

# Cry for health: a quantitative evaluation of a hospital-based advocacy intervention for domestic violence and abuse

**Gemma Halliwell** (✉ [gemma.halliwell@bristol.ac.uk](mailto:gemma.halliwell@bristol.ac.uk))

University of Bristol Medical School <https://orcid.org/0000-0003-1094-0007>

**Sandi Dheensa**

University of Bristol

**Elisabetta Fenu**

Royal College of Physicians

**Sue K Jones**

SafeLives

**Jessica Asato**

SafeLives

**Suzanne Jacob**

SafeLives

**Gene Feder**

University of Bristol Medical School

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## Research article

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## Abstract

**Background** Domestic violence and abuse damages the health of survivors and increases use of healthcare services. We report findings from a multi-site evaluation of hospital-based advocacy services, designed to support survivors attending emergency departments and maternity services. **Methods** Independent Domestic Violence Advisors (IDVA) were co-located in five UK hospitals. Case-level data were collected at T1 (initial referral) and T2 (case closure) from survivors accessing hospital (T1 N = 692; T2 N = 476) and community IDVA services (T1 N = 3,544; T2 N = 2,780), used as a comparator. Measures included indicators of sociodemographic characteristics, experience of abuse, health service use, health and safety outcomes. Multivariate analyses tested for differences in changes in abuse, health and factors influencing safety outcomes. Health service use data in the six months pre-and post- intervention were compared to generate potential cost savings by hospital IDVA services. **Results** Hospital IDVAs worked with survivors less visible to community IDVA services and facilitated intervention at an earlier point. Hospital IDVAs received higher referrals from health services and enabled access to a greater number of health resources. Hospital survivors were more likely to report greater reductions in and cessation of abuse. No differences were observed in health outcomes for hospital survivors. The odds of safety increased two-fold if hospital survivors received over five contacts with an IDVA or accessed six or more resources / programmes over a longer period of time. Six months preceding IDVA intervention, hospital survivors cost on average £2,463 each in use of health services; community survivors cost £533 each. The cost savings observed among hospital survivors amounted to a total of £2,076 per patient per year. This offset the average cost of providing hospital IDVA services. **Conclusions** Hospital IDVAs can identify survivors not visible to other services and promote safety through intensive support and access to resources. The co-location of IDVAs within the hospital encouraged referrals to other health services and wider community agencies. Further research is required to establish the cost-effectiveness of hospital IDVA services, however our findings suggest these services could be an efficient use of health service resources.

## Background

Domestic violence and abuse (DVA) damages health and wellbeing; it is a public health problem and challenge to clinical services. The estimated cost of DVA to the United Kingdom (UK) is £23 billion per year, including health costs to the NHS of £1.73 billion<sup>[1]</sup>. DVA can take various forms, including physical and sexual violence, coercive, controlling and emotionally abusive behaviours, economic restrictions, as well as harassment and stalking. In England and Wales 27% of women and 17% of men report lifetime experience of DVA<sup>[2,3]</sup>. Whilst anyone can perpetrate DVA, most severe and repeated assaults are directed at women, committed by male partners within the context of an intimate relationship<sup>[4,5]</sup>. Intimate partner violence (IPV) is a type of DVA and includes the abuse of a male or female partner who is currently, or was in, an intimate relationship with the perpetrator<sup>[6,7]</sup>.

IPV can have short-term and long-term health consequences<sup>[8,9]</sup>. Physical health consequences among women include immediate injury and a broader range of secondary consequences, including: chronic pain, central nervous system symptoms<sup>[8,10]</sup>, gastrointestinal symptoms and disorders<sup>[11-13]</sup>, cardiovascular symptoms (e.g., hypertension, chest pain)<sup>[12,14]</sup> and sexual and reproductive health problems<sup>[8,15-21]</sup>. Alongside physical ill health, survivors have a three-fold increased risk of depressive disorders, four-fold risk of anxiety disorders and a seven-fold risk of post-traumatic stress disorder (PTSD). There is a causal relationship between IPV, depression and suicidal behaviours; with an estimated 30 women per day attempting suicide because of IPV<sup>[1,22]</sup>. The severe physical, mental and sexual health outcomes of IPV lead survivors to use healthcare systems extensively: specifically, mental health services, emergency departments (ED), primary care services, outpatients, pharmacies and specialist services<sup>[23,24]</sup>. Healthcare professionals are uniquely positioned to identify and respond to disclosures of abuse and have a crucial role to play in the prevention and management of IPV<sup>[25-27]</sup>. Evidence shows that at least 54% of all women presenting to ED have experienced IPV at some point in their lives<sup>[28]</sup>, yet only 5% are identified by healthcare professionals<sup>[29]</sup>.

### *The role of healthcare services in addressing intimate partner violence*

Guidance from the English National Institute for Health and Care Excellence (NICE) recommends that survivors presenting with indicators of IPV in healthcare settings should be asked by frontline staff about their experiences in a confidential environment<sup>[30]</sup>. The World Health Organisation recommends that support for IPV should be integrated into healthcare services, with frontline staff trained to respond<sup>[27]</sup>. Both NICE and WHO support selective enquiry about IPV in high risk settings (e.g., antenatal, sexual health services) over universal screening across all healthcare environments. Survivors identify healthcare professionals as trustworthy and consider it acceptable for them to ask questions about abuse<sup>[31,32]</sup>. Research shows that while universal screening in certain healthcare settings may increase identification of IPV, it is only effective if followed up by an appropriate response<sup>[33,34]</sup>. There is currently insufficient evidence to show that screening increases referrals to DVA support agencies, reduces violence or improves health outcomes<sup>[35,36]</sup>. These mixed findings reflect multiple barriers in identifying and responding to IPV in healthcare settings<sup>[34,37]</sup>. Whilst healthcare professionals believe IPV to be a healthcare issue, they are often reluctant to ask about abuse<sup>[38-40]</sup>. This difficulty has been attributed to several factors relating to a lack of consistent and sustained training, time restrictions, confidentiality and autonomy, knowledge and attitudes about IPV, as well as discomfort and low confidence. Organisational factors also have a part to play, including lack of resources and suitable environments for disclosures, absence of policies and protocols about IPV identification and management, unclear referral pathways and lack of co-ordination between other healthcare departments and wider community services<sup>[41]</sup>. Integration of support for IPV survivors

into healthcare settings remains slow and incremental<sup>[34]</sup>. Few healthcare-based interventions for IPV have been evaluated systematically, making it difficult for providers, policy-makers and researchers to understand how to effectively intervene<sup>[25,34]</sup>.

### *Advocacy and Independent Domestic Violence Advisors (IDVA) within hospital settings*

One approach to training healthcare professionals to identify and respond to IPV is to offer survivors the opportunity to engage with an on-site DVA advocate. Within the specialist DVA sector in the UK, advocacy support for survivors at highest risk of harm or fatality has been formally recognised in the role of the Independent Domestic Violence Advisor (IDVA). IDVAs risk assess, safety plan and help survivors to access services. IDVAs advocate for survivors at multi-agency forums and work in partnership with agencies to develop co-ordinated safety plans<sup>[42,43]</sup>. IDVAs work can include referral to Multi-Agency Risk Assessment Conferences (MARAC) as well as support with the criminal and civil justice system, emergency housing, health and wellbeing, finances, employment and immigration<sup>[44]</sup>. IDVA services sit independently of other agencies (e.g., the police, refuge) and are designed to be delivered from the point of crisis over a relatively short period of time, before referral onwards to longer-term community services (e.g., Outreach services). The efficacy of community based IDVA interventions for severe and complex DVA cases is evidenced. Specifically, frequency of contact with an IDVA and the number of community interventions or resources accessed are positively associated with the odds of achieving safety and cessation of abuse<sup>[45,46]</sup>.

A recent meta-analysis of advocacy services for IPV, delivered within both healthcare and community settings, found that intensive advocacy improves short term quality of life for women in shelters or refuges and reduces physical abuse one to two years after intervention. However, there is no clear evidence that advocacy reduces sexual, emotional or overall abuse levels or that it can benefit mental health<sup>[47]</sup>. Despite the increased likelihood of survivors attending ED for the health-related consequences of IPV, few studies have evaluated the role of advocacy in hospitals. Hyman<sup>[48]</sup> reported outcomes of a short advocacy intervention (90 minutes, one contact with patient) delivered in ED to women who were experiencing abuse from a current intimate partner. Findings suggested advocacy reduced psychological distress at three to four-month follow-up, but not PTSD symptomology. Two studies exploring the efficacy of hospital IDVA services (located in gynaecology, genitourinary medicine [GUM], HIV clinics and ED) reported an increase in detection rates of DVA among survivors, higher referrals to hospital IDVAs from health services and improvements in healthcare professionals' confidence in tackling the issue<sup>[49,50]</sup>. Yet, existing studies have reported findings from single sites (e.g., one-hospital) across varying healthcare contexts and lack outcomes reported by survivors, cost analyses or follow-up data.

## **Aim**

We present findings from a multi-site evaluation of an advocacy approach to supporting survivors of DVA in a hospital setting, exploring its impact on improving access to support, health outcomes and cost effectiveness. Independent Domestic Violence Advisors (IDVAs) were co-located within ED and maternity services in hospitals across the UK during April 2012 to November 2015.

The key components of the role included: providing immediate support and advice, risk assessment and safety planning; referral into external services; partnership-work with hospital departments and community agencies; and training hospital staff about DVA. The evaluation sought to answer the following research questions:

- Who are the survivors accessing help through hospital IDVA services (compared to community IDVA services)?
- What do hospital IDVAs do (compared to those based in the community)?
- What impact on survivors' risk, safety, health and wellbeing do hospital IDVAs have (compared to community IDVAs)?
- What is the cost effectiveness of hospital IDVA services?

This article presents analysis of quantitative datasets reported by the original research 'A Cry for Health: Why we must invest in domestic abuse services in hospitals'<sup>[51]</sup>. A comparison group of survivors from community IDVA services was employed to test differences between outcomes for community and hospital IDVA services.

## **Data Collection**

Individuals accessing IDVA services were eligible for inclusion in the sample if they wished to receive support from an IDVA and had consented to the use of their anonymised information for monitoring or research purposes. There were five hospital IDVA services who participated and five community IDVA services based within specialist DVA agencies. Two datasets reflect case level data collected from individuals who had accessed either service.

*Case-level dataset* contained data relating to the geographical areas covered by the IDVA services. Data were collected at two time points. Time 1 reflected intake at IDVA services (T1  $N = 692$  hospital;  $N = 3,544$  community). T2 reflected the point at which there was a planned case closure or when the client exited a service ( $N = 476$  hospital;  $N = 2,780$  community). Time 2 data were available for 68.7% of the Time 1 hospital IDVA sample and 78.4% of the community IDVA sample.

*Sociodemographic and referral information.* At Time 1 information was collected on participants' gender, age, sexual orientation, ethnicity, household income, pregnancy, children in the household, relationship status, living arrangements. Information collected around the complex needs and additional vulnerabilities of participants related to mental health concerns, substance use, financial issues and disability. Referral information included items such as who the original referrer was, from which hospital department and the original presenting issue. Referral forms were collected at Time 1, for hospital survivors only (T1  $N = 198$  hospital referral forms).

*Safety.* Data pertaining to DVA was recorded by IDVAs at T1 (abuse occurring within the previous 3 months) and T2 (abuse experienced during the intervention period). The Severity of Abuse Grid is an established tool in DVA practice settings<sup>[45]</sup> documenting the presence, severity and escalation of four types of abuse (physical, sexual, harassment and stalking, jealous coercive and controlling behaviour). Responses to the presence of any type of abuse are indicated on a 3-point ordinal scale (standard, moderate, high). Severity and frequency are recorded on a 3-point ordinal scale (reduced, unchanged, worse). Participants own appraisal of safety was self-reported at Time 2 on a single-item scale reflecting 'feelings of safety' assessed on a 5-point ordinal scale (much safer, somewhat safer, no change, less safe). Cessation of abuse at exit was calculated by combining responses to the Severity of Abuse Grid into 'Yes' or 'No' categories to indicate the presence of ongoing abuse.

*Health outcomes dataset* included a sub-sample of hospital and community IDVA participants who provided information about their physical and mental health. Data were collected at two time points. Time 1 reflected intake IDVA service (T1  $N = 114$  hospital;  $N = 86$  community). Time 2 data was collected three months after the participant had exited IDVA services (T2  $N = 32$  hospital;  $N = 4$  community). Time 2 data were available for 36.0% of the hospital IDVA sub-sample and 4.6% of the community IDVA sub-sample. Owing to virtual absence of data from the community IDVA sub-sample, only findings from the hospital IDVA service were analysed and reported for health outcomes.

*SF12 Health Survey (Physical health composite score (PCS) and Mental health composite score) (MCS)* consists of 12 items designed to measure and monitor health<sup>[52]</sup>. The 12 items map onto components reflecting physical functioning, role limitations due to physical problems and emotional problems, mental health, energy/vitality and pain. Items measured on nominal / ordinal scales, are totalled to produce two mean scores of physical health (PCS12) and mental health (MCS12); where lower scores represent lower health. Time 2 data were available for 31.6% of the T1 hospital IDVA sample (T1  $n = 101$ ; T2  $n = 32$ ).

*HADS Hospital Anxiety and Depression Scale*<sup>[53]</sup> comprises 14 items assessed on a 4-point ordinal scale. Seven items are totalled to produce mean scores for the two component subscales measuring Anxiety and Depression. Scores of 0–7 suggest 'normal' levels of anxiety or depression, 8–10 borderline 'abnormal', 11–21 'abnormal'. Time 2 data were available for 32.9% of the T1 hospital IDVA sample (T1  $n = 97$ ; T2  $n = 32$ ).

*Primary Care Post-Traumatic Stress Disorder Screen*<sup>[54]</sup> is a 5-item measure that begins with an item designed to assess whether the participant has had any exposure to traumatic events over the course of their life. If the answer is 'No' to this initial item, the PC-PTSD–5 is completed with a score of 0. If the answer is 'Yes', five additional questions (yes, no) are asked about how that trauma exposure has affected participants over the past month. A score of 4+ indicates probable symptomology in-line with a diagnosis of post-traumatic stress disorder. Time 2 data were available for 35.6% of the T1 hospital IDVA sample (T1  $n = 73$ ; T2  $n = 26$ ).

*Health Service use* was recorded at T1 community ( $n = 76$ ) and hospital IDVA participants ( $n = 38$ ) and T3 hospital participants only ( $n = 31$ ); participants were asked to recall their use of hospital services (inpatient, outpatient, ED and ambulance), local and mental health services and social care services over the previous six months or 6 months at T1 and T3 respectively.

## Analysis

We tested differences between hospital and community IDVA services, using the community IDVA data as the comparator to our hospital data. The results of t-tests and chi-square statistics are reported for comparison of demographic variables. Non-parametric tests were used to explore pre-and post-intervention outcomes (abuse frequency and severity, cessation of abuse, safety, health outcomes and health resource use) as the data was not normally distributed, and median values were reported in addition to mean values. Scores on the SF12 and HADS scales were compared to population figures for the UK<sup>[55, 56]</sup>. A multi-variate model was used to identify the factors associated with survivor's appraisals of safety and cessation of abuse for IDVA services. Covariates correlated with 'feelings of safety' and 'cessation of abuse' were included in the models. Examination of variance inflation factor (VIF) and tolerance statistics indicated multicollinearity for the outcome 'cessation of abuse' but not for the model applied to 'feelings of safety'. Consequently, ordinal and logistic regression techniques were used to identify factors which may contribute to the outcome variable 'feelings of safety'. There were no differences in the two models, therefore logistic regression findings have been reported for ease of interpretation. This analysis was conducted on the total sample which included men and women. Typically, the experiences of men and women who experience DVA tend to be different<sup>[57]</sup>. Bivariate analyses of the regression models revealed no differences according to gender, potentially owing to the small number of male cases. A decision was taken to include men within the samples as one of the key research questions was to understand the difference in who was identified by hospital IDVA services compared to community IDVA services. Health resource unit costs were compiled from NHS Reference Costs (2013/14) and Personal Social Services Research Unit (PSSRU)<sup>[58, 59]</sup> (Appendix 1). Health service use data in the six months pre IDVA intervention were compared for hospital and community survivors, generating a cost to services. Owing to a lack of data at T2 (six months post intervention) T1 and T2 comparisons could only be made for hospital survivors. One survivor in the hospital IDVA group

was considered an outlier as she alone counted for 29% of the ED visits and 40% of ambulance trips. Results of the cost analysis are reported for the entire sample and with exclusion of this outlier. This did not affect the difference in the overall health service use between hospital and community survivors. An estimate of potential cost savings generated by hospital IDVAs was performed and compared to the overall cost of setting up hospital IDVA services (Appendix 1).

## Results

### *Characteristics of survivors accessing hospital IDVA services*

Table 1 presents the demographic characteristics of survivors at the point of

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accessing hospital IDVA services (T1) compared to those working with community IDVA services. Most survivors supported by both services were white British or Irish (84.2% hospital; 77.5% community), heterosexual (98.0% hospital; 90.2% community) women (93.6% hospital; 96.2% community) who were, on average, in their mid-thirties ( $M = 35.6$ , 95% CI 34.6 to 35.4; hospital;  $M = 34.9$ , 95% CI 34.5 to 35.3 community). In both settings, smaller numbers of black, Asian, minority and ethnic groups (BAME) (15.3% hospital; 17.1% community), men (5.1% hospital; 4.2% community) and lesbian, gay, bisexual or transgender (LGBT) (2.0% hospital; 2.2% community) survivors were identified. Survivors working with hospital IDVAs were more likely to be pregnant (17.1% hospital; 6.3% community) or not have children at home (51.1% hospital; 67.2% community). A higher proportion of hospital survivors were aged over fifty-five (10.1% hospital; 6.8% community) and came from higher-income households (salaries over £36,400 per annum) (9.1% hospital; 4.2% community). Hospital survivors reported higher levels of complex needs and additional vulnerabilities including mental health difficulties (57.3% hospital; 35.2% community), alcohol (18.4% hospital; 8.3% community) and drug use problems (11.2% hospital; 5.2% community), financial difficulties (40.1%; hospital; 30.3% community) and disability (12.2% hospital; 8.3% community). Twice as many hospital survivors had ever planned or attempted suicide (36.3% hospital; 16.2% community) or had self-harmed (43.5% hospital; 23.5% community).

In the three months before accessing IDVA services, survivors in both settings experienced a high level of severe physical abuse (46.6% hospital; 41.2% community), jealous controlling and coercive behaviours (47.3%; hospital; 47.1% community) and harassment or stalking (30.8% hospital; 34.1% community). For all survivors, this abuse had escalated in severity and frequency within the last three months (57.2% hospital; 68.3% community). For community IDVA services, this escalation was higher and community IDVAs were more likely to deem their cases at higher risk of serious harm or fatality from the abuse (53.1% hospital; 58.2% community). However, hospital survivors were more likely to report severe forms of sexual abuse in the previous three months (14.3% hospital; 10.2% community). At the point of engaging with hospital IDVA services, survivors had experienced abuse for shorter periods ( $Mdn = 30.0$ , IQR 60.1) compared with community services ( $Mdn = 36.3$ , IQR 70.0).

Community IDVAs tended to support survivors who were experiencing abuse from an ex-partner (35.3% hospital; 59.7% community). Hospital survivors were more likely to experience abuse from a current intimate partner (53.4% hospital; 31.6% community) or multiple perpetrators (14.3% hospital; 8.3% community). Higher proportions of hospital survivors were living with the abuser at the point of referral (48.3% hospital; 29.7% community). Despite being more likely to have been abusive to other partners or family members (79.3% hospital; 67.7% community), those perpetrating abuse towards hospital survivors were less likely to have a criminal record for DVA (36.6% hospital; 45.2% community).

### *Identifying and referring survivors of domestic abuse across healthcare settings*

Table 2 presents the help-seeking behaviours reported by hospital survivors

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compared with community survivors in the six months preceding support from an IDVA service. Those working with community IDVA services were more likely to have called the police (77.2%) than those supported by a hospital IDVA (58.7%); whereas, hospital survivors had accessed a greater number of health services for issues specifically related to DVA. They were more likely to have visited their GP (88.3% hospital; 77.2% community) and ED (56.2% hospital; 16% community). More hospital survivors had attended ED by ambulance (37.3% hospital; 16.3% community) than community survivors. Around a half (45.7%) of survivors identified by hospital IDVA services had done so after an overdose or because of mental ill health (50.6%); while 13.4% had visited ED because of physical injuries from the abuser.

Analysis of referral routes into the hospital IDVA service (Table 3) show that

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84.6% of cases came from other health services, mostly within the hospital itself. ED played a key role in identifying survivors, accounting for over half (62.3%) of hospital IDVA referrals, followed by maternity and ante/neonatal units (16.8%) and psychiatry or mental health departments (7.3%). Nurses identified the greatest number of survivors (45.6%), followed by consultants/doctors/junior doctors (18.2%), midwives (13.7%) and psychiatrists/psychologists (8.4%). Comparatively, in community IDVA services, referrals were less likely to come from health services (2.3%). At the

point of exiting the service, hospital IDVAs had helped survivors to access a higher number of health-based services than community IDVAs (Table 4).

- Insert table 4 here -

Hospital survivors were more likely to have been referred to mental health services (22.9% hospital; 14.9%) and substance services (34.0% hospital; 3.3% community); whereas, community IDVAs referred higher proportions of survivors to the police (52.1% hospital; 83.7%).

#### *Length and type of support*

Support provided by hospital IDVAs (Table 5) comprised regular contact and

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access to a number of community programmes and resources. On average, hospital survivors were supported for just under two months (months *Mdn* = 1.7, IQR 2.7) which was shorter than support at community services (months *Mdn* = 2.4, IQR 3.1). However, hospital IDVAs worked as intensively as community IDVAs over this period with both services delivering the same number of face-to-face contacts with survivors (*Mdn* = 8.0 both hospital and community). Both IDVA services were most likely to provide support around safety planning, health and wellbeing, the police and housing. Survivors working with hospital IDVAs were more likely to have been helped to access safety planning (72.3% hospital; 63.4% community), health and wellbeing services (67.7% hospital; 56.3% community), the police (47.8% hospital; 41.2% community) and housing (45.3% hospital; 31.4% community). Hospital survivors were less likely than community IDVA survivors to have been helped to access civil orders (5.2% hospital; 14.3% community) or support with the criminal courts (1.1% hospital; 4.4% community).

#### *Health outcomes*

Health measures at the point of accessing a service (T1) demonstrated that hospital IDVAs worked with survivors who reported poorer physical health (T1 *M* = 49.2, 95% CI 47.1 to 53.9) and substantially poorer mental health (T1 *M* = 32.3, 95% CI 29.5 to 34.2) compared with the general UK population (Table 6). Among hospital

- Insert table 6 here -

survivors, levels of anxiety (T1 *M* = 12.2, 95% CI 10.6 to 13.5) and depression (T1 *M* = 10.5, 95% CI 7.9 to 12.2) were twice the national average. At T1, over half (62.6%) screened positive for Post-Traumatic Stress Disorder (PTSD) (T1 *M* = 2.1, 95% CI 1.7 to 2.5). Between T1 and T2 (three months after exiting support for DVA), no changes were observed in health outcomes among hospital survivors. While survivors reported a lower level of physical (T2 *M* = 48.7, 95% CI 45.9 to 54.0) and mental health concerns at T2 (T2 *M* = 39.6, 95% CI 34.9 to 44.3), specifically around anxiety (T2 *M* = 11.4, 95% CI 10.6 to 12.6), depression (T2 *M* = 8.6, 95% CI 7.9 to 10.0) and PTSD symptomology (T2 *M* = 2.0, 95% CI 1.4 to 2.6), no significant differences were observed; potentially owing to the small sample size.

#### *DVA outcomes*

Outcomes relating to the change in DVA assessed at the closure of cases revealed some positive changes in safety for survivors accessing both IDVA services (Table 7). Survivors accessing hospital IDVA services were more likely to experience

- Insert table 7 here -

cessation of abuse at the point of exiting the service than survivors identified by community IDVA services (62.4% hospital; 48.3% community). Hospital survivors reported a higher level of reduction in physical abuse (86.2% hospital; 71.2% community), sexual abuse (82.4% hospital; 73.3% community), harassment and stalking (75.6% hospital; 52.4% community) and jealous coercive and controlling behaviours (70.1% hospital; 52.2% community) (Table 8). Hospital survivors were

- Insert table 8 here -

more likely to report that they felt 'much safer' (54.2%) compared to survivors who accessed a community service (50.1%). Across both services, several survivors reported a continuation of abuse at exit. Abuse was ongoing in 10.2% of hospital IDVA cases and 18.4% of community IDVA cases.

Tables 9 and 10 presents the results of logistic regression analyses

- Insert tables 9 and 10 here -

examining the association between the different resources / programmes received and reported safety among survivors who accessed IDVA services, controlling for potentially confounding variables. Analyses showed that safety increased if the support provided was more intensive. Survivors who had accessed a hospital IDVA service were two times more likely to report feeling safer at case closure (AOR = 2.03, 95% CI 1.18 to 3.49) if they had received over five or more contacts with an IDVA. Similarly, survivors accessing the hospital IDVA service were found to have higher

odds of achieving feelings of safety if they had been supported over a longer period and had accessed a higher number of resources / programmes provided by wider community services. Accessing six or more resources / programmes increased safety by one and a half times (AOR = 2.38, 95% CI 1.41 to 3.87) and odds of achieving this outcome increased progressively with a greater number of support days provided by the IDVA (AOR = 2.00, 95% CI 1.00 to 1.01). Survivors who had accessed a hospital IDVA service were more likely to report no change or feeling less safe at exit if they had experienced suicidal ideation or behaviours at the point of initial referral (AOR = 2.00, 95% CI 0.28 to 0.74). The same model was applied to the community IDVA cases and findings were replicated, whereby, feelings of safety were increased in line with more intensive support in terms of more frequent contact with a community IDVA (AOR = 1.45, 95% CI 1.12 to 1.89) and access to a range of resources / programmes (AOR = 1.82, 95% CI = 1.43 to 2.31).

#### *Health resource use and cost analysis*

In the six months before accessing IDVA services, hospital survivors used more health services than community survivors (Table 11). In terms of single

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components, differences were observed for general practices (hospital  $M = 4.9$ , 95% CI 3.7 to 6.0; community  $M = 2.6$ , 95% CI 1.8 to 3.9), mental health services (counsellors) (hospital  $M = 3.0$ , 95% CI 0.4 to 6.4; community  $M = 1.5$ , 95% CI 0.0 to 3.0), inpatient stays (hospital  $M = 3.6$ , 95% CI 1.2 to 6.0; community  $M = 0.3$ , 95% CI 0.0 to 0.7), ED attendance (hospital  $M = 1.0$ , 95% CI 0.6 to 1.3; community  $M = 0.4$ , 95% CI 0.1 to 0.5) and ambulance trips (hospital  $M = 0.6$ , 95% CI 0.3 to 0.1; community  $M = 0.2$ , 95% CI 0.0 to 0.3). The cost analysis based on health resource use showed that hospital survivors cost on average £2,248 (95% CI £1,646 to £2,977) and community survivors cost on average £533 (95% CI £373 to £713).

Based on the difference in resource use six months before (T1) and six months after (T2) accessing the hospital IDVA service, a cost reduction was observed post-intervention in most hospital services (Table 12). Hospital survivors

- Insert table 12 here -

reported fewer inpatient stays (T1  $M = 4.5$ , 95% CI 0.8 to 10.0; T2  $M = 0.0$ ), ED attendances (T1  $M = 0.9$ , 95% CI 0.3 to 1.4; T2  $M = 0.4$ , 95% CI 0.0 to 0.7) and ambulance trips (T1  $M = 0.6$ , 95% CI 0.0 to 1.0; T2  $M = 0.1$ , 95% CI 0.0 to 0.3). Outpatient appointments increased pre and post intervention (T1  $M = 0.8$ , 95% CI 0.3 to 1.1; T2  $M = 2.7$ , 95% CI 0.3 to 5.0). Decreased use of hospital services offset the increase in cost observed in slightly higher levels of attendance at general practices (T1  $M = 4.0$ , 95% CI 2.5 to 5.8; T2  $M = 5.3$ , 95% CI 3.4 to 7.2), mental health services (community psychiatric nurse) (T1  $M = 4.0$ , 95% CI 2.5 to 5.8; T2  $M = 5.3$ , 95% CI 3.4 to 7.2) and substance services (T1  $M = 1.1$ , 95% CI 0.1 to 2.3; T2  $M = 1.5$ , 95% CI 0.4 to 3.4). However, the only significant difference in health service use pre and post intervention was attributed to the decrease in hospital inpatient stays; potentially owing to the small sample size. Overall, the cost reduction post intervention was equivalent to savings of £2,076 per patient per year when the resource use is extrapolated to a one-year period (6 months £1,038, 95% CI £182 to £2,030).

## **Discussion**

This article reports findings from a multi-site evaluation of a healthcare-based advocacy intervention which co-located IDVAs in five UK hospitals. Data from community IDVA services were employed as a comparator. Results highlight the advantages of placing IDVAs within ED and maternity departments, including greater visibility of 'hidden survivors', an opportunity to intervene earlier during an abusive relationship, increased referrals from health services, access to a range of resources / programmes (both within the hospital itself and the wider community) and greater odds of cessation of abuse alongside enhanced feelings of safety for survivors.

#### *Earlier intervention and support for 'hidden' survivors*

Hospital IDVA services enabled access to support for survivors who may not be visible to community DVA services. Although referrals for some such survivors—BAME people, LGBT people, and men—were low, hospital IDVAs worked with survivors who were older (aged over 55), from higher income households and who were pregnant. Co-location of IDVAs in the hospital provided a unique opportunity that could facilitate disclosure safely, either at the point of a physical or mental health crisis or within the context of other health issues. Survivors accessing hospital IDVA services reported higher levels of complex needs particularly in relation to mental health difficulties. This suggests that hospital IDVAs worked with a more vulnerable client group than community IDVAs. However, the higher disclosure level is in-line with previous research which posits this to the healthcare environment being perceived as more confidential and with fewer risks of unwanted involvement from social services or criminal justice<sup>[8]</sup>. Findings demonstrate that locating IDVAs in ED and maternity departments may decrease the time it takes for survivors to access a service. Hospital IDVAs were more likely to engage with survivors at an earlier point in their abusive relationship, often when survivor and perpetrator were still living together. This could also suggest that hospital IDVAs identified survivors who had not accessed services previously or who were facing barriers in finding support for DVA because they were still in a relationship with the abuser. These findings reflect existing studies which report that survivors referred to hospital IDVAs were typically older and new referrals<sup>[49 50]</sup>. In this respect, hospital IDVA services provide an opportunity for earlier intervention; both in terms of supporting survivors but also in identifying perpetrators who may be less likely to be known to the criminal justice system.

### *Integration within the hospital community*

In line with previous research, survivors accessing hospital IDVA services were more likely to see their GP and attend ED for issues related to DVA in the six months preceding support but were less likely to call the police<sup>[23, 24]</sup>. The increased use of health services represents missed opportunities to intervene. The number of survivors presenting to ED demonstrates the need for paramedics and ED healthcare professionals to be trained in recognising the signs and symptoms of DVA; including non-physical forms of abuse that have been shown to have long-term mental health consequences including higher levels of suicidal behaviour<sup>[22]</sup>. A key component of the hospital IDVA role was to raise awareness of DVA services within the hospital community and provide training to healthcare professionals. The analysis of referral routes into IDVA services shows the advantages of this aspect of the service, with increased referrals into the hospital IDVA from a range of hospital departments (e.g., ED, maternity and ante/neo-natal units, psychiatry or mental health departments). Comparatively, survivors accessing community IDVAs were less likely to have been referred from health services. Similarly, hospital IDVAs enabled a greater number of survivors to access ongoing health services at the point of case closure (e.g., mental health and substance services). In line with previous research, the increase in referrals from other hospital departments alongside referrals out to other health services, suggests that the co-location of IDVAs in hospitals provides clear referral pathways for survivors to specialist DVA support that is immediately accessible but also other health services for longer term care<sup>[49, 50]</sup>.

### *Outcomes for survivors*

Survivors accessing both IDVA services experienced several positive changes in relation to DVA outcomes. By case closure, most survivors reported reductions in the occurrence of all forms of abuse and over half reported feeling 'much safer'. Survivors engaging with hospital IDVA services were more likely to experience cessation of abuse and greater reductions in abuse from T1 to T2 than survivors accessing community IDVA services. The proportion of survivors reporting ongoing forms of abuse at case closure was also lower for those who had accessed a hospital IDVA. However, within the community IDVA service abuse tended to be more severe at intake, potentially leading to lower reductions in non-physical forms of abuse at the point of exit. The larger reductions in abuse among the hospital IDVA group may reflect the benefits of accessing intervention at an earlier point in an abusive relationship before risk has escalated. Intensive support from IDVAs (five or more contacts) over a longer period and access to a greater number of community resources / programmes increased the likelihood of safety. These findings reflect previous research demonstrating that intensive advocacy may be effective in reducing physical abuse<sup>[42-43, 46-47]</sup>. The positive impact of access to community-based resources on abuse outcomes demonstrates the importance of hospital-IDVAs working as part of a co-ordinated multi-agency response; both within the hospital across a range of healthcare departments but also externally in building relationships with wider community services.

No changes were observed in health outcomes, either in terms of overall physical or mental health, for survivors who had accessed the hospital IDVA. These findings may reflect the small size of the sample for whom this information was available or the time period after case closure, which may have been too short to determine any sustained change. These findings importantly demonstrate the continued health concerns of survivors. Three months after accessing support, reported levels of health were still proportionately lower than UK averages. Survivors accessing hospital IDVA services experienced diminished odds of feeling safe if at the point of intake they were experiencing suicidal thoughts / behaviours. This highlights that health services have an important role to play in helping survivors to cope and recover with the long-term impact of DVA. Given the high proportion of mental health issues among this population, the continued presence of mental health services is particularly vital.

### *Financial implications of hospital IDVA*

Findings from the cost analysis indicate that there could be a substantial cost saving in health service use once survivors have accessed the hospital IDVA service. Based on the staffing costs available from two centres where the intervention was in place, the cost of providing hospital IDVA services may be in the range of £315 to £417 per survivor per year (Appendix 1). When this cost is compared to the potential cost savings associated with the intervention as shown in the pre- and post-intervention cost analysis, providing hospital IDVA services would seem to be at the very least cost-neutral for the NHS. For hospitals themselves, the intervention could be seen as particularly cost-effective as the main reduction in costs after the intervention was entirely associated with hospital services.

## **Limitations**

There were several limitations relating to the evaluation design and data quality. First, the design was nonexperimental, which may have resulted in the overstatement of intervention effectiveness<sup>[60]</sup>. Second, the DVA outcome measure (feelings of safety) was a self-reported single-item and included no measure of attribution: there is thus no meaningful way of determining what proportion of positive affect survivors attributed to the hospital or community IDVA service. Self-reported DVA outcomes may be subject to inflation, given that the case-level exit questionnaires were often completed within the context of the IDVA service. Third, owing to high levels of attrition at T2 determining health outcomes for survivors accessing community IDVA services was not possible. Fourth, since the approach did not include routine screening of all patients in ED and maternity departments for DVA, both the prevalence of DVA and changes in awareness of DVA among healthcare professionals in the study cannot be fully determined. Fifth, the cost analysis was limited as the resource use estimates were based on patient recollection rather than on a more rigorous and accurate system to collect these data. The sample size was limited, especially the hospital participants sample informing the pre- and post-intervention cost analysis. The analysis did not attempt to quantify the cost-effectiveness of the intervention due to the limited data available.

Further research is required to support the efficacy of this intervention, ideally adopting an experimental design, using robust and validated outcome measures of DVA, with cost-effectiveness and health outcomes assessed over an extended time frame.

## Conclusion

Healthcare based interventions represent a specific approach to identifying, preventing and managing DVA in a location that survivors are likely to visit due to the range of health impacts that accompany experiences of abuse. Healthcare providers are in a unique position to identify and support survivors, yet often face multiple barriers in doing so. Findings discussed here indicate that co-locating specialist domestic violence advocacy services (IDVAs) in hospitals can help healthcare professionals to identify abuse among their patients with the option to refer immediately into on-site DVA services for support. The advantages of locating IDVAs in hospitals include greater visibility of 'hidden survivors', an opportunity to intervene earlier during an abusive relationship, increase in referrals from health services, and access to a range of resources / programmes both within the hospital itself and the wider community. Intensive support and access to community interventions were shown to have a positive impact on reducing abuse at the point of case closure and enhanced feelings of safety for survivors who accessed both hospital and community IDVA services. This study has shown that hospital IDVAs offer a unique and promising strategy for tackling DVA from within the healthcare service.

## Abbreviations

IDVA: independent domestic violence advisor; DVA: domestic violence and abuse; IPV: intimate partner violence; UK: United Kingdom; NICE: National Institute of Health and Care Excellence; WHO; World Health Organisation; GUM; genitourinary medicine; HIV: human immunodeficiency virus; PTSD: Post-Traumatic Stress Disorder.

## Declarations

### *Ethics approval and consent to participate*

Ethics for Themis: A multi-site evaluation of hospital-based domestic abuse service were approved by the South West 4 (Central Bristol) Research Ethics Committee. All participants gave written consent to take part. The conduct of the evaluation was overseen by an independent expert panel that reviewed safety and outcome data throughout the programme. Reference number: 13/SW/0012

### *Availability of data and materials*

The datasets generated and/or analysed during the current study are not publicly available because consent was not sought for this purpose. Data may be available from the corresponding author on request.

### *Competing interests*

The authors declare that they have no competing interests.

### *Funding*

The Oak Foundation funded the evaluation through SafeLives for the original policy research. Secondary analysis and manuscript writing was not funded.

### *Author contributions*

GH conducted the secondary analysis and led on writing the paper

SD provided critical input into writing

EF conducted the cost analysis and contributed to writing

SJ led the original evaluation for SafeLives leading on research protocols, data collection and analysis

JA, SJ and GF provided critical input into writing

All authors read and approved the final manuscript.

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## Tables

Table 1. Characteristics of survivors accessing hospital and community IDVA services

	Hospital IDVA	Community IDVA
	%	%
Gender ( <i>ns</i> = 677, 3506)		
Male	5.1	4.2
Female	93.6	96.2
Sexual orientation ( <i>ns</i> = 678, 3527)		
Lesbian/gay/bisexual	2.0	2.2
Heterosexual	98.0	90.2
Age ( <i>ns</i> = 686, 3529)		
<i>M</i> ( <i>SD</i> ) / [ <i>CI</i> ]	35.6 (13.1) [34.6, 35.4]	34.9 (11.8) [34.5, 35.3]
Over 55 <sup>a</sup>	10.1**	6.8
Ethnicity ( <i>ns</i> = 689, 3523)		
Black/minority ethnic	15.3	17.1
White/British/Irish	84.2	77.5
Relationship status ( <i>ns</i> = 689, 3541)		
Current partner	53.4***	31.6
Ex-partner	35.3	59.7***
Children in the household ( <i>n</i> = 692, 3544)		
Children at home	51.1	67.2***
Pregnant	17.1***	6.3
Household income ( <i>ns</i> = 277, 1429)		
High £34,000+ p.a.	9.1***	4.2
Middle £33,999 - 15,599 p.a	15.1	12.4
Low 15,549 and below	49.4	55.3
Living arrangements ( <i>ns</i> = 692, 3536)		
Cohabiting	48.3***	29.7
Living separately	43.4	62.2***
Survivors' complex needs ( <i>ns</i> = 667, 3474)		
Alcohol misuse	18.4***	8.3
Drug misuse	11.2***	5.2
Financial difficulties	40.1***	30.3
Disability	12.2***	8.3
Mental health	57.3***	35.2
Suicidal ideation / behaviours	36.3***	16.2
Self-harm	43.5***	23.5
Perpetrator information ( <i>ns</i> = 686, 3545)		
Previously abusive to family or other partner	79.3***	67.7
Previous criminal record for domestic violence	36.6	45.2**
Multiple perpetrators	14.3***	8.3
Length of time survivor experienced abuse (months) ( <i>n</i> = 692, 3544)		
<i>Mdn</i> ( <i>IQR</i> )	30.0 (60.1)	36.3 (72)
Type of abuse experienced ( <i>ns</i> = 683, 3537)		
Severe physical	46.6**	41.2
Severe sexual	14.3**	10.2
Severe controlling coercive behaviour	47.3	47.1
Severe harassment and stalking	30.8	34.1
Abuse that is escalating in severity or frequency	57.2	68.3*
At high risk (professional judgement)	53.1	58.2*

\*\*\*  $p < .001$ , \*\* $p < .01$ ,  $p < .05$ \*

NB: Over 55a. T-test revealed no significant difference in mean age. Owing to high variation in data, age was split across four age bandings according to the distribution (<18 to 21, 21 to 40, 40 to 55, 55+) and coded into ordinal variables. Significance testing of data accordingly revealed differences in age for those over 55+ between hospital and community IDVA services.

Table 2. Help-seeking behaviours six months before accessing an Idva service

	Hospital IDVA %	Community IDVA %
Help seeking ( <i>ns</i> = 488, 3,211)		
Saw GP for any reason	88.3***	77.2
Called the police	58.7	77.2***
Attended Accident and Emergency as a result of abuse	56.2***	16.3
Attended ED by ambulance as a result of the abuse	37.3**	16.2
Hospital IDVA survivors reasons for accessing ED ( <i>n</i> = 103) <sup>a</sup>		
Visit because of physical injuries of abuser	13.4	-
Visit for mental health reason	50.6	-
Visit to ED after an overdose	45.7	-

\*\*\*  $p < .001$ , \*\* $p < .01$ ,  $p < .05$ \*

<sup>a</sup> Large amount of missing data for the community IDVA sample meant that comparative figures could not be reported for these indicators.

Table 3. Referral routes into hospital and community IDVA services at intake

	Hospital IDVA %	Community IDVA %
Referral route to IDVA service ( <i>ns</i> = 283, 2430)		
Health	84.6***	2.3
Police	9.6	45.3***
Self	2.2	23.4***
Hospital department referrals to hospital IDVA ( <i>n</i> = 170) <sup>a</sup>		
ED	62.3	-
Maternity, ante- and neo-natal units	16.8	-
Psychiatry / mental health	7.3	-
Hospital staff referrals to hospital IDVA ( <i>n</i> = 164) <sup>a</sup>		
Nurse	45.6	-
Consultant/Doctor/Junior Doctor	18.2	-
Midwife	13.7	-
Psychologist/Psychiatrist	8.4	-
Ward Sister	4.5	-

\*\*\*  $p < .001$ , \*\* $p < .01$ ,  $p < .05$ \*

<sup>a</sup> This information was only collected for survivors accessing the hospital IDVA service.

Table 4. Referral routes out of hospital and community IDVA services at case closure

	Hospital IDVA %	Community IDVA %
Referral route out of IDVA service ( <i>ns</i> = 476, 2430)		
Police	52.1	83.7***
Housing	66.0***	15.3
Mental health	22.9*	14.9
Substance services	34.0**	3.3
Adult social services	3.2	1.6

\*\*\*  $p < .001$ , \*\* $p < .01$ ,  $p < .05$ \*

Table 5. Support provided to survivors accessing hospital and community IDVA services

	Hospital IDVA	Community IDVA
Case length (N= 521, 2259)		
<i>Mdn</i> (IQR) in months	1.7 (2.7)	2.4 (3.1)***
Frequency of contact with IDVA ( <i>ns</i> = 533, 2376)		
<i>Mdn</i> (IQR)	8.0 (9.0)	8.0 (11.0)
% < 5 contacts	21.2	40.6
% > 5 contacts	78.4	60.3
Types of support accessed ( <i>ns</i> = 692, 2722)		
% Safety planning	72.3***	63.4
% Health and wellbeing	67.7***	56.3
% Police	47.8*	41.2
% Housing	45.3***	31.4
% Marac	34.4	32.3
% Children	24.5	24.6
% Finance / benefits	17.2*	13.2
% Civil orders	5.2	14.3***
% Probation	3.3	5.1
% Criminal court	1.1	4.4***

\*\*\* p<.001, \*\*p<.01, p<.05\*

Table 6. Health outcomes for survivors accessing hospital IDVA services

	Time one (T1)		Time two (T2)		UK population	
Health measures hospital IDVA sample ( <i>n</i> = 64, 21)	<i>M</i>	SD / [95% CI]	<i>M</i>	SD / [95% CI]	<i>M</i>	SD
Physical health (SF12-PCS)	49.2	12.8 [47.1, 53.9]	48.7	11.4 [45.9, 54.0]	50.9	9.4
Mental health (SF12 - MCS)	32.3	12.2 [29.5, 34.2]	39.6	12.8 [34.9, 44.3]	52.1	8.7
Anxiety (HADS - Anxiety)	12.2	5.1 [10.6,13.5]	11.4	6.3 [10.6,12.6]	6.7 <sup>a</sup>	4.2
Depression (HADS - Depression)	10.5	5.2 [7.9, 12.2]	8.6	6.1 [7.9, 10.0]	5.5*	4.0
Post-Traumatic Stress Disorder (PTSD)	%		%			
	62.6		48.6			
(SD) / [95% CI]	2.1	1.65 [1.7, 2.5]	2.0	1.5 [1.4, 2.6]		

<sup>a</sup> UK normative data for females [56]. Women score higher on anxiety scales, no significant differences in depression between men and women.

\*\*\* p<.001, \*\*p<.01, p<.05\*

Table 7. IDVA outcomes for survivors accessing hospital and community IDVA services

	Hospital IDVA	Community IDVA
	%	%
Cessation of abuse ( <i>ns</i> = 476, 2722)		
% ceased	62.4**	48.3
% ongoing	10.2	18.4
% don't know / missing	27.4	33.3
Reductions in reported abuse		
% reporting physical abuse	86.2**	71.2
% reporting sexual abuse	82.4*	73.3
% reporting harassment and stalking	75.6**	52.4
% reporting jealous coercive and controlling behaviour	70.1*	52.2
Survivor appraisal of safety		
% much safer than before	54.2*	50.1
% somewhat safer than before	30.1	36.4
% no safer than before	7.2	9.1
% don't know/missing	8.5	4.4

\*\*\* p<.001, \*\*p<.01, p<.05\*

Table 8. Reductions in abuse from intake to exit for hospital and community IDVA services

	Hospital IDVA		Community IDVA	
	%		%	
Survivors report of abuse between intake and exit (ns = 476, 2,722)	T1	T2	T1	T2
% physical abuse	70.3	10.2***	60.3	18.4**
% sexual abuse	25.4	5.3***	19.2	5.8***
% harassment and stalking	66.6	17.4**	62.2	30.1*
% jealous coercive and controlling behaviour	87.5	18.5*	85.4	40.2*

\*\*\* p<.001,\*\*p<.01, p<.05\*

Table 9. Factors influencing feelings of safety after accessing hospital IDVA services

	Hospital IDVA - Survivor felt safer (1) vs not safer/missing (0)							
	B	S.E.	Wald	df	Sig.	AOR	95% C.I.for EXP(B)	
							Lower	Upper
6+ interventions accessed (1) vs 0-1 accessed (0)	.84	.25	10.8	1	.001	2.3	1.4	3.8
5+ contacts with IDVA (1) vs <5 (0)	.71	.27	6.6	1	.010	2.0	1.2	3.4
Length of case (days)	.00	.00	7.0	1	.008	1.0	1.0	1.0
Reported suicidal ideation/behaviour T1 (1) vs none recorded (0)	-.77	.24	10.2	1	.001	.46	.28	.74
Any abuse escalating in severity and frequency at T1 (1) vs none recorded (0)	-.36	.29	1.5	1	.219	.69	.38	1.2
Physical abuse at T1 (1) vs none recorded (0)	-.07	.27	.08	1	.775	.92	.53	1.5
Harassment and stalking at T1 (1) vs none recorded (0)	-.08	.25	.10	1	.752	.92	.56	1.5
Jealous coercive and controlling behaviour at T1 (1) vs none recorded (0)	.11	.36	.10	1	.750	1.1	.54	2.3
Drug/alcohol misuse at T1 (1) vs none recorded (0)	-.04	.32	.02	1	.897	.95	.50	1.8
Mental health issues at T1 (1) vs none recorded (0)	-.48	.36	1.7	1	.186	.61	.29	1.2
Perpetrator drug/alcohol misuse at T1 (1) vs none recorded (0)	-.39	.37	1.1	1	.292	.67	.32	1.3
Perpetrator mental health at T1 (1) vs none recorded (0)	.36	.40	.81	1	.368	1.4	.65	3.1
Perpetrator financial issues at T1 (1) vs none recorded (0)	-.33	.40	.68	1	.408	.71	.32	1.5
Constant	.41	.43	.93	1	.333	1.5		

n = 451; Model statistics: -2LL = 471.46, X<sup>2</sup> = 57.06, df= 13, p< .001, Nagelkerke R<sup>2</sup> = .17, % classified correctly = 75%

Table 10. Factors influencing feelings of safety after accessing community IDVA services

	Community IDVA - Survivor felt safer (1) vs not safer/missing (0)							
	B	S.E.	Wald	df	Sig.	AOR	95% C.I.for EXP(B)	
							Lower	Upper
6+ interventions accessed (1) vs 0-1 accessed (0)	.59	.12	23.903	1	.000	1.8	1.4	2.3
5+ contacts with IDVA (1) vs <5 (0)	.37	.13	8.034	1	.005	1.4	1.1	1.8
Length of case (days)	.00	.00	.011	1	.917	1.0	.99	1.0
Reported suicidal ideation/behaviour T1 (1) vs none recorded (0)	-.19	.15	1.481	1	.224	.82	.60	1.1
Any abuse escalating in severity and frequency at T1 (1) vs none recorded (0)	.20	.13	2.143	1	.143	1.2	.93	1.5
Physical abuse at T1 (1) vs none recorded (0)	-.12	.12	.913	1	.339	.88	.68	1.1
Harassment and stalking at T1 (1) vs none recorded (0)	-.00	.11	.002	1	.968	.99	.78	1.2
Jealous coercive and controlling behaviour at T1 (1) vs none recorded (0)	-.10	.16	.388	1	.533	.90	.66	1.2
Drug/alcohol misuse at T1 (1) vs none recorded (0)	-.05	.22	.049	1	.825	.95	.60	1.4
Mental health issues at T1 (1) vs none recorded (0)	-.51	.25	4.023	1	.045	.59	.36	.98
Perpetrator drug/alcohol misuse at T1 (1) vs none recorded (0)	.15	.18	.769	1	.381	1.1	.82	1.6
Perpetrator mental health at T1 (1) vs none recorded (0)	.09	.18	.268	1	.605	1.1	.76	1.5
Perpetrator financial issues at T1 (1) vs none recorded (0)	-.05	.18	.073	1	.787	.95	.66	1.3
Constant	.94	.20	22.2	1	.000	2.5		

n = 2177; Model statistics: -2LL = 1877.80, X<sup>2</sup> = 142.96, df= 13, p< .001, Nagelkerke R<sup>2</sup> = .16, % classified correctly = 81%

Table 11. Health resource use difference between hospital and community IDVA services – (T1) six months pre-intervention

Health resource	Hospital survivors <i>n</i> = 76			Community survivors <i>n</i> = 38			Difference in cost (hospital vs community)
	<i>M</i> use	SD / 95% CI	<i>M</i> cost	<i>M</i> use	SD / 95% CI	<i>M</i> cost	
GP surgery consultation	4.9**	4.9 [3.7, 6.0]	239	2.9	3.2 [1.8, 3.9]	142	97
GP phone consultation	1.3	4.2 [0.3, 2.3]	27	0.5	1.2 [0.1, 0.9]	10	17
Practice Nurse consultation	2.0	7.4 [0.2, 3.6]	24	0.7	1.5 [0.3, 1.2]	9	15
Community Psychiatric Nurse	0.9	2.8 [0.2, 1.5]	33	0.0	0.2 [0.03, 0.8]	1	32
Psychiatrist	0.4	1.2 [0.1, 0.7]	45	0.0	0.2 [0.03, 0.8]	3	42
Clinical Psychologist	0.8	3.8 [0.1, 1.6]	160	-	-	-	160
Health Visitor	2.0	9.2 [0.2, 4.9]	106	1.0	3.0 [0.3, 1.9]	53	53
Counsellor	3.0**	14.6 [0.4, 6.4]	138	1.5	4.6 [0.0, 3.0]	69	69
Psychotherapist	0.1	0.9 [0.1, 0.3]	17	0.0	-	-	17
Family therapist	0.0	-	-	0.1	0.3 [0.0, 0.1]	8	-8
Drug/alcohol support	0.9	3.5 [0.0, 1.6]	66	0.2	0.7 [0.0, 0.4]	12	54
In-patient stay per night	3.6**	10.3 [1.2, 6.0]	997	0.3**	1.2 [0.0, 0.7]	94	903
Outpatient appointments	1.3	2.4 [0.7, 1.7]	142	0.4	1.2 [0.0, 0.8]	50	92
A&E attendance	1.0**	1.4 [0.6, 1.3]	118	0.4	0.6 [0.1, 0.5]	46	72
Ambulance trip	0.6*	1.3 [0.3, 0.1]	136	0.2*	0.4 [0.0, 0.3]	36	100
Total (95% CI)			£2,248 (£1,646 to £2,977)			£533 (£373 to £713)	£1,717

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

Table 12. Health resource use difference between T1 (six months pre-intervention) and T2 (six months post-intervention) for hospital survivors

Health resource	Hospital survivors T1 n = 29			Hospital survivors T2 n = 29			Difference in cost (T1 to T2)
	M use	SD / CI	M cost	M use	SD / CI	M cost	
GP surgery consultation	4.0	4.3 [2.5, 5.8]	198	5.3	4.9 [3.4, 7.2]	261	-£63
GP phone consultation	1.8	5.6 [0.2, 4.0]	37	1.2	2.2 [0.3, 2.0]	24	£13
Practice Nurse consultation	1.5	4.8 [0.2, 3.4]	19	1.1	2.0 [0.3, 1.9]	14	£5
Community Psychiatric Nurse	0.7	2.7 [0.3, 1.8]	28	1.7	5.4 [0.3, 3.6]	63	-£35
Psychiatrist	0.5	1.2 [0.0, 0.9]	50	0.9	4.3 [0.7, 2.5]	100	-£50
Clinical Psychologist	1.5	5.9 [0.7, 3.8]	325	1.7	5.5 [0.4, 3.7]	353	-£28
Health Visitor	0.7	1.9 [0.0, 1.5]	38	0.5	1.8 [0.2, 1.1]	25	£13
Counsellor	2.0	6.8 [0.5, 4.6]	92	2.1	5.3 [0.1, 4.1]	98	-£6
Psychotherapist	0.3	1.4 [0.3, 0.8]	42	0.0	-	0	£42
Family therapist	0.0	-	0	0.1	0.7 [0.1, 0.4]	21	-£8
Drug/alcohol support	1.1	3.2 [0.1, 2.3]	83	1.5	5.0 [0.4, 3.4]	120	-£37
In-patient stay per night	4.5	14.2 [0.8, 10.0]	1238	0.0**	-	0	£1,238
Outpatient appointments	0.8	1.9 [0.3, 1.1]	93	2.7	6.2 [0.3, 5.0]	296	-£203
A&E attendance	0.9	1.4 [0.3, 1.4]	107	0.4	0.9 [0.0, 0.7]	50	£57
Ambulance trip	0.6	1.4 [0.0, 1.0]	131	0.1	0.5 [0.0, 0.3]	31	£100
Total (95% CI)			£2,481 (£1,731 to £3,629)			£1,456 (£192 to £2,063)	£1,038 (£182 to £2,030)

\*\*\* p<.001,\*\*p<.01, p<.05\*