI and Interviews 2022, 2022.
[14] K. O'Sullivan, J. Lumsden, C. Anderson, C. Black, W. Ball, K. Wilde, A governance framework for facilitating cross-agency data sharing, Int. J. Population Data Sci. 9 (5) (2024).
[15] A.J. Pritchard, A. Reckdenwald, C. Nordham, J. Holton, Improving identification of strangulation injuries in domestic violence: pilot data from a researcher–practitioner collaboration, Fem. Criminol. 13 (2) (2018) 160–181.
[16] Domestic Abuse Commissioner, A patchwork of provision: how to meet the needs of victims and survivors across England and Wales, Summary Report, 2022. [Available from: https://domesticabusecommissioner.uk/wp-content/uploads/2022/11/DAC_Mapping-Abuse-Suvivors_Summary-Report_Nov-2022_FA.pdf].
[17] Domestic Abuse Commissioner's Office. Research [Available from: https://domesticabusecommissioner.uk/research/.
[18] A. Myhill, L. Kelly, Whose harm is it anyway? Using police data to represent domestic abuse victims' experiences, Policing: J. Pol. Pract. 17 (2023) paad013.
[19] M. Garfias Royo, P. Parikh, J. Belur, Using heat maps to identify areas prone to violence against women in the public sphere, Crime Sci. 9 (1) (2020) 1–15.
[20] S. Malik, H. Afzal, I. Siddiqi, A. Majeed (Eds.), Analyzing socio-economic and geographical factors for crime incidents using heat maps and hotspots, Proceedings of the Mediterranean Conference on Pattern Recognition and Artificial Intelligence, (2016) 144-151. [Available from: https://doi.org/10.1145/3038884.3038908 ].
[21] T. Sabin, R. Archana, J. LithishaK, P. Vikhyath, A crime prediction model/tool for hotspot mapping, Int. J. Adv. Res. Sci. Commun. Technol. 3 (2) (2023) 190–196.
[22] S. Chainey, L. Tompson, S. Uhlig, The utility of hotspot mapping for predicting spatial patterns of crime, Secur. J. 21 (2008) 4–28.
[23] Y. Wu, Y. Li, "Hot street" of crime detection in London borough and lockdown impacts, Geo-Spatial Inf. Sci. 26 (4) (2023) 716–732.
[24] H. Jung, Focus group interaction in evaluation research, Appl. Linguist. Rev. 9 (4) (2018) 563–587.

[25] J. Ritchie, L. Spencer, W. O'Connor, Carrying out qualitative analysis. Qualitative research practice: a guide for social science students and researchers 2003 (2003) 219–262.
[26] L.J. Damschroder, C.M. Reardon, M.A.O. Widerquist, J. Lowery, The updated Consolidated Framework for Implementation Research based on user feedback, Implement. Sci. 17 (1) (2022) 75.
[27] M.A. Kirk, C. Kelley, N. Yankey, S.A. Birken, B. Abadie, L. Damschroder, A systematic review of the use of the consolidated framework for implementation research, Implement. Sci. 11 (2015) 1–13.
[28] L.G. Tornatzky, K.J. Klein, Innovation characteristics and innovation adoption-implementation: a meta-analysis of findings, IEEE Trans. Eng. Manag. (1) (1982) 28–45.
[29] G. Vagnani, L. Volpe, Innovation attributes and managers' decisions about the adoption of innovations in organizations: a meta-analytical review, Int. J. Innovat. Stud. (2017) 1–29.
[30] G. Feder, R.A. Davies, K. Baird, D. Dunne, S. Eldridge, C. Griffiths, et al., Identification and Referral to Improve Safety (IRIS) of women experiencing domestic violence with a primary care training and support programme: a cluster randomised controlled trial, Lancet 378 (9805) (2011) 1788–1795.
[31] K. Hegarty, M. Sheehan, C. Schonfeld, A multidimensional definition of partner abuse: development and preliminary validation of the Composite Abuse Scale. Domestic Violence, Routledge, 2017, pp. 15–31.
[32] C. Keyworth, J. Hart, C.J. Armitage, M.P. Tully, What maximizes the effectiveness and implementation of technology-based interventions to support healthcare professional practice? A systematic literature review, BMC Med. Inf. Decis. Making 18 (1) (2018) 1–21.
[33] M. Molino, C.G. Cortese, C. Ghislieri, The promotion of technology acceptance and work engagement in industry 4.0: from personal resources to information and training, Int. J. Environ. Res. Publ. Health 17 (7) (2020) 2438.
[34] R.T. Frambach, N. Schillewaert, Organizational innovation adoption: a multi-level framework of determinants and opportunities for future research, J. Bus. Res. 55 (2) (2002) 163–176.
[35] E.H. Schein, Organizational Culture and Leadership, John Wiley & Sons, 2010.
[36] R. Taylor, B. Gardner, M. Weal (Eds.), Digital Transformations in Domestic Abuse Support: Implications for Data Sharing. Companion Publication of the 13th ACM Web Science Conference, 2021; 2021.
[37] K. Pitt, S. Dheensa, G. Feder, E. Johnson, M.-S. Man, J. Roy, et al., Sharing reports about domestic violence and abuse with general practitioners: a qualitative interview study, BMC Fam. Pract. 21 (2020) 1–10.
[38] ICO, UK General Data Protection Regulation (UK GDPR) 2021. [Available from https://ico.org.uk/for-organisations/data-protection-and-the-eu/data-protection-and-the-eu-in-detail/the-uk-gdpr/].
[39] UK Legislation, Data Protection Act 2018. [Available from https://www.legislation.gov.uk/ukpga/2018/12/part/2/chapter/2].
[40] A. Picken, Background and current data protection legislation, Arch. Dis. Child. Educ. Pract. 105 (5) (2020) 300–303.
[41] R. Becker, D. Chokoshvili, A. Thorogood, E.S. Dove, F. Molnár-Gábor, A. Ziaka, et al., Purpose definition as a crucial step for determining the legal basis under the GDPR: implications for scientific research, J. Law Biosci. 11 (1) (2024) lsae001.
[42] A. Bandyopadhyay, S. Brophy, N. Kennedy, H. Jones, J. Evans, M.A. Bellis, et al., Unlocking data to inform public health policy and practice: a pilot study on utilising police data for linked population data research, Int. J. Population Data Sci. 9 (5) (2024).