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Volume 13 • Issue 10 • October 2025

ISSN 2050-4330

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DOI 10.3310/AARR6611

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Extended Research Article

Understanding and reducing intimate partner violence perpetrated by men who misuse substances: the ADVANCE research programme

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Disclaimer: This article contains transcripts of interviews conducted in the course of the research and contains language that may offend some readers.

Published October 2025
DOI: 10.3310/AARR6611

This report should be referenced as follows:

Gilchrist G, Dheensa S, Johnson A, Henderson J, Radcliffe P, Stephens-Lewis D, *et al*. Understanding and reducing intimate partner violence perpetrated by men who misuse substances: the ADVANCE research programme. *Programme Grants Appl Res* 2025;**13**(10). https://doi.org/10.3310/AARR6611

Programme Grants for Applied Research

ISSN 2050-4330 (Online)

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This article

The research reported in this issue of the journal was funded by PGfAR as award number RP-PG-1214-20009. The contractual start date was in October 2016. The draft manuscript began editorial review in March 2023 and was accepted for publication in March 2025. As the funder, the PGfAR programme agreed the research questions and study designs in advance with the investigators. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The PGfAR editors and production house have tried to ensure the accuracy of the authors' manuscript and would like to thank the reviewers for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this article.

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Abstract

Background: Despite the higher prevalence of intimate partner violence perpetration by men who misuse substances, the role of substance use in intimate partner violence is unclear. Evidence about what works to reduce intimate partner violence by men who misuse substances is lacking.

Objectives: To (1) understand the role of substance use in intimate partner violence perpetration, (2) develop a perpetrator intervention for men in substance use treatment and (3) test the feasibility and (4) effectiveness of delivering the intervention to men receiving substance use treatment.

Design: Objective 1: mixed-methods intervention development, including a qualitative meta-ethnography, narrative interviews with 14 men and their female (ex)-partners and a systematic review and meta-analysis of 9 perpetrator intervention trials. Objective 2: the ADVANCE 16-week group perpetrator intervention delivered in person, was developed and adapted for digitally supported remote delivery (ADVANCE-D) during the pandemic. Objective 3: a multicentre feasibility randomised controlled trial of ADVANCE plus substance use treatment as usual compared to treatment as usual only and a multicentre non-randomised controlled feasibility study of ADVANCE-D were conducted. Objective 4: a multicentre effectiveness and cost-effectiveness randomised controlled trial of ADVANCE was planned.

Setting and participants: Six community substance use treatment services in England (London, the West Midlands and the Southwest). Adult men receiving substance use treatment who had perpetrated intimate partner violence, their female (ex)-partners and staff delivering/supporting ADVANCE/ADVANCE-D delivery.

Interventions: The ADVANCE comprises 2–4 individual sessions and 1- to 2-hour weekly groups. ADVANCE-D includes 1 individual session, 7 fortnightly video groups and 12 website sessions, each followed by a coaching call.

Main outcome measures: The feasibility randomised controlled trial and non-randomised feasibility study measured eligibility, consent, recruitment, attendance (men) and follow-up rates and experiences of receiving or delivering ADVANCE/ADVANCE-D. These feasibility studies also assessed whether the following outcomes could be measured in a future effectiveness trial: intimate partner violence perpetration (men)/victimisation (women), substance use (men), self-management (men), and for men and women, mental health, health and social care service use, criminal justice contacts and quality of life. The primary outcome for the effectiveness trial was men's self-reported intimate partner violence perpetration in the previous 4 months, 12 months post randomisation, using the Abusive Behaviour Inventory.

Review methods: Systematic searches of databases identified qualitative studies for the meta-ethnography and (non)-randomised controlled trials for the systematic review. Meta-analyses were conducted where comparable data existed. Study inclusion and data extraction processes were conducted as per Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.

Results: The meta-ethnography and narrative interviews identified the complex interplay between substance use and intimate partner violence perpetration in the context of intoxication, withdrawal, acquiring drugs, impact on relationships and wider dynamics of power, control and psychological vulnerabilities. Little evidence emerged for effective interventions to reduce intimate partner violence for men who misuse substances. Meta-analysis showed that integrated substance use and intimate partner violence perpetrator interventions were non-superior to substance use treatment as usual in reducing intimate partner violence (combined mean difference 0.1, 95% confidence interval 0.37 to 0.57; $p = 0.68$). One hundred and four men were randomly allocated to receive ADVANCE + substance use treatment as usual ($n = 54$) or treatment as usual only ($n = 50$), and at 16 weeks post randomisation, 49% (51/104) were followed up. Of (ex)-partners, 26% (27/104) were recruited and 63% (17/27) were followed up. Median rate of intervention session attendance was 28.6% (lower quartile 0 – upper quartile 50). Self-reported intimate partner violence perpetration reduced at follow-up among men allocated to ADVANCE (estimated group difference on Revised Abusive Behaviour Inventory: −1.31, 95% confidence interval −4.06 to 1.43). Progression to a definitive trial was supported, but the trial was suspended due to COVID-19. ADVANCE was adapted for remote digitally supported delivery. Of men screened to participate in the non-randomised controlled feasibility study of ADVANCE-D, 46% (57/125) were eligible and deemed suitable to participate by staff. Forty-five men were recruited, 40 were offered ADVANCE-D and 25 (25/45; 55.6%) were followed up. Of sessions offered, 68% of core sessions, 44% of website practice sessions and 33% of coaching calls were attended/completed. Mean number of sessions attended was 11.4 (standard deviation 9.1).

Twenty-one (ex)-partners were recruited, and 11 were (52.4%) followed up. Reductions in intimate partner violence perpetrated or experienced were reported by 8/11 men and 17/25 women, respectively; however, outcomes measured lacked statistical power to show a difference.

Limitations: The COVID-19 restrictions precluded undertaking the randomised controlled trial.

Conclusions: Delivering ADVANCE and ADVANCE-D to men in substance use treatment services was feasible, acceptable and safe. Promising findings were reported. Definitive trials are needed.

Future work: Evaluation and implementation of ADVANCE and ADVANCE-D in other settings and populations will be considered.

Trial registration: The trial is registered as ISRCRTN79435190 and ISRCTN66619273. The review was registered in PROSPERO as CRD42107056596.

Funding: This award was funded by the National Institute for Health and Care Research (NIHR) Programme Grants for Applied Research programme (NIHR award ref: RP-PG-1214-20009) and is published in full in *Programme Grants for Applied Research*; Vol. 13, No. 10. See the NIHR Funding and Awards website for further award information.

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Report Supplementary Material 2 Work package 4(ii): The statistical analysis plan for the ADVANCE-D non-randomised feasibility study

Supplementary material can be found on the NIHR Journals Library report page (https://doi.org/10.3310/AARR6611).

Supplementary material has been provided by the authors to support the report and any files provided at submission will have been seen by peer reviewers, but not extensively reviewed. Any supplementary material provided at a later stage in the process may not have been peer reviewed.

The supplementary materials (which include but are not limited to related publications, patient information leaflets and questionnaires) are provided to support and contextualise the publication. Every effort has been made to obtain the necessary permissions for reproduction, to credit original sources appropriately, and to respect copyright requirements. However, despite our diligence, we acknowledge the possibility of unintentional omissions or errors and we welcome notifications of any concerns regarding copyright or permissions.

List of abbreviations

ABI	Abusive Behaviour Inventory
ABI-R	Revised Abusive Behaviour Inventory
ACE	adverse childhood experiences
ADVANCE	advancing theory and treatment approaches for males in substance misuse treatment who perpetrate intimate partner violence
BIDR-SF	Balanced Inventory of Desirable Responding – Short Form
B-SAFER	Brief Spousal Assault Form for the Evaluation of Risk
BSCS	Brief Self-Control Scale
CBT	cognitive–behavioural therapy
CONSORT	Consolidated Standards of Reporting Trials
CPQ-SF	Communications Patterns Questionnaire – Short Form
CTS-2	Revised Conflict Tactics Scale
DASH	Domestic Abuse, Stalking, Harassment and Honour Based Violence Assessment
DMEC	Data Monitoring and Ethics Committee
EQ-5D-3L	EuroQol-5 Dimensions, three-level version
FANI	free association narrative interview
GAD-7	Generalised Anxiety Disorder-7
ICECAP-A	ICEpop CAPability measure for Adults
IPA	intimate partner abuse
IPV	intimate partner violence
IPVRAS	Intimate Partner Violence Responsibility Attribution Scale
ISS	integrated support service
NGT	nominal group technique
PAS	Propensity for Abusiveness Scale
PC-PTSD-5	Primary Care PTSD Screen for DSM-5
PHQ-9	Patient Health Questionnaire-9
PPI	patient and public involvement
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PTSD	post-traumatic stress disorder
PWLE	people with lived experience
QoL	quality of life
RCT	randomised controlled trial
SAP	statistical analysis plan
TAU	treatment as usual
TIDieR	Template for Intervention Description and Replication
WAI-SR	Working Alliance Inventory – Short Revised
WP	work package

Plain language summary

Intimate partner violence includes physical, sexual, financial and psychological abuse from an (ex)-partner. Men in alcohol or drug (substance) treatment report high rates of intimate partner violence towards their (ex)-partners. We reviewed existing research and conducted interviews with men and their female (ex)-partners and found that intoxication, withdrawal and craving affected men's use of abusive behaviour. Little evidence exists that shows what interventions reduce intimate partner violence by men who use substances. We developed ADVANCE, a group intervention for men in substance use treatment consisting of individual and group sessions delivered by trained staff. To find out whether it would be possible to conduct a large study exploring the effectiveness and cost-effectiveness of ADVANCE, we first conducted a feasibility study. One hundred and fourteen men were allocated by chance to receive ADVANCE (*n* = 54) or their usual substance use treatment only (*n* = 50). Women's support workers offered men's (ex)-partners support and the opportunity to participate in the research. Interviews and focus groups after the intervention showed that men, (ex)-partners and staff found ADVANCE acceptable. Men who received ADVANCE reduced their use of intimate partner violence towards their (ex)-partners. We could not progress to the larger effectiveness study due to COVID-19; instead, ADVANCE was adapted to be delivered remotely (ADVANCE-D). ADVANCE-D included individual and group video sessions, self-directed website sessions and coaching calls. Forty men were offered ADVANCE-D. Again, (ex)-partners were offered support and invited to participate in the research. Men completed 48% of sessions offered. Men and staff rated ADVANCE-D highly. Men and (ex)-partners reported a reduction in using and experiencing intimate partner violence, respectively. Men also reduced their substance use. The research showed promising findings, including that trained staff from substance use services can deliver both ADVANCE and ADVANCE-D safely. A trial is needed to determine whether ADVANCE-D works and is cost-effective in a larger sample, followed up over a longer term.

Scientific summary

Background

Intimate partner violence (IPV) perpetration involves any behaviour by an intimate partner causing physical, sexual or psychological harm, including aggression, sexual coercion, psychological abuse, financial abuse and controlling behaviours. While IPV can be perpetrated in all relationships, this research programme focused on IPV perpetrated by men towards a female (ex)-partner.

No single factor explains why some men are more likely to perpetrate IPV; however, substance use, especially misuse and dependence, is a substantial and consistent risk factor. Rates of IPV perpetration by men in substance use treatment are around four times higher than in the general population. Around 6 in 10 men receiving substance use treatment had perpetrated any IPV in the past year. Despite this, the role of substance use in IPV perpetration remains poorly understood.

There is a lack of evidence about what works to reduce IPV perpetration for men who misuse substances. Men in substance use treatment are rarely referred to perpetrator programmes, and when they are, they tend not to engage or complete. There remains a need for further research.

Objectives

The research programme included two work packages (WPs) to generate evidence [WP1(i), WP1(ii), WP2] to develop [WP3(i)] and test the feasibility [WP4(i)] and effectiveness (WP5) of the ADVANCE group intervention to reduce IPV by men attending substance use treatment and increase well-being and safety for their (ex)-partners. Due to COVID, ADVANCE was adapted for digitally supported delivery [WP3(ii)] and the feasibility of remote delivery was explored [WP4(ii)]. WPs are presented in the order they were completed.

Research questions

- How does substance use feature in survivors' and perpetrators' narratives of IPV perpetration? [WP1(i)]
- What contributes to IPV perpetrated by men in substance use treatment? [WP1(ii)]
- What relationship/support needs do male IPV perpetrators in substance use treatment and their (ex)-partners have? [WP1(ii)]
- What are the core components of an evidence-based ADVANCE integrated group perpetrator intervention for men in substance use treatment? [WP3(i)]
- Is it feasible and acceptable to conduct an effectiveness trial of the ADVANCE intervention for men in substance use treatment? [WP4(i)]
- What are the experiences of participants receiving and staff delivering ADVANCE? [WP4(i)]
- What is the effectiveness and cost-effectiveness of ADVANCE plus substance use treatment as usual (TAU) compared to TAU alone to reduce IPV perpetration for men in substance use treatment? (WP5)
- Can the ADVANCE group intervention be adapted for digitally supported remote delivery (ADVANCE-D)? [WP3(ii)]
- Is it feasible and acceptable to deliver ADVANCE-D remotely to men in substance use treatment? [WP4(ii)]
- What are the experiences of participants receiving and staff delivering ADVANCE-D? [WP4(ii)]

Methods

Work package 1(i)

A meta-ethnography of qualitative studies explored how substance use featured in survivors' and perpetrators' narratives of IPV perpetration. Three databases were searched for qualitative studies published in English that included

narratives of heterosexual adult IPV survivors and/or perpetrators and explored the role of substance use in IPV perpetration. Data were coded for relevant participant quotes and meanings (first order), study authors' (second order) and meta-ethnographers' (third order) interpretations.

Work package 1(ii)

Free association narrative interviews (FANIs) were conducted with men receiving substance use treatment who had ever perpetrated IPV towards an (ex)-partner from six community-based substance use treatment services in England. Men were asked to provide their (ex)-partners' contact details for researchers to invite them to be interviewed. Participants were prompted to tell the stories of their substance use, relationships, IPV and intervention experiences. Interviews were transcribed verbatim. Timelines tracked the sequence of events through participants' lives. Case studies were written up as 'pen portraits' to capture the complexity each interview revealed. Thematic analysis identified the main ways substance use featured in male and female attributions and explanations for IPV. Where both partners were interviewed, men's and women's accounts were compared.

Work package 2

A systematic narrative review with meta-analysis explored the effectiveness of perpetrator interventions for men who use substances. Seven databases and clinical trials registry were searched for randomised controlled trials (RCTs) and non-RCTs of IPV interventions compared to TAU or an intervention of a lesser intensity or frequency among adult heterosexual men where at least 60% of the sample misused substances. Outcome measures included perpetrator and/or survivor reports of IPV, and/or substance use, and/or marital satisfaction/conflict. Where at least two studies had comparable data, a comparison was made between intervention and TAU groups.

Work package 3(i)

Findings from WP1, WP2 and expert opinion from practitioners and people with lived experience (PWLE) informed the development of the ADVANCE integrated perpetrator and substance use intervention. The Capability, Opportunity, Motivation – Behaviour framework for behaviour change was used to develop the intervention. Key stakeholders, including Learning Alliance groups (consisting of professionals and academics) and a patient and public involvement (PPI) group, were consulted throughout the development to inform the process.

Work package 4(i)

A multicentre, parallel-group individually randomised feasibility trial and formative evaluation of ADVANCE was conducted. Target was to recruit 108 men from substance use treatment in England who had perpetrated IPV in the past 12 months and their (ex)-partners. Contingency management was used to encourage attendance. Eligibility, suitability, consent, recruitment, attendance, retention and follow-up rates were estimated. Pre-specified criteria assessed the feasibility of progression to a defini tive trial: ≥ 60% of eligible male participants recruited, intervention acceptable to staff and male participants, ≥ 70% of participants followed up and levels of substance use and IPV perpetrated by men allocated to ADVANCE did not increase from average baseline level at 16 weeks post randomisation. In-depth interviews or focus groups explored the intervention's acceptability to participants, facilitators and linked women's support workers. Pre–post differences in IPV, substance use (men only), mental health, self-management (men only), health and social care service use, criminal justice contacts and quality of life (QoL) were determined for men and women 16 weeks post randomisation. Inferential analyses estimated intervention effects.

Work package 5

A multicentre, parallel-group individually RCT, with nested process evaluation of ADVANCE + TAU compared to TAU only was planned. The primary outcome was self-reported IPV perpetration by men in substance use treatment measured using the Abusive Behaviour Inventory (ABI) in the previous 4 months at 12 months post randomisation. Men who had perpetrated IPV in the past 12 months (n = 378) would have been randomly allocated on a 2 : 1 basis to ADVANCE (n = 252) or TAU (n = 126). (Ex)-partners would have been invited to participate in the research. Linear mixed modelling would have assessed the effect of the intervention using the ABI. Incremental cost-effectiveness and cost–utility analysis of ADVANCE over and above TAU would have been undertaken. Analysis of qualitative data was planned using the framework approach. This WP was not undertaken due to COVID-19.

Work package 3(ii)

The ADVANCE was adapted for digitally supported remote delivery (ADVANCE-D) in response to COVID-19 restrictions based on expert-opinion, PPI and best available evidence.

Work package 4(ii)

A non-randomised multicentre feasibility study of delivering ADVANCE-D with embedded process evaluation was conducted. Target was to recruit 60 men from substance use treatment in Scotland, England and Wales who had perpetrated IPV towards a female (ex)-partner in the past 12 months, and their (ex)-partners. Men were supplied with a tablet and data contingent on attendance. All (ex)-partners were given a smartphone and data to view the ADVANCE-D website and access safety messages. Eligibility, suitability, consent, recruitment, attendance, retention and follow-up rates were estimated. Pre–post differences in IPV perpetration [victimisation for (ex)-partners], substance use, mental health, self-management (men only), health and social care service use, criminal justice contacts and QoL were explored at the end of the 16-week intervention. In both WP4(i) and WP4(ii), summary statistics quantified parameters. Paired *t*-tests or Wilcoxon signed-rank test compared pre- and post-intervention outcomes. The framework approach was used to analyse longitudinal qualitative data.

Cross-cutting work package

Two Learning Alliances of key stakeholders developed local cross-sector solutions and transferred knowledge from ADVANCE into practice. PWLE of IPV and/or substance use were consulted at all research stages.

Results

Work package 1(i)

Twenty-six studies were included in the meta-ethnography. Five themes were identified across studies, supporting the complex interplay between substance use and IPV perpetration in the context of intoxication, withdrawal and craving. The impact of addiction and IPV on relationships was highlighted, including women describing emotional instability associated with the perpetrators' substance use and financial abuse as perpetrators stole or used household resources to acquire substances. IPV linked to substance use was played out in relation to unequal gender relations, where male perpetrators sought to dominate and control their female partners. IPV was explained by both survivors and perpetrators as a shared response to anxiety or depression and anger, often from emotional insecurities shaped by negative childhood experiences, and mediated by substances.

Work package 1(ii)

Thirty-seven men and 14 of their (ex)-partners were interviewed. Men and women's explanations of their abusive behaviour had similarities. Men tended to describe IPV as one-off incidents, arising from specific disputes or perceived sexual betrayal, whereas women described patterns of abuse and sexual jealousy. Men often described their behaviour as 'protective', whereas their (ex)-partners described the same experience as controlling and overbearing. The psycho-pharmacological effects of substance use were rarely the only explanation for IPV. Intoxication, craving, withdrawal and substance acquisition were key contexts in which controlling behaviours increased, conflicts escalated and seemingly erratic behaviours were commonplace.

Work package 2

Nine RCTs were included in the review (n = 1014 men). Interventions were grouped into integrated IPV and substance use interventions (five trials), IPV interventions with adjunct substance use interventions (two trials) and stand-alone IPV interventions (two trials). Individual RCTs reported reductions in short-term substance use outcomes (≤ 3 months; two trials) and IPV perpetration at different time points (three trials) in interventions compared with TAU. Meta-analysis with integrated IPV and substance use interventions showed no difference in substance use (three trials) or IPV outcomes (four trials) versus substance use TAU. It was not possible to conduct meta-analysis for the other two intervention groups.

Work package 3(i)

The 16-week ADVANCE integrated group intervention focuses on developing participants' strengths and healthy, non-abusive relationships. It comprises 2–4 pre-group individual sessions with a keyworker to establish personal goals and build genuine motivation to facilitate change, followed by 12 × 2-hour group sessions delivered by two trained facilitators. Integrated support services (ISSs) are offered to survivors. The main targets for change were personal goal planning; self-regulation, which refers to the ability to manage disruptive emotions and impulses; and attitudes and beliefs supporting IPV. ADVANCE incorporates an understanding of gendered power dynamics and reflects the complex links between substance use and IPV by highlighting individual risks for IPV perpetration, including substance use, poor emotional regulation and poor stress-coping.

Work package 4(i)

Over three temporal cycles, 104 male perpetrators were randomly allocated to receive ADVANCE + TAU (*n* = 54) or TAU only (*n* = 50). The overall median rate of intervention session attendance (of 14 compulsory sessions) was 28.6% (range 14.3–64.3% by the third cycle). Twenty-seven (ex)-partners were recruited, and 63% (17/27) were followed up. The methods were not designed to assess the effectiveness of ADVANCE. Three of the five pre-specified progression criteria were met: 71% (104/147) of eligible male participants were recruited, and there was no worsening of substance use or IPV perpetrated by men in the intervention arm 16 weeks post randomisation. The estimated group difference indicated improvement in IPV, controlling behaviours and depression and anxiety symptoms for men allocated to ADVANCE. The progression criteria of following up > 70% of men was not met, as only 49% (51/104) were followed up. Overall, the formative evaluation supported the intervention's acceptability to staff and male participants (progression criteria partially met). Therapeutic alliance and session satisfaction were rated highly. Findings supported progression to a RCT (WP5).

Work package 5

No participants had been recruited when the RCT was paused due to the pandemic. It proved impossible to restart the trial. A variation to contract was approved to adapt ADVANCE for digitally supported remote delivery [WP3(ii)] and change the study design [WP4(ii)].

Work package 3(ii)

The ADVANCE-D comprises eight core sessions (an individual session, a 'welcome' video group and six fortnightly video groups) delivered by two trained facilitators and 12 weekly self-directed website sessions to recap and practice skills learnt in the group, followed by a one-to-one video/phone coaching session with a facilitator. Linked support is offered to (ex)-partners.

Work package 4(ii)

Sixty-five per cent (45/69) of eligible men were recruited, and 25 men were followed up (25/49; 55.6%). Twenty-one (ex)-partners were recruited, and 11 (52.4%) were followed up. Forty men were offered ADVANCE-D, 39 (97.5%) of whom attended at least one session. Forty-eight per cent of the total sessions offered were completed [mean 11.4; standard deviation (SD) 9.1]. Therapeutic alliance and website session satisfaction were rated highly. This study was designed to explore whether it was feasible to deliver ADVANCE-D remotely, not to assess the programme's effectiveness. Of those followed up, 8/11 men and 17/25 women reported a reduction in abusive behaviour perpetrated and experienced, and 10/25 of men and 5/11 women reported a reduction in controlling behaviours used and experienced, respectively. Both men and women reported reductions in men using children against women, and in depression and anxiety symptoms. Of the men followed up, 7/24 reported they had increased their alcohol-free days, and 11/25 had increased their drug-free days in the past month. The process evaluation confirmed it was feasible and acceptable to deliver ADVANCE-D remotely to men in substance use treatment.

Cross-cutting work package

Research and intervention development was informed by the Learning Alliances and PWLE. Twenty Learning Alliance meetings were held. There are 68 subscribers to the ADVANCE blog (133 published posts). ADVANCE_PRGM has 237 followers. Findings were presented at 9 national and 35 international conferences. Eleven open access manuscripts were published. Two dissemination events were held: including 35 in person and 179 online attendees.

Limitations

The systematic review included only nine trials, with a low number suitable for inclusion in the meta-analysis (WP2). Recruitment was lower than planned [WP4(ii)], and the RCT of ADVANCE was not undertaken due to COVID-19 (WP5).

Conclusions

The ADVANCE Programme is a targeted perpetrator intervention for men in substance use treatment, usually excluded from Domestic Abuse Perpetrator Programmes. Both the group and digitally supported ADVANCE programmes can be delivered safely by trained staff in substance use treatment. With the correct risk and case management in place, alongside linked support for (ex)-partners, this research has shown promising findings, including reductions in IPV.

Trial registration

The trial is registered as ISRCRTN79435190 and ISRCTN66619273. The review was registered in PROSPERO as CRD42107056596.

Funding

This award was funded by the National Institute for Health and Care Research (NIHR) Programme Grants for Applied Research programme (NIHR award ref: RP-PG-1214-20009) and is published in full in *Programme Grants for Applied Research*; Vol. 13, No. 10. See the NIHR Funding and Awards website for further award information.

Synopsis

Sections have been reproduced or adapted from published manuscripts.[1–11] These are Open Access articles distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) licence, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited. See: https://creativecommons.org/licenses/by/4.0/. The text below includes minor additions and formatting changes to the original text.

Background

Intimate partner violence (IPV) perpetration involves any behaviour by a current or former intimate partner [(ex)-partner] causing physical, sexual or psychological harm, including aggression, sexual coercion, psychological abuse, financial abuse and controlling behaviours.[12] IPV is most commonly directed towards women by men.[12] No single factor explains why some people perpetrate IPV,[13] but substance use is a strong risk factor.[14–16] We found around 6 in 10 men in substance use treatment had ever perpetrated IPV, and 4 in 10 had done so in the past year,[17,18] rates up to 4 times higher than for men in general, veteran or military populations.[19–22] Men with alcohol and drug use disorders had seven- to eightfold increased risks for being arrested for IPV compared with general population controls.[23] The lack of referral pathways and access to perpetrator programmes in the UK has been highlighted,[24–28] with < 1% of perpetrators receiving specialist behaviour change interventions.[26] Men who misuse substances infrequently meet threshold for community Domestic Abuse Perpetrator Programmes. Evidence on what perpetrator interventions work for men who misuse substances is sparse.[7] There remains a need to understand the role of substance misuse in IPV perpetration and develop and test perpetrator interventions for men who misuse substances.[29]

Overview

This research programme aimed to (1) undertake intervention development research, (2) develop an evidence-informed integrated intervention to address both substance misuse and IPV perpetration for men in substance misuse treatment, (3) assess the feasibility and acceptability of conducting a definitive trial of the intervention and (4) determine its efficacy and cost-effectiveness (suspended due to COVID-19). Four mixed-methods interconnected work packages (WPs) and a cross-cutting WP addressed these aims (*Figure 1*). Learning Alliances of key stakeholders and people with lived or living experience (PWLE) supported the research.

Patient and public involvement and engagement

Aims and methods of patient and public involvement and engagement

To inform the research phases and intervention development, the views and experiences of key stakeholders, practitioners and PWLE were sought via Learning Alliances (stakeholders) and practitioner and PWLE consultation groups.

Planned patient and public involvement and engagement activities

Separate advisory panels were intended for perpetrators and survivors, alongside a Learning Alliance, and dedicated patient and public involvement and engagement (PPIE) intervention development groups. It was not always possible to involve the same PPIE throughout the duration of the research as some PWLE were no longer engaged with services. However, we did gain PPIE feedback on all research and intervention development phases, including the Plain language summary.

Patient and public involvement and engagement activities and impact

One PPIE member served on the Programme Steering Committee, and one served on the Data Monitoring and Ethics Committee (DMEC) throughout the programme. On average, 10 stakeholders from both substance use and domestic abuse sectors attended 20 Learning Alliances to guide the research, by sharing experiences and informing best practice in IPV and substance misuse and supporting knowledge translation (see *Cross-cutting work package*).

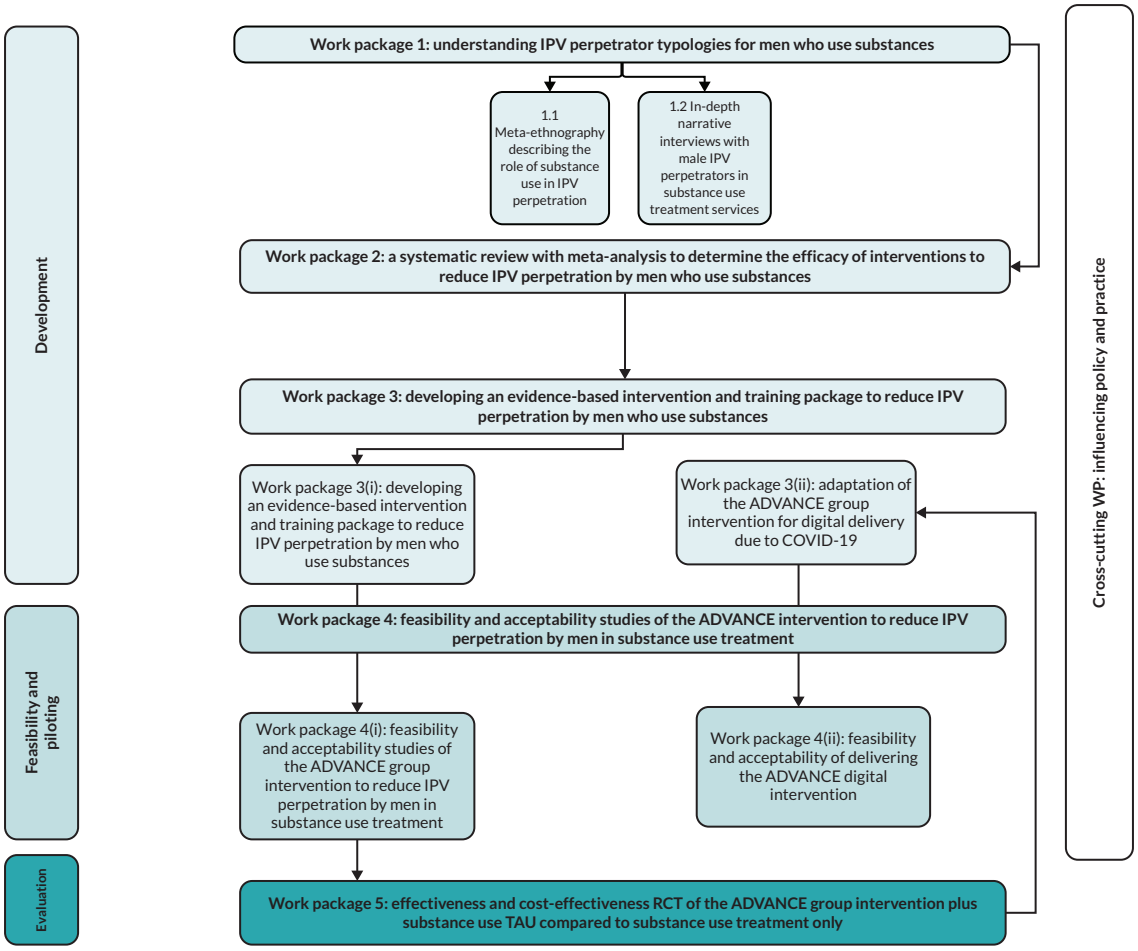

FIGURE 1 Research pathway. RCT, randomised controlled trial.

In WP1(ii), WP4(i) and WP4(ii), WP(5), PPIE members reviewed written materials, for example, patient information sheets, consent forms, topic guides, questionnaires and participant summary reports for language and length. In WP4(i), the PPIE members requested consent was sought to discuss men's histories with their keyworker, which was implemented.

In WP3(i), six female survivors, two male perpetrator programme completers and six substance use service users informed intervention content and structure, engagement and retention strategies. The following changes were introduced:

- end-of-session emotional checkouts and weekly follow-up calls from keyworkers between website sessions
- participation in the intervention even if their female (ex)-partner declined support
- travel reimbursement and food at sessions to encourage attendance
- men should not be excluded for non-attendance. Keyworkers should determine why session was not attended and update participants on missed content
- potentially triggering substance use imagery should be avoided in videos.

Work package 3(ii) involved in-depth formative consultation with men and women from substance use services and women from domestic abuse services to adapt ADVANCE for digital delivery (ADVANCE-D). The following suggestions were included:

- provision of technology, data and IT support to enhance participation
- website sessions should include audio of written content
- contingency management linked to pro-social activities (e.g. cinema, gym membership).

Feedback from six men on the ADVANCE-D website sessions paper prototypes was implemented:

- provision of tablets, not smartphones
- introductory session about using the technology
- sending reminders to log on
- avatar (digital coach) should resemble a real-life professional, and with a clear voice, regardless of accent
- website sessions should include recaps, avoid quizzes or tests, take < 30 minutes to complete and recognise completion (we used stars rather than 'rewards')
- telephone support following each website session
- maximum of 10 men for video groups
- notebook provision.

Four female survivors consulted about website appropriateness found the safety messages acceptable and welcomed the opportunity for website access, noting that other perpetrator programmes do not share content with survivors.

Think-aloud video interviews to review the digital prototypes were conducted with eight men. They suggested changes to the website for ease-of-use, clarity and visual impact, including a progress bar [see Work package 3(ii)].

Discussion

Patient and public involvement and engagement ensured ADVANCE was developed and adapted (ADVANCE-D) based on best practice and lived experience. While the benefits to research and dissemination of PPIE engagement were demonstrated in this research programme, the impact for those engaged in PPIE was not explored. Future research should evaluate the experiences of PPIE engagement in IPV research.

Work package 1: understanding intimate partner violence perpetrator typologies for men who use substances

Background

Substance misuse can increase IPV frequency and severity;[14,30,31] abuse and dependence are more strongly associated with IPV perpetration than intoxication alone.[14]

Competing explanations for this association include the pharmacological impairment of cognitive functioning,[31] relationship conflict due to substance misuse[32,33] and shared risk factors making substance misuse and IPV perpetration more likely [e.g. adverse childhood experiences (ACE), personality disorders].[22,34–37] For some, perceived provocations when intoxicated may lead to IPV;[14,38] while for others, IPV occurs irrespective of intoxication.[39] The strongest correlation between substance misuse and IPV is among perpetrators who endorse male dominance.[40–42]

How and why substance use is a risk factor for IPV perpetration is poorly understood.[43] Perpetrator programmes for men who misuse substances should consider the complex ways that substance misuse contributes.[44] Qualitative studies offer insight into the context and motives for IPV. Most studies have focused on survivors' accounts. Perpetrators' accounts reveal additional complexities around different meanings attributed to both substance use and IPV and their place in abusive relationships.[45]

We conducted a meta-ethnography of qualitative studies [WP1(i)] and narrative interviews with male IPV perpetrators receiving substance misuse treatment and their (ex)-partners [WP1(ii)] to explore how substance use features in accounts of IPV perpetration [WP1(ii)].

Work package 1(i): meta-ethnography describing the role of substance use in intimate partner violence perpetration

See Gilchrist *et al.*[1] for more details.

Aims and methodology

The meta-ethnography was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol[46] to:

- explore how substance use featured in survivors' and perpetrators' narratives of IPV perpetration
- revise IPV perpetrator typologies for men who use substances.

Search strategy

The search strategy combined keywords for 'IPV acts' AND 'qualitative research' AND 'IPV actors (e.g. survivors, perpetrators)'. PsycInfo® (American Psychological Association, Washington, DC, USA), Applied Social Sciences Index and Abstracts, and Web of Science were searched for studies published from January 1995 to December 2017. Seven experts were contacted, and forward and backward citation tracking was undertaken.

Inclusion criteria and screening

The inclusion criteria were developed using an adapted Population, Phenomenon of Interest and Context.[47] Primary qualitative studies or studies with a qualitative component (e.g. mixed-methods) published in English were eligible if:

1. the sample included heterosexual adult (≥ 18 years) IPV survivors and/or perpetrators (*Population*)
2. survivors' or perpetrators' narratives of IPV were presented (*Phenomenon of Interest*) and
3. the interplay between substance use and IPV perpetration was explored (*Context*).

Titles and abstracts were screened for studies that included the population and phenomenon of interest. Potentially eligible texts were then screened for mentions of substance use.

Data extraction, synthesis and analysis

Data were extracted into tables for analysis. The 'Eight "Big-Tent" Criteria for Excellent Qualitative Research' assessed study quality.[48]

Meta-ethnography translates studies into an interpretive order:[49] participant quotations and meanings (first order), output authors' (second order) and meta-ethnographers' (third order) interpretations. Studies were coded into themes.

Findings

Study selection

Twenty-six studies were included (*Figure 2*; *Appendix 1*), representing 363 female survivors' and 219 male perpetrators' accounts.[50–75]

Key themes

Five themes were identified relating to the complex interplay between substance use and IPV perpetration in the context of *intoxication*, *withdrawal and addiction*, *impact on relationship* and *wider dynamics of power and control* and *psychological vulnerabilities*.

Intoxication

Intoxication, related to alcohol and stimulants (methamphetamine and cocaine), was linked to IPV perpetration in all studies. Survivors generally viewed intoxicated violence within a pattern of their partner's violent behaviour linked to power and control, while perpetrators isolated the event, blaming behaviour on intoxication, thus accounting for a new or disinhibited (violent) self.[56] Survivors talked about their partners, and perpetrators talked about themselves, turning from a 'good … to a bad husband'.[51]

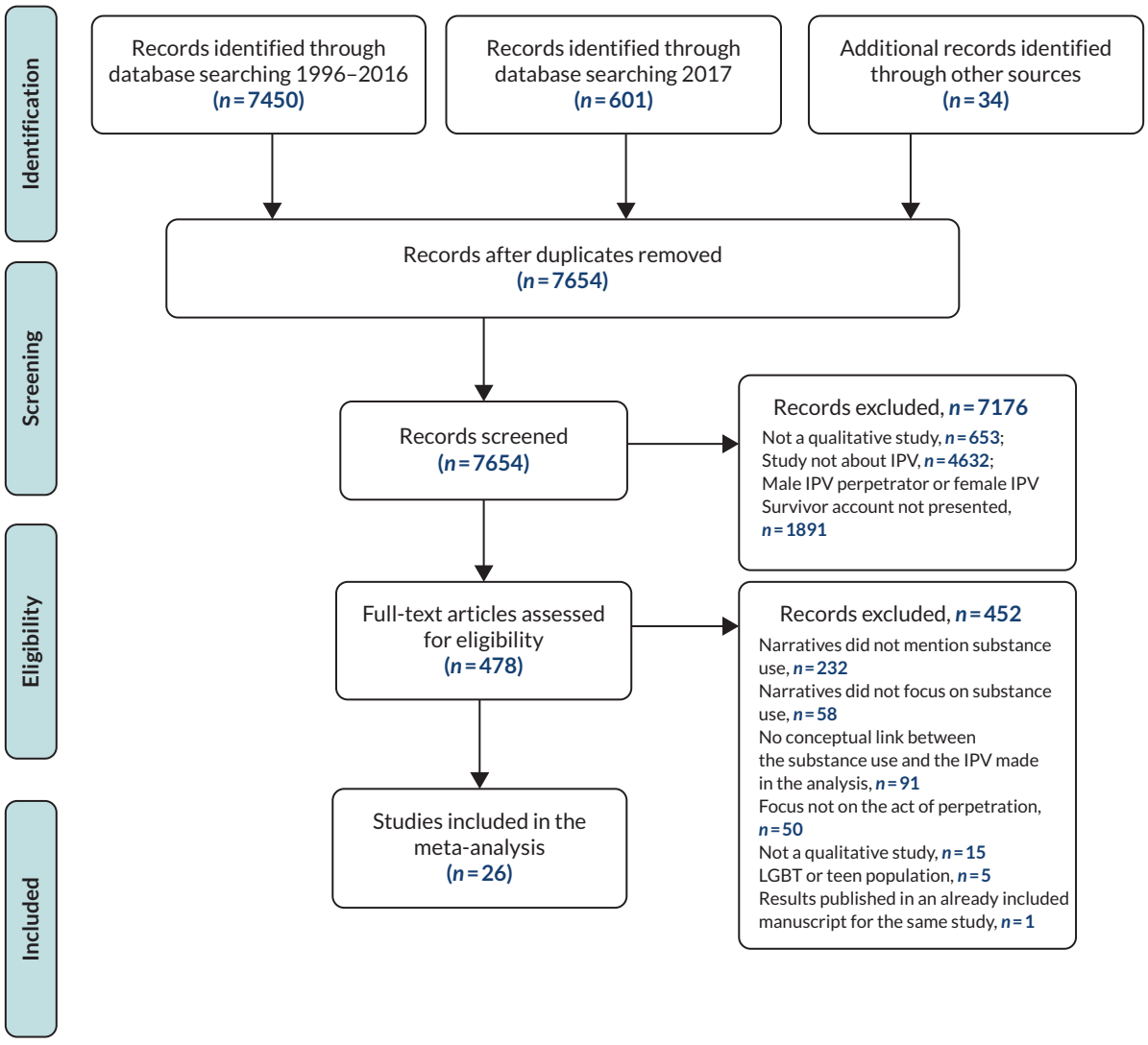

FIGURE 2 The PRISMA diagram for the meta-ethnography.

Survivors and perpetrators accounted for character changes due to disinhibition resulting from substance use: 'When he drinks, that violent urge is there in him'.[58] Stimulants resulted in impulsivity, irritability and/or paranoia[50] associated with (sexual) jealousy and acted as a trigger for physical violence.[72]

Violent, intoxicated turning points, could, however, usually be understood as part of a pattern of abuse when placed in wider context: the type of substance, gender dynamics, finances, personal character traits and moods and the environment.[54,66,68,73]

Withdrawal and addiction

Withdrawal and addiction made survivors vulnerable to IPV as substances took 'priority over healthy functioning in the relationship and contribute[d] to a culture of violence'.[72] Irritability and frustration when 'coming down' or 'craving' substances increased the risk of violence among perpetrators who were substance-dependent.[72,73] Survivors and perpetrators explained that aggression and physical violence arose when men needed money to buy drugs or alcohol.[62,69,72] Survivors were also susceptible to economic abuse as perpetrators spent or stole family resources.[51]

Survivors' substance-using status was used to emotionally abuse her.[50,63,65,72] Perpetrators used substances as a bargaining tool to coerce or force sex,[62] including forcing their partner to trade sex for money or drugs.[63,72]

Impact on relationship

Intoxication enhanced perpetrator's unpredictability, leaving survivors 'living in fear'.[73] Survivors had to bear perpetrators' substance-induced emotional instability,[52] and love and affection were inconsistent: 'I never knew what way he would swing'.[68] Survivors said being vigilant to perpetrators' moods and intoxication levels to avoid or diffuse violence was exhausting and a form of abuse. Men justified violence in specifically motivated and measured ways and claimed they were in control and exacting discipline.[61,65,69]

Most men depicted their violence as discrete incidents,[5,28] lacking awareness of their effect on survivors. By contrast, survivors emphasised an overburden of marital and familial responsibility due to their partner's substance use,[51] including unfairly distributed household chores and child care, responsibility to earn and manage money, managing a stressful lifestyle and social stigma and 'embarrassment'.[54,67,70]

Where both partners used drugs, survivors reported that partners expected them to provide money, prioritising their own need for drugs.[56,75]

Power and control

Ideas of male superiority and expectations of respect permeated the studies: IPV was made possible and played out through traditional and unequal gender roles and exacerbated by socioeconomic deprivation.[53] IPV was also motivated by the perceived impropriety of women's substance use reflecting badly on perpetrators' inability to 'control their women'.[69] When women also used drugs and were dependent on partners for supply and administration, relationships were difficult to escape, with some women physically punished for seeking substance use treatment.[58,63,75]

Psychological vulnerabilities

Many studies found an interplay between psychological vulnerabilities, substance use and IPV. Perpetrators and survivors reported ACE[57] resulting in poor mental health and self-medication with substances from adolescence. Emotional instability and 'mood' were often related to mental illness,[52,61] where depression, post-traumatic stress disorder (PTSD) and anxiety affected perpetrators' behaviour and substance use.[52,63,72] Both survivors and perpetrators explained IPV as a response to poor mental health and anger: 'His depression just had him angry. So, he didn't know how to cope and he just expressed himself through anger and then the violence' (survivor).[68]

Conclusions

Narratives help understand motives and situations of IPV perpetration. Since survivors' accounts offered different perspectives on IPV perpetration to perpetrators', the research supported the need for dyadic research with both partners [WP1(ii)].

Implications for intervention development

Our findings challenged the idea that perpetrators fall into discrete typologies.[38,41,76–78] Instead, IPV perpetration depends on contextual factors.[79]

Findings supported the need for tailored interventions that concurrently address the complex ways that substance use and IPV perpetration intersect,[28,80,81] the impact on the relationship and gendered dynamics of power, control and psychological vulnerabilities with which substance use coalesces. Given the potential pathway from trauma to mental illness, substance use and IPV perpetration, a trauma-informed approach is recommended.[82]

Work package 1(ii): in-depth narrative interviews with male intimate partner violence perpetrators in substance use treatment and their female (ex)-partners

For more details, see Gadd *et al.*,[2] Radcliffe *et al.*,[5] Love *et al.*,[8] Gilchrist *et al.*[11]

Aims

Interviews were conducted separately with male IPV perpetrators and their female (ex)-partners to:

- describe what contributes to IPV and ascertain their relationship/support needs
- explore the role of intoxication and substance use within violent acts
- test/revise the main IPV perpetrator typologies from meta-ethnography [WP1(i)]
- identify pathways into substance use and IPV.

Methodology

Participants' stories about substance use, relationships and particular examples of abuse were elicited in interviews, using techniques adapted from the FANI method.[83]

Recruitment

Thirty-seven men were recruited from six community-based substance use treatment services in England. Keyworkers at these services identified men with a history of IPV perpetration from their caseloads and researchers also approached prospective male participants in waiting rooms. Men 18 years or older, receiving substance use treatment, able to be interviewed in English and answering positively to questions in the IPV screening questionnaire were eligible.

Men were asked to provide contact details for their (ex)-partner/s so that researchers could invite them for interview. Contact details were provided for 32 (ex)-partners, 14 of whom agreed to participate.

Procedure

Participants were advised of limits to confidentiality. Different researchers interviewed women and men in the same dyad to ensure no inadvertent information sharing and services' safeguarding protocols were followed to ensure participant safety. Participants received £20 to compensate their time.

Data analysis

Timelines were created to track the sequence of events through each participant's life. Case studies were then written up as 'pen portraits', capturing the complexity revealed in each interview. In 14 cases, where both partners were interviewed, men's and women's accounts were compared. The analysis integrated a theoretically driven thematic and narrative approach[84] to identify key ways in which substance use featured in attributions and explanations for IPV.[85] NVivo (QSR International, Warrington, UK) was used for managing qualitative data.

Results

Sample characteristics

Table 1 shows male and female dyad characteristics.

Themes and narratives

Codes included Intoxication, Withdrawal and Craving, and Financial Abuse linked to Substance Use. The overarching narratives, used by male and female participants, were: sexual betrayal/sexual jealousy, mutual combat/fighting back, protection/control and psychological vulnerabilities (*Figure 3*).

Intoxication provided explanations for IPV perpetration for both men and women. Sometimes violence associated with intoxication was an aberrant and/or one-off incident. Sometimes intoxication was entangled with enduring violence in perpetrators' paranoid perceptions of sexual betrayal. Separating the effects of intoxication from controlling behaviour that justified physical violence was often difficult. *Craving and withdrawal* from heroin and crack also provided explanations for violence, where partners competed for drugs, and in disputes about how to raise funds to buy drugs. While male partners referred to the need to protect (ex)-partners from unscrupulous others, women often reported these behaviours as controlling. Women who did not use drugs often described substance-related *financial abuse*, where money was taken for drugs 'he's having money off me all the time again' (Gemma, cannabis use, Geoff/Gemma dyad), and family members' possessions stolen. *Psychological vulnerabilities* featured in participants' rationalisation of IPV. Most male and female participants reported experiencing childhood and adult adversity and related mental health problems (*Table 2*). Substance use was described as suppressing disturbing thoughts that resulted in violence when they emerged.

(Ex)-partners were distinguished according to whether they had (1) never used, (2) previously been dependent on or (3) continued to use illicit substances or alcohol. Analysis of these dyad accounts revealed the confusion and deception

TABLE 1 Dyad characteristics

	Men	Women
White	13	12
Ethnic minorities (excluding White minorities)	1	2
Mean age (years)	41 (5.9)	41 (9.7)[a]
Age range (years)	33–50	28–56
Relationship status		
In a relationship currently	7	7
Separated	7	7
Treatment of heroin/crack	12	N/A
Treatment of cocaine/alcohol	1	N/A
Treatment of alcohol	1	N/A
Never used heroin/crack		6
Formerly used heroin/crack		4
Currently using heroin/crack		4

N/A, not applicable.
a Women's age values are based on the ages of nine of the women, as five women did not volunteer their ages.
Source
Reproduced with permission from Radcliffe *et al.*[5] This is an Open Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) licence, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited. See: https://creativecommons.org/licenses/by/4.0/. The table includes minor additions and formatting changes to the original text.

Theme	Description	
Intoxication	IPV, a result of intoxication from alcohol/crack/cocaine/stimulants	
Craving and withdrawal	IPV, a result of disputes linked to craving, coming down and withdrawing from substances	
Financial abuse linked to substance use	Abuse linked to the need for money for the purchase of substance	
Narrative explanation	**Men's narratives**	**Women's narratives**
Sexual betrayal/sexual jealousy	Male abuse arises from woman's sexual betrayal or risk of betrayal	Male abuse arises from (often unfounded) sexual jealousy
Mutual combat/fighting back	Physical abuse in the context of a mutual 'argument'	Female violence responding to male assault/attack
Protection/control	Male abuse linked to the need to protect partner from others	Male abuse associated with desire to control partner

FIGURE 3 Themes and narrative descriptions.

TABLE 2 Quotes supporting the key themes from dyad interviews

Explanation for IPV	Male perpetrator	Female survivor
Intoxication	*I'd had a drink, not a lot but I'd had a drink, and I was laid on the settee. They came in and my eldest son says to me, 'We've been to a pub …' and I just (flipped) … We had an argument, I didn't slap her slap her, I just went (actions brushing her away), '**** off'* (Lucas, treatment for alcohol, Lucas/Bianca dyad)	*You could tell he was intoxicated. He went to bed, he came back down 10 minutes later, started shouting again, name calling, carrying on, and I stood up to him and said, 'Please go to bed, leave it and we'll talk about it tomorrow'. He head-butted me and slapped me across the face* (Bianca, no drug use, Lucas/Bianca dyad)
Craving and withdrawal	*When we was both using, we used to shoplift, yeah, and, what happened, she said something to me and I said, I threw her on the floor, yeah, I think I was out of it, or something, but there was big hole, yeah, and she fell into the hole and the Police came … and I went to prison for it … I was agitated … and like, the come down, I was coming down, so like I needed something …* (Tim, treatment for heroin and crack, Tim/Karen dyad)	*He'd beaten me up and pushed me down a manhole … and I was bleeding, my face was busted up … He had taken a big plank of, erm, rock … to chuck at me. I fell, he was fighting me, and I fell in the manhole and he was still hitting me with the stick* (Karen, heroin and crack use, Tim/Karen dyad)
Financial abuse	That's what caused most of the arguments 'cause I was always on drink, I was on drugs. Always spending a lot of money … You know, always out just doing my own thing … When I have had no drugs, I was always taking money off her and I'd feed habits (Mike, treatment for cocaine and alcohol, Mike/Jenny dyad)	*I was in bed and it was payday that day … he woke me up asking for money. I was like, 'No, I'm not getting money' and he wasn't even dressed at the time. So he said, 'I'm coming bank. I'm going to take the money off you' and I ran out and I turned round thinking that he can't get me 'cause he's not dressed. By the time he get dressed, I'm gone and I turned round and he was actually coming down the road with no clothes on and he beat me up in the streets* (Jenny, no drug use, Mike/Jenny dyad)
Psychological vulnerabilities	*When I first went away to a children's home when I was five, got abused off the bloke who ran it … when I got sent back into a children's home when I was 13 it affected my mind so much that I just basically looked for things to stop thinking about stuff like that. You know, I was very violent, you know, growing up towards adult men. If they touched me, I just beat them up … it's all to do with my own insecurities around men and a lack of trust. So …* (Matt, treatment for heroin and crack, Matt/Mary dyad)	*Yeah and that's what makes me think that what he's doing is quite psychotic because he's acted out his drama, his insecurities, his anger and frustrations of not being in control inflicting it on someone else and unfortunately that happened to be me.* (Mary, former stimulant user, Matt/Mary dyad)

women felt as men projected their loss of control upon them. Men's attempts to coercively control their (ex)-partners frequently became more dangerous and desperate when women questioned or challenged their substance use or the diversion of funds it entailed. Abusive men often sought to exonerate and excuse their violence. Survivors who used substances felt unable to be open and honest, reflecting stigma connected to their own substance use, fear of further IPV and removal of children.

Analysing data from 37 interviews with perpetrators to address the cognitive, behavioural, affective and contextual factors contributing to IPV, 3 overlapping pathways into substance-related IPV were distinguished (*Figure 4*):

1. Men in the *rule-breaking pathway* (*n* = 11) reported childhood exposure to physical abuse and emotional abuse in male-dominated households, early rule-breaking behaviours and engagement in antisocial and offending behaviours.
2. Men in the *entrenched substance use pathway* (*n* = 13) reported childhood exposure to high levels of trauma (particularly sexual and physical abuse), early substance use, addiction and an entrenched substance-using lifestyle.
3. Men in the *relationship insecurity pathway* (*n* = 13) reported being in long-term relationships, lifestyles that included employment, housing and support networks. Substance-related IPV was often driven by alcohol intoxication and discussed alongside sexual jealousy and insecurities. Men reported low levels of childhood trauma and substance use onset during adolescence.

Perpetrator typologies

Various typologies have been proposed: perpetrators of severe and escalating forms of IPV, characterised by multiple forms of abuse, terrorisation, threats and possessive and controlling behaviour; and perpetrators of a more moderate form of relationship violence.[39,78,86] In our study, 35 of the 37 men depicted their IPV as situational and/or a product of mutual combat, whereas all but one (ex)-partner depicted coercively controlling abuse, to which around half responded with some violent resistance. Distinguishing dyads based on whether survivors had ever used drugs and, if they had, whether they were desisting from or still using substances offer more meaningful distinctions. Across the three pathways, men's childhood and early experiences led to different journeys into IPV associated with intoxication, withdrawal, acquisition and substance-using lifestyles. Each pathway presented differently with varying core features, for example, generalised violence, mental health or jealousy and different predisposing background factors, including types and timing of childhood abuse and trauma.

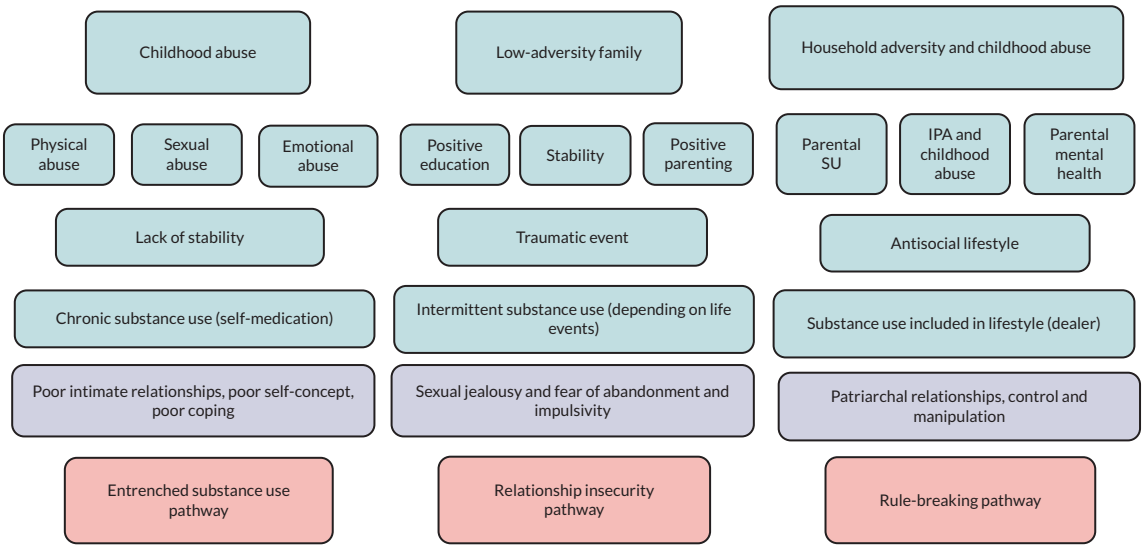

FIGURE 4 Key steps in substance use-related IPV pathways. IPA, intimate partner abuse.

Implications for intervention development

Our findings improve our understanding of heterogeneity in men who perpetrate IPV and misuse substances and propose treatment/intervention targets,[87] further supporting the need for interventions that concurrently address the complex interconnections of IPV with substance misuse.[29,80]

Men in the *rule-breaking pathway* may require the most intensive intervention.[88] Removing substance use would not be sufficient to address IPV. Rescripting childhood experiences, enhancing distress tolerance and self-regulation and reframing automatic cognitions linked to need for control, violence and entitlement towards women are key to intervening effectively with this group. For men in the *entrenched substance use* pathway who have experienced early adversity and disrupted connection-seeking attachments,[89] a focused intervention should address emotional regulation and use of substances to cope. In the *relationship insecurity* pathway, IPV drivers were more situational. Treatment for/abstinence from substance use, increasing coping skills and promoting general protective factors, such as employment, may lower the risk of IPV.[90]

Conclusions

The psychopharmacological effects of substance use were rarely the only explanation for IPV perpetration which was primed and entangled with narratives of sexual jealousy, male participants' perception of female impropriety and women's apparent opposition to male authority. Our analysis highlighted 'economic-compulsive'[91] abuse, where disputes or abuse occurred due to the need to acquire (money for) substances and frequently escalated from female partners' attempts to oppose coercive control.

Limitations

The temporal order of events, substance use and IPV was not always clear. Social desirability and under-reporting may have featured in our analysis. While the sample was not ethnically diverse, it was reflective of the national treatment population.[92] Only men's relationship perspectives were analysed to identify pathways.

Work package 2: a systematic review with meta-analysis to determine the efficacy of interventions to reduce intimate partner violence perpetration by men who use substances

Stephens-Lewis *et al.*[4] provides more information.

Background

Reviews of IPV perpetrator interventions for men have shown mixed results and small effect sizes,[93–97] with better outcomes when interventions included substance abuse or trauma components.[96] No single approach can be definitively supported.[98] Perpetrators receiving interventions with motivational strategies were almost twice as likely to be retained.[99]

Men who misuse substances are rarely referred to perpetrator programmes,[100-102] as many are considered unsuitable.[102] They are also most likely to drop out of perpetrator programmes[100,103-105] and may require alternative approaches.[94]

Aims

We conducted a systematic narrative review with meta-analysis to determine the effectiveness of interventions to reduce IPV perpetration by men who use substances.

Methodology

The review was conducted following PRISMA protocols[46] and prospectively registered (PROSPERO 2017: CRD42017056596).

Search strategy

Search terms related to 'IPV' AND 'substance use' AND 'intervention'. Searches were performed to May 2018 in MEDLINE, EMBASE, Cumulative Index to Nursing and Allied Health Literature, PsycInfo, Social Sciences Citation Index, International Bibliography of the Social Sciences and Social Services Abstracts, with an update in MEDLINE to April 2019. Clinical trial databases were also searched (National Institute for Health Research Register, www.who.int/ictrp/ and National Health; and Medical Research Council, Australia).

Inclusion criteria and screening

We applied population, intervention, comparison, outcome and design to develop the inclusion criteria and used the hierarchy assessment method of eligibility.[106] Randomised controlled trials (RCTs) or non-RCTs (Design), published in any language, were eligible for inclusion if the:

1. intervention targeted IPV or relationships among adult heterosexual males (*Population*)
2. sample included > 60% who currently drank hazardously or who met criteria for alcohol or drug abuse/dependence (*Population*)

3. intervention was compared to either IPV perpetrator or substance use treatment as usual (TAU) or an IPV intervention of a lesser intensity or frequency (*Intervention*, *Control*); and
4. outcomes included perpetrator and/or survivor reports of IPV perpetration, and/or substance use, and/or marital satisfaction/conflict (*Outcome*).

Titles and abstracts were reviewed. Full texts were then assessed against eligibility criteria.

Quality assessment

The Cochrane Effective Practice and Organisation of Care tool[107] confirmed trials were conducted with low risk of bias.

Data extraction, synthesis and analysis

Data were extracted into tables for analysis. Intervention types were grouped and analysed separately to determine the superiority of: integrated IPV and substance use interventions (i.e. interventions addressing both together) (five trials), IPV interventions with adjunct substance use interventions (i.e. with a separate session or intervention addressing substance use) (two trials) and stand-alone IPV interventions (i.e. IPV interventions not addressing substance use) (two trials).

Comparisons were made between intervention and control group data, with at least two RCTs with combinable outcome data.[106] A meta-analysis using a random-effects model was performed using Review Manager (RevMan) (version 5.1, The Cochrane Collaboration, 2019, Available at revman.cochrane.org). I^2 statistic estimated statistical heterogeneity, where $I^2 > 50\%$ may be indicative of substantial heterogeneity. Meta-analysis was conducted only on trials from the integrated IPV and substance use interventions group due to insufficient data for other intervention types.

Findings

Study selection

The review included 13 manuscripts from 9 trials (n = 1014 men) (*Figure 5*).[108–119]

Intervention characteristics

Six interventions were delivered to men individually in person[110,111,113–115,117] and one by phone.[112] One intervention was delivered in a group,[108,109] and one provided both group and individual sessions.[119]

Intimate partner violence outcomes

Data from three trials showed a reduction in IPV perpetration at different time points for interventions compared with TAU.[113,115,116,119]

Data were examined for IPV outcomes for the four trials of integrated interventions with appropriate or combinable outcome data.[108–112] Data from the Revised Conflict Tactics Scale (CTS-2)[120] physical violence subscale were combined at 4–12 weeks' time points using mean and SDs to produce a mean difference for each (*Figure 6*). The combined mean difference was 0.1 [confidence interval (CI) −0.37 to 0.57, p = 0.68; *Figure 6*]. One trial[113] used the Index of Spousal Abuse (*Figure 7*).[121] IPV perpetration at both 1- and 3-month follow-ups was significantly lower in intervention versus control group (p = 0.004, p = 0.005, respectively), but difference at 12 weeks was non-significant.

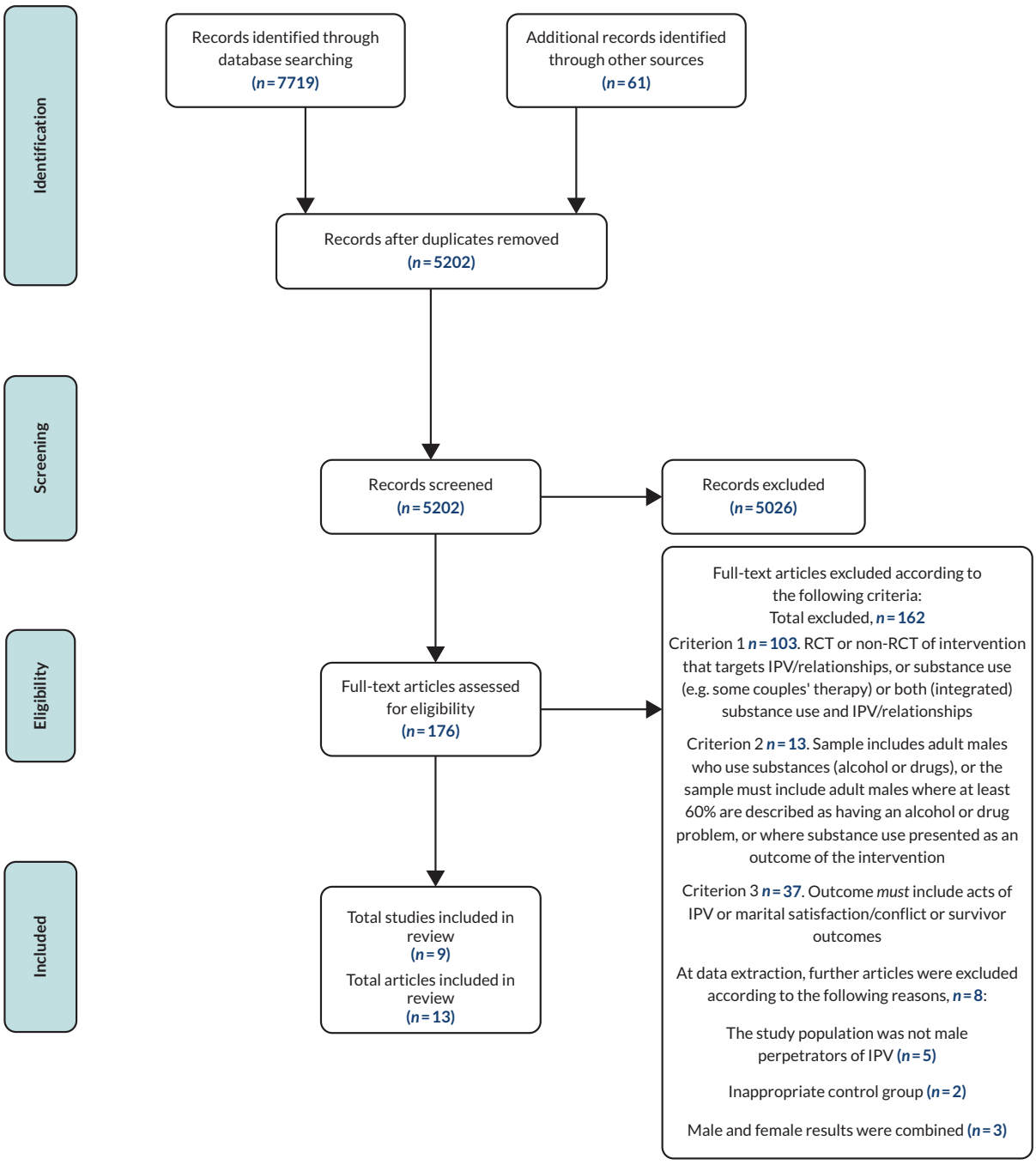

FIGURE 5 The PRISMA diagram for the systematic review.

	Integrated			TAU				Mean difference	Mean difference
Study or subgroup	**Mean**	**SD**	**Total**	**Mean**	**SD**	**Total**	**Weight**	**IPV, random, 95% CI**	**IPV, random, 95% CI**
Easton 2007 (12 weeks)	0.45	2.3	35	1.3	5.2	22	4.0%	−0.85 (−3.15 to 1.45)	
Easton 2007 (12 weeks)	0.05	0.22	20	0.12	0.33	26	57.1%	−0.07 (−0.23 to 0.09)	
Kraanen 2013 (8 weeks)	7.84	14.23	27	3.17	4.78	25	0.7%	4.67 (−1.02 to 10.36)	
Mbilinyi 2011 (4 weeks)	0.54	1.61	53	0.17	0.58	42	38.3%	0.37 (−0.10 to 0.84)	
Total (95% CI)			**135**			**115**	**100.0%**	**0.10 (−0.37 to 0.57)**	

Heterogeneity: $TAU^2 = 0.10$; $chi^2 = 6.16$, df = 3 ($p = 0.10$); $I^2 = 51\%$
Test for overall effect: $Z = 0.41$ ($p = 0.68$)

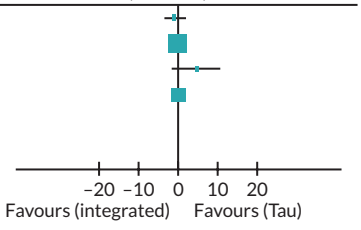

FIGURE 6 Intimate partner violence analysis: CTS-2.

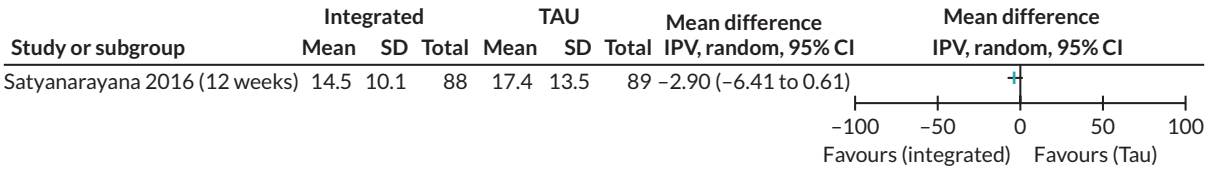

FIGURE 7 Intimate partner violence analysis: Index of Spousal Abuse.

Discussion

This small number of individual trials demonstrated short-term reductions in IPV perpetration. However, meta-analysis of four trials showed no statistically significant differences between integrated interventions and substance use TAU groups.

Limitations

A small number of heterogeneous trials were identified and included in meta-analysis. It was not possible to examine the effectiveness of individual components of interventions.

Implications for future trials and intervention development

Outcome measures should assess all forms of abuse (including coercive control)[29] and should also be administered to (ex)-partners to strengthen overall validity via corroborated evidence around abuse.[122] The integration of support services to safeguard victims was paramount.[122]

While research suggests that cognitive–behavioural therapy (CBT) and motivational interviewing (MI) are suitable for this population, optimum intervention duration requires further research, more intensive MI interventions may better develop participant engagement and motivation for change.[99,123–125] Treatment adherence and outcomes were significantly poorer for substance-using men who were referred to stand-alone IPV interventions.[100,101,126] Therefore, developing a theoretically integrated substance use and IPV intervention tailored to the complex needs of substance-using men delivered within substance use treatment would be prudent and more efficient.[101]

Work package 3: developing an evidence-based intervention and training package to reduce intimate partner violence perpetration by men who use substances

Background

We addressed the gap in perpetrator programmes for men who misuse substances by developing and evaluating the ADVANCE integrated substance use and IPV perpetrator programme for men in substance use treatment services. This new non-court mandated programme aimed to reduce men's IPV through a focus on IPV in the context of substance use.

Work package 3(i): developing the ADVANCE group intervention

For more detail, see Gilchrist *et al*.[6]

Aims

To develop an evidence-based perpetrator intervention for men receiving substance use treatment.

Methods

A theory and evidence-based approach was taken to develop ADVANCE, using findings from WS1 and WS2 alongside the Behaviour Change Wheel framework and Capability, Opportunity, Motivation – Behaviour model: for behaviour (B) to change, it is necessary to change (physical and mental) capability (C), opportunity (O) to develop and implement new skills, and intrinsic and extrinsic motivation (M) (*Figure 8*).[127]

Theories informing ADVANCE

The ADVANCE programme proposes that change is facilitated by increasing understanding of the function of aggressive and abusive behaviours and the contribution made by substance use and gendered attitudes. It promotes motivation by increasing participants' recognition of areas that need to change and increasing participants' capabilities by introducing skills for change. ADVANCE highlights individual risks for IPV, including substance use, poor emotional regulation and poor stress-coping, and teaches participants how to reduce these risks by promoting self-regulation (ability to alter a response or over-ride a thought, feeling or impulse)[128–130] and personal goal-setting. Poor self-regulation is associated with IPV perpetration.[131] Goal-setting is used to enhance task completion by making all goals personal, explicit and specific. These SMART goals[132] (specific, measurable, achievable, relevant and time-limited) address reduction in substance use and build positive relationships and healthy lifestyles. Personal goals with self-regulation enhance engagement and self-efficacy. Contingency management[133-135] offered incentives or rewards (vouchers) contingent on attendance and linked to participants' goals, building on the 'good lives model'[136] (*Figure 9*).

Development of ADVANCE

The ADVANCE intervention addressed the complex interplay between substance use and IPV perpetration in the context of intoxication, withdrawal, craving and acquiring substances identified in WP1 and WP2, and sexual jealousy and entitlement, the wider dynamics of power and control, and psychological vulnerabilities. Findings from our research

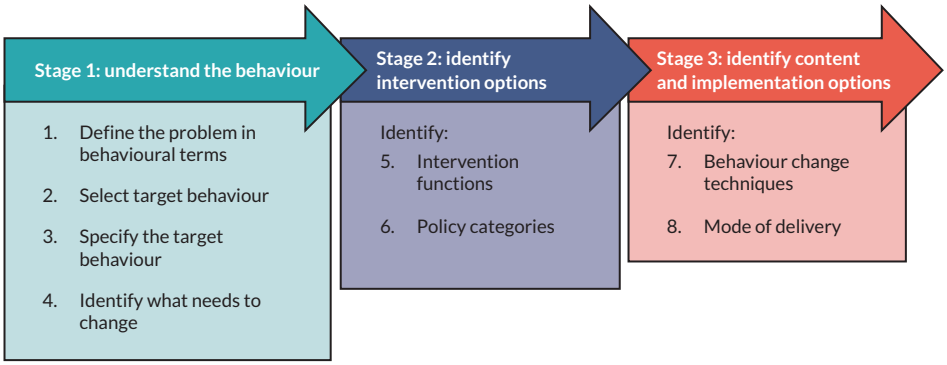

FIGURE 8 Behaviour change process.

Personal goal planning (what do I want?)			
Self-regulation (how do I achieve this?)			
Cognitive behavioural skills (by changing my thinking and behaviour)	Behavioural skills (by changing my behaviour)	Distress tolerance skills (by managing distress better)	
Thinking	**Behaviours**	**Feelings**	
Capability (skills/understanding)	Opportunity (try it out)	Motivation (why should I?)	
How does substance use affect me?			
Intoxication	Craving/withdrawal	Acquiring substances	Lifestyle

FIGURE 9 Theory guiding the ADVANCE programme.

were used to develop intervention materials, making them relevant to men who misuse substances. To translate evidence into an integrated approach and guide intervention design, a multidisciplinary design team from psychology, addiction, public health, IPV and behaviour change backgrounds followed the steps of the Behaviour Change Wheel.[137] Materials were developed collaboratively and presented to Learning Alliances and PPIE groups for consultation. Nominal group techniques (NGTs)[138] were used with the two Learning Alliances (total of 20 key stakeholders) to reach consensus on the intervention targets and content. Feedback was considered by the design team using the MoSCoW framework, identifying issues as aspects that Must change; Should change; Could change; Would like to change.[139]

ADVANCE group intervention

The ADVANCE 16-week intervention, delivered by trained substance use treatment staff in substance use treatment services, includes two (compulsory) to four individual sessions with a keyworker to set goals and enhance motivation, followed by 12 weekly 2-hour group sessions with two facilitators and 12 weekly coaching/check-in sessions (*Figure 10*; *Table 3*). A booster group session is available 1 month post intervention. Aftercare includes keyworker support and signposting to other services. ISSs provide support to women and proactively inform them about their (ex)-partner's involvement. ISS workers attend four case management meetings with facilitators during the intervention to identify and manage any (changes to) risk.

Limitations

There were no available effective interventions to reduce IPV by men that used substances, so ADVANCE was developed based on our research findings and current evidence.

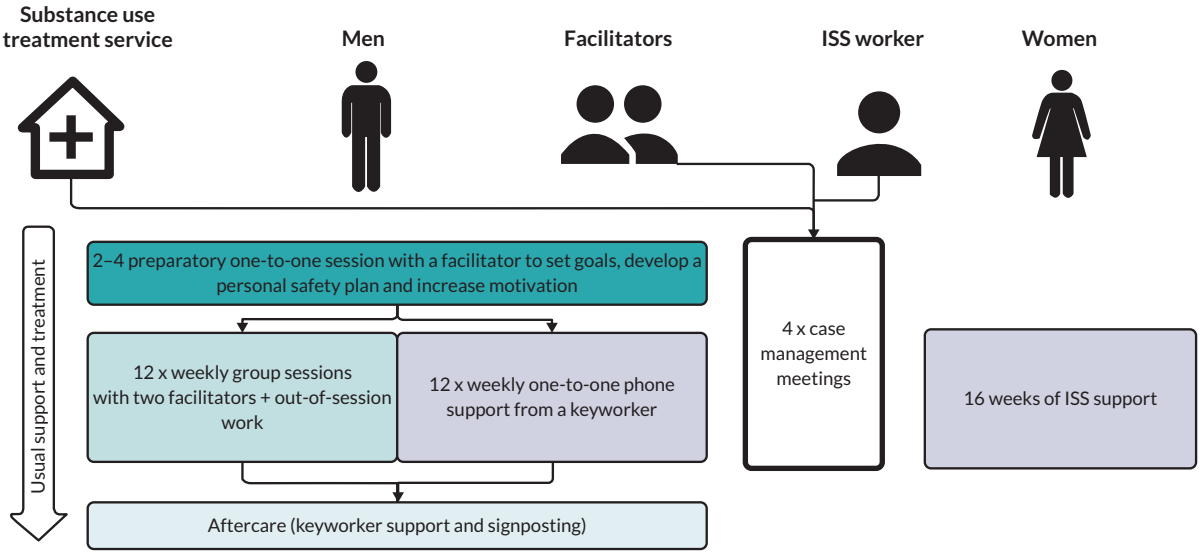

FIGURE 10 The ADVANCE group intervention model (delivered in person). Reproduced with permission from Gilchrist *et al.*[6] This is an Open Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) licence, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited. See: https://creativecommons.org/licenses/by/4.0/. The figure includes minor additions and formatting changes to the original text.

TABLE 3 Description of the ADVANCE group intervention sessions

Session title	Session objectives
1. Introduction	1. Get to know fellow group members 2. Understand the aims of the group 3. Understand what IPV is and how substance use can affect such behaviours 4. Learn new skills that can help in times of distress
2. Managing myself	1. Shift focus from managing your relationship to managing yourself 2. Understand how substance use affects self-regulation 3. Be able to identify self-regulation and monitoring skills
3. Being a respectful man	1. Examine costs and pay-offs when being abusive 2. Identify triggering situations 3. Have improved self-awareness 4. Practice behavioural analysis
4. Impact of intimate partner abuse (IPA)	1. Understand the key aspects of IPV behaviours and how substance use affects them 2. Understand the impact of IPV on women 3. Continue to practise behaviour analysis
5. Children and parenting	1. Recognise the impact of childhood experiences 2. Be able to identify the impact of witnessing IPV on children 3. Be able to identify the impact of parental substance use on children 4. Accept the past, build resilience and learn from mistakes 5. Identify the strategies that lead to repeat or not repeat
6. Relating	1. Promote respectful and equal behaviours in ongoing relationships 2. Give up controlling behaviours within a relationship 3. Be able to recognise and challenge relationship jealousy 4. Become aware of unhelpful automatic thoughts and core beliefs
7. Improving communication	1. Recognise challenges to communication in relationships and when using substances 2. Reduce abusive communication and increase respectful egalitarian communication 3. Develop a staying safe plan
8. Dealing with distress	1. Understand what distress is 2. Learn to manage mood and emotions 3. Understand how substance use affects distress 4. Understand thinking errors and their impact

TABLE 3 Description of the ADVANCE group intervention sessions (*continued*)

Session title	Session objectives
9. Planning to be better	1. Identify high-risk situations for IPA 2. Develop plans to manage high-risk situations 3. Increase skills for staying safe
10. Positive relationships	1. Understand the impact of behaviours in different relationships: substance-using relationship, non-substance-using partners, substance-using discordant relationships 2. Be able to identify features and benefits of equal relationships 3. Be motivated and capable of using respectful behaviours in relationships
11. New future, people's plans, positive activities	1. Create and engage with positive social networks 2. Identify meaningful activities and positive behaviours 3. Select realistic positive goals 4. Identify explicit positive life goals
12. Recap 'what have we learnt'	1. Describe new skills, identify strengths and progress 2. Identify positive resources to help maintain change 3. Identify further referrals 4. Understand where to reach help, support, follow-up and to say goodbye

Discussion

The ADVANCE was developed using rigorous methodology. ADVANCE differs from other perpetrator programmes by offering specific knowledge and related skills that addressed IPV in the context of substance use (intoxication, withdrawal and craving, drug seeking and acquisition, substance-using lifestyle) in each session. It also incorporated other mainstream factors involved in IPV, namely masculine power, control, beliefs and attitudes, aggression emanating from emotional dysregulation and a gendered view of substance use.

Work package 4: feasibility and acceptability studies of the ADVANCE programme to reduce intimate partner violence perpetration by men in substance use treatment

Background

Work package 4(i) assessed the feasibility of conducting an evaluation trial of ADVANCE in substance use treatment. Findings informed an efficacy trial in WP5 that was suspended due to COVID-19. ADVANCE was then adapted for digitally supported delivery (ADVANCE-D) [WP3(ii)], and the feasibility of delivering ADVANCE-D was evaluated [WP4(ii)]. These WPs will be presented chronologically: WP4(i), WP5, WP3(ii), WP4(ii).

Work package 4(i): feasibility and acceptability randomised controlled trial of the ADVANCE group intervention

For more information, see Gilchrist *et al.*,[3] Gilchrist *et al.*[7] and Dheensa *et al.*[9] *Report Supplementary Material 1* describes the statistical analysis plan (SAP), and *Appendix 2* describes the health economics report for WP4(i). Some text in this chapter has been reproduced with permission from Gilchrist *et al.*[7] This is an Open Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) licence, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited. See: https://creativecommons.org/licenses/by/4.0/. The text below includes minor additions and formatting changes to the original text.

Aims

To assess the feasibility and acceptability of conducting an efficacy and cost-effectiveness trial to evaluate ADVANCE, including the acceptability of delivering the intervention in substance use treatment and the feasibility of outcome measure collection from male perpetrators and their female (ex)-partners.

Methods

A multicentre, parallel-group, individually randomised controlled feasibility trial with a nested formative evaluation was conducted, comparing ADVANCE plus substance use TAU to TAU only, for men in substance use treatment. Five pre-specified criteria were established to determine progression to an effectiveness trial: ≥ 60% of eligible male participants recruited; ADVANCE acceptable to staff and male participants; ≥ 70% of participants followed up and no increase in the level of substance use or IPV perpetrated by men in the intervention arm, 16 weeks post randomisation.

Recruitment, setting and participants

Potential male participants were approached by researchers in waiting rooms or in treatment groups or were identified by substance use treatment staff in six community services in England (London, the West Midlands and the Southwest). Flyers and posters in services reached more men. Men first consented to be screened for eligibility by a researcher and for the researcher to discuss this with their keyworker. If eligible after screening, men then consented to trial participation.

Men were eligible if they:

1. had perpetrated IPV towards an (ex)-partner in the last 12 months assessed using the adapted Revised Abusive Behaviour Inventory (ABI-R)
2. had face-to-face, phone, e-mail or social media contact with their (ex)-female Partner/s at least once in the past 12 months
3. planned to stay in the current location for the next 6 months
4. agreed to provide contact details of their (ex)-partner/s and
5. could understand and communicate in English.

Men were excluded if they:

1. had a current restraining order prohibiting them or anyone on their behalf from contacting their (ex)-partner
2. had pending IPV court cases
3. had pending child protection hearings or
4. were attending an IPV perpetrator programme.

Researchers administered the baseline interview with eligible men.

Randomisation and blinding

Researchers randomised participants to ADVANCE + TAU (intervention) versus TAU only (control) immediately following baseline using an online randomisation system (1 : 1), managed by the UK-registered King's Clinical Trials Unit, using randomly varying block sizes, stratified by a combination of sites and temporal cycles. Up to 18 men per treatment service were randomised. Men and keyworkers were then informed of allocation. Researchers were not blind to treatment allocation. Both statisticians were subgroup blind until database lock, with the senior statistician remaining blind during analysis.

Recruitment of (ex)-partners

Following randomisation, (ex)-partners were offered support from an ISS and provided more information about the trial. Researchers called women interested in taking part. Following consent, interviews with women took place in the substance use treatment service or the ISS where possible. Several interviews took place in women's homes or a library with two researchers present.

Intervention

The Template for Intervention Description and Replication (TIDieR) checklist[140] describes the ADVANCE programme components (*Table 4*).

Control

Male participants in both treatment arms received substance use TAU.

Outcomes

Confounding variables and potential outcome measures for use in a future trial were assessed at baseline and after treatment (16 weeks post randomisation) (*Table 5*).[141–163]

TABLE 4 The TIDieR checklist for ADVANCE group intervention

Intervention components	
TAU	All men receive substance use usual care, including group work, individual sessions, mutual aid and opiate substitution treatment
Why	To reduce IPV
What	ADVANCE is a manualised intervention comprising 2–4 individual sessions (2 compulsory) with a keyworker to set goals, develop a personal safety plan and increase motivation and readiness, followed by a 12-session weekly group intervention delivered in substance use services. A booster session is provided 1 month post intervention
Who	Group sessions provided by two trained facilitators from substance use treatment services – where possible, one male and one female. Individual sessions and weekly check-ins were provided by the participant's trained keyworker (drugs worker)
How	Individual and group sessions were delivered in person. Weekly check-ins were completed by telephone
Where	Group sessions were delivered at a community substance use treatment service
When and how much	2–4 individual sessions (2 compulsory) around 30 minutes each, followed by 12 weekly 2-hour sessions. A booster session is provided 1 month post intervention
Tailoring	The number of individual sessions varied depending on need to enhance motivation and readiness for group
Modifications	No modifications were made during the study

TABLE 5 Potential outcome measures

	Male perpetrators		Female survivors	
	Baseline	16 weeks post randomisation	Baseline	16 weeks post randomisation
Childhood	ACE[141]		ACE	
Substance use	Alcohol use disorders identification test (AUDIT),[142] drug use disorders identification test (DUDIT),[143] substance use in past month,[144,145] treatment for substance use in past 4 months	Substance use in past month, treatment for substance use in past 4 months	AUDIT, DUDIT, substance use in past month, treatment for substance use in past 4 months	Substance use in past month, treatment for substance use in past 4 months
Mental health	PHQ-9,[146] GAD-7,[147] PC-PTSD-5,[148] SAPAS[149]	PHQ-9, GAD-7, PC-PTSD-5	PHQ-9, GAD-7, PC-PTSD-5, SAPAS	PHQ-9, GAD-7, PC-PTSD-5
IPV	ABI-R,[150] Adapted CBS,[151] CPQ-SF,[152] IPVRAS,[153] PAS (anger),[154] use of social media,[155] using children against partner[156]	ABI-R, Adapted CBS, CPQ-SF, IPVRAS, PAS (anger), use of social media, using children against partner	ABI-R, Adapted CBS, CPQ-SF, use of social media, using children against partner	ABI-R, Adapted CBS, CPQ-SF, use of social media, using children against partner
Self-management	BSCS[157]	BSCS		
Desirable responding	BIDR-SF[158]	BIDR-SF		
Motivation to change behaviour	University of Rhode Island Change Assessment - Domestic Violence (URICA-DV)[159]	URICA-DV		
Quality of life (QoL)	EQ-5D-3L[160]	EQ-5D-3L	EQ-5D-3L	EQ-5D-3L
Capability	ICECAP-A[161]	ICECAP-A	ICECAP-A	ICECAP-A
Service use/medication and criminal justice involvement	Service use and medication in past 4 months	Service use and medication in past 4 months	Service use and medication in past 4 months	Service use and medication in past 4 months

TABLE 5 Potential outcome measures (*continued*)

	Male perpetrators		Female survivors	
	Baseline	**16 weeks post randomisation**	**Baseline**	**16 weeks post randomisation**
Group participation (intervention arm only)		WAI-SR,[162] California Psychotherapy Alliance Scale – Short Form[163]		

Adapted CBS, Adapted Controlling Behaviours Scale; BIDR-SF, Balanced Inventory of Desirable Responding – Short Form; BSCS, Brief Self-Control Scale; CPQ-SF, Communications Patterns Questionnaire – Short Form; EQ-5D-3L, EuroQol-5 Dimensions, three-level version; GAD-7, Generalised Anxiety Disorder-7; ICECAP-A, ICEpop CAPability measure for Adults; IPVRAS, Intimate Partner Violence Responsibility Attribution Scale; PAS, Propensity for Abusiveness Scale; PC-PTSD-5, Primary Care PTSD Screen for DSM-5; PHQ-9, Patient Health Questionnaire-9; SAPAS, Standardised Assessment of Personality – Abbreviated Scale; WAI-SR, Working Alliance Inventory – Short Revised.

Assessment of trial feasibility

Eligibility, recruitment, randomisation and follow-up rates for men by site and group allocation, and recruitment and follow-up rates for (ex)-partners assessed feasibility.

Assessment of intervention acceptability

Process variables assessed the intervention's acceptability: rate of intervention session attendance; days between randomisation and attending the first individual session and group intervention starting. The Working Alliance Inventory-ShortRevised (WAI-SR)[162] and the California Psychotherapy Alliance Scale – Short Form[163] measured therapeutic and psychotherapy alliance, respectively, for men allocated to ADVANCE.

Procedure

Data were collected during July 2018–July 2019. Three temporal cycles of ADVANCE were delivered. Men received a £5 voucher (for a chosen shop/service) for each session attended, awarded at sessions 6 and 12, with a £10 'bonus' for attending all 12 sessions. Travel was reimbursed, and refreshments were provided.

Sample size

The target sample size to estimate the parameters for a definitive trial (WP5) was 76 (ex)-partners and approximately 108 perpetrators (6 sets of 18 men) based on a retention rate of 80% of survivors post intervention.

Data analyses

Feasibility parameters were estimated with 95% CI precision. The difference in mean outcomes was estimated between participants randomised to ADVANCE + TAU and TAU only by intention to treat at 16 weeks post randomisation. No formal significance tests were performed. These effects were also standardised by dividing the estimated mean difference by the respective (pooled group) SD at baseline. Linear regression models were used. Fixed effects included baseline measures of the outcome, trial arm and randomisation stratifiers, site and cycle. The number of (ex)-partners with follow-up data was too low (n = 17) for statistical analyses.

Formative evaluation

Focus groups or semistructured interviews with substance use treatment staff, ISS workers and men who attended at least one ADVANCE session were digitally recorded and transcribed verbatim. Data were organised and coded by multiple coders using NVivo. Framework analysis[164] was used to explore patterns in themes across different participants and groups of participants.

Economic analysis

The costs of training staff to deliver ADVANCE and the delivery costs of ADVANCE based on attendance were estimated.

Key findings

Screening, recruitment and follow-up

The screening, recruitment and follow-up of men and their (ex)-partners is described in *Figures 11* and *12*: 104 men were randomised to the intervention (*n* = 54) or control (*n* = 50) arm: 39 from London, 25 from the West Midlands and 40 from the South West.

Participant characteristics

Table 6 presents participants' baseline characteristics.

Feasibility parameters

Table 7 describes the feasibility parameters for male participants and (ex)-partners.

Patient-centred outcome measures

Estimated treatment differences at follow-up were calculated (*Table 8*). The sign of the estimated group difference indicated improvement on all scales, except for Primary Care PTSD Screen for DSM-5 (PC-PTSD-5), the anger subscale from the Propensity for Abusiveness Scale (PAS) and the Brief Self-Control Scale (BSCS) (*Figure 13*). Standardised estimated effect sizes are in the small range (< 0.2), and all associated CIs cross the line of no difference, zero.

Attendance

Sets of up to 18 men per treatment service were randomised. Three sets (one in each region) were completed (cycle 1) and a formative evaluation undertaken to inform the implementation of cycle 2 (a further 3 sets). Unfortunately, in London, it was not possible to deliver ADVANCE during cycle 1, as no men allocated to ADVANCE were available when the intervention began. A third cycle was therefore undertaken in London.

On average, 4.4 (SD 4.5) of the 14 compulsory sessions were attended for the 47 men offered ADVANCE. Attendance improved by cycle 3 (*Table 9*). Overall, 66% of men attended at least one intervention session, rising to 85.7% in cycle 3. For those 34 men who attended at least one session, the mean number sessions attended was 6.6 (SD 3.9). Men who attended no intervention sessions were slightly younger (39 vs. 44 years), and a greater proportion were living in a hostel/supported accommodation (37.5% vs. 25.8%) and met criteria for moderate to severe depression (68.8% vs. 51.6%), anxiety (56.3% vs. 38.7%) or PTSD (75.0% vs. 58.6%).

Intervention acceptability

For men allocated to ADVANCE and followed up, therapeutic alliance was high. Seven focus groups and 7 interviews with 31 facilitators and substance use keyworkers, and a focus group with 5 men who attended at least one session of the intervention (cycle 3) assessed acceptability.

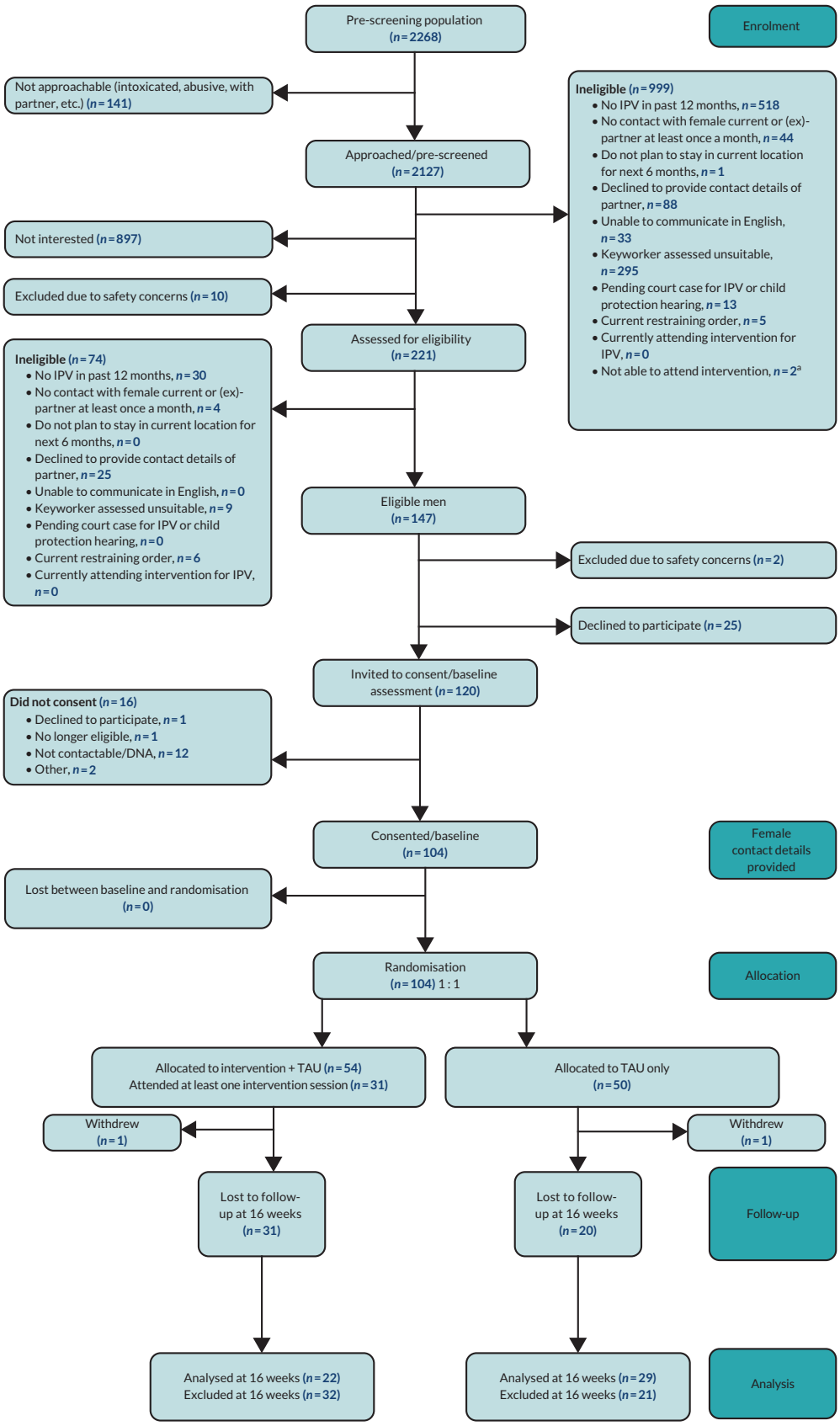

FIGURE 11 The CONSORT diagram for male participants in the ADVANCE feasibility RCT. a Not currently listed in protocol. Reproduced with permission from Gilchrist *et al.*[7] This is an Open Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) licence, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited. See: https://creativecommons.org/licenses/by/4.0/. The figure includes minor additions and formatting changes to the original text.

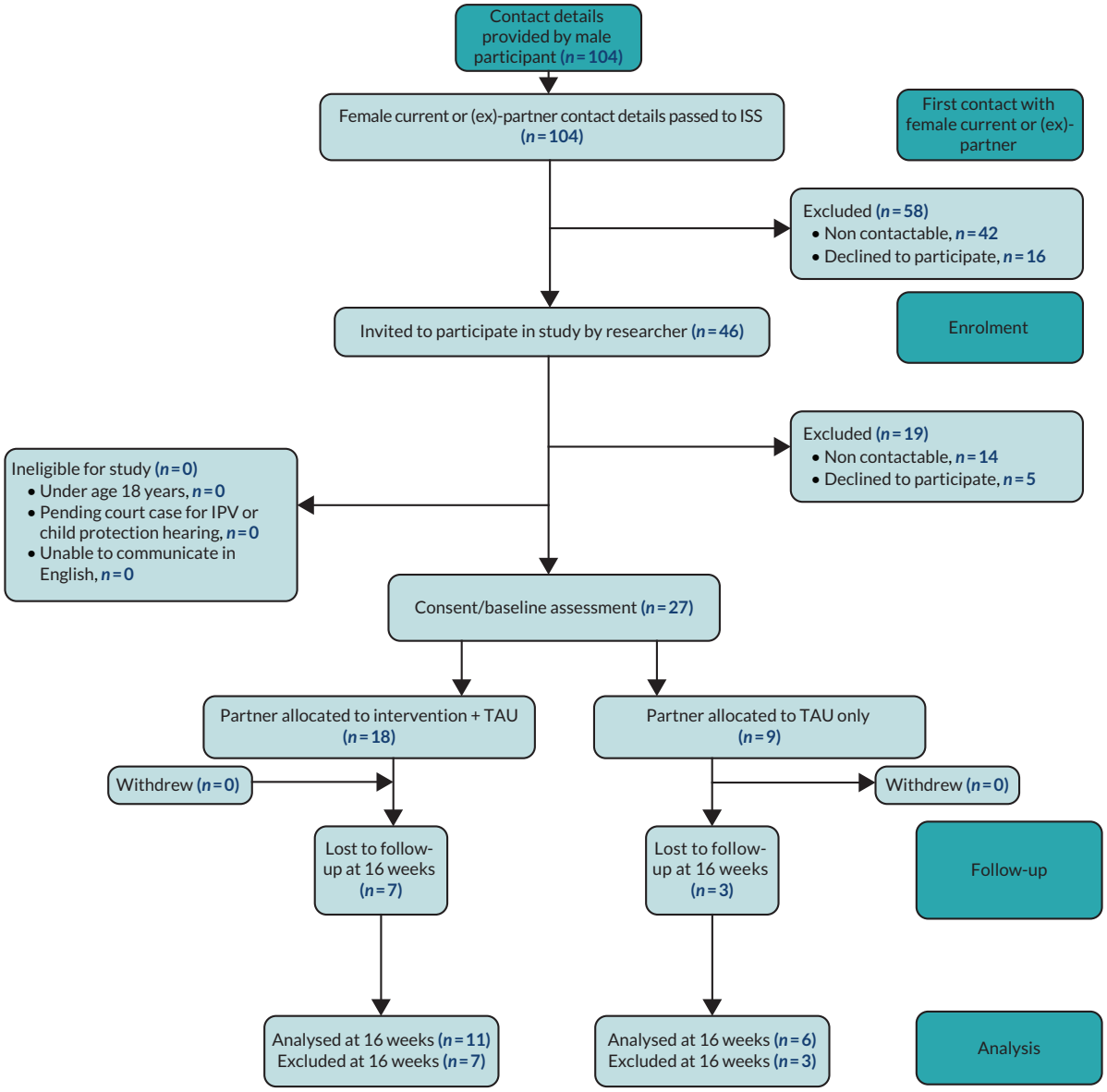

FIGURE 12 The CONSORT diagram for female participants in the ADVANCE feasibility RCT. Reproduced with permission from Gilchrist *et al.*[7] This is an Open Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) licence, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited. See: https://creativecommons.org/licenses/by/4.0/. The figure includes minor additions and formatting changes to the original text.

Across all cycles, keyworkers and facilitators supported the need for ADVANCE and felt it could be easily integrated into their services, but facilitators required protected time to prepare for intervention delivery; otherwise, it affected existing workload. Fortnightly integrity support from the ADVANCE team helped clarify issues about session content: 'once I'd spoken to (ADVANCE integrity support) a few times and I understood it, I realised how much it flowed' (facilitator, London, cycle 3). Safeguarding procedures, including the case management meetings and weekly follow-ups with the ISS workers, ensured risk was managed or mitigated, and the importance of multiagency working was stressed: 'We had one incident of risk and we referred to social services. We worked together and spoke to each other' (facilitator, London, cycle 3).

Men attending ADVANCE were motivated to improve their relationships: 'I wanted to address some issues that I had' (P030032), 'I had assaulted her, I just wanted it to try and make myself better' (P020041). Men found ADVANCE relevant: 'I've learnt things from this course which I can put into practice' (P010099), 'That crisis plan, yes. it was a very good thing to learn, for me personally' (P020041). One facilitator reported that 'we did exactly what it said in the

TABLE 6 Baseline characteristics and measures of the male participants and (ex)-partners in the ADVANCE feasibility trial

	Male participants			Female (ex)-partners
	Trial arm			
Variable [*n* (%)]	Intervention + TAU (*n* = 54)	TAU only (*n* = 50)	Total (*n* = 104)	Total (*n* = 27)
Site				
London	20 (37.0)	19 (38.0)	39 (37.5)	17 (63.0)
West Midlands	14 (25.9)	11 (22.0)	25 (24.0)	7 (25.9)
South West	20 (37.0)	20 (40.0)	40 (38.5)	3 (11.1)
Age at consent date (years) – mean (SD)	41.8 (9.7)	42.4 (10.5)	42.1 (10.1)	41.8 (12.1)
Ethnic group				
White	37 (69.8)	41 (82.0)	78 (75.7)	16 (59.3)
Black	8 (15.1)	3 (6.0)	11 (10.7)	3 (11.1)
Asian	5 (9.4)	5 (10.0)	10 (9.7)	5 (18.5)
Other	3 (5.7)	1 (2.0)	4 (3.9)	3 (11.1)
Level of education				
No formal qualifications	7 (12.9)	10 (20.0)	17 (16.4)	4 (14.8)
Employment status				
Employed	9 (16.7)	9 (18.0)	18 (17.3)	9 (33.3)
Relationship status				
Together and living together	21 (38.9)	19 (38.0)	40 (38.5)	15 (55.6)
Together but living apart	12 (22.2)	13 (26.0)	25 (24.0)	2 (7.4)
In the process of splitting up	1 (1.9)	2 (4.0)	3 (2.9)	2 (7.4)
The relationship has ended, and we are living apart with no contact	1 (1.9)	2 (4.0)	3 (2.9)	1 (3.7)
The relationship has ended, and we are living apart and still have contact	18 (33.3)	14 (28.0)	32 (30.8)	3 (11.1)
Something else	1 (1.9)	-	1 (1.0)	4 (14.8)
Living arrangements				
Homeless or in temporary accommodation	19 (35.2)	14 (28.0)	33 (31.7)	4 (14.8)
Housed – in own tenancy	20 (37.0)	24 (48.0)	44 (42.3)	14 (51.9)
Housed – in someone else's tenancy	12 (22.2)	10 (20.0)	22 (21.2)	4 (14.8)
Other	3 (5.6)	2 (4.0)	5 (4.8)	5 (18.5)
Has children	30 (55.6)	22 (44.0)	52 (50.0)	16 (59.3)
Hazardous and harmful alcohol use in past 12 months (AUDIT)	30 (56.6)	32 (64.0)	62 (60.2)	7 (25.9)
Highly probable dependent on one or more drugs in past 12 months (DUDIT)	28 (51.9)	22 (44.9)	50 (48.5)	4 (15.4)

continued

TABLE 6 Baseline characteristics and measures of the male participants and (ex)-partners in the ADVANCE feasibility trial (*continued*)

	Male participants			Female (ex)-partners
	Trial arm			
Variable [*n* (%)]	Intervention + TAU (*n* = 54)	TAU only (*n* = 50)	Total (*n* = 104)	Total (*n* = 27)
Receiving treatment for				
Heroin	28 (51.9)	26 (52.0)	54 (51.9)	5 (18.5)
Cocaine	6 (11.1)	5 (10.0)	11 (10.6)	0 (0.0)
Crack	19 (35.2)	22 (44.0)	41 (39.4)	3 (11.1)
Cannabis	4 (7.4)	2 (4.0)	6 (5.8)	0 (0.0)
Alcohol	22 (40.7)	25 (50.0)	47 (45.2)	2 (7.4)
Substance use treatment episode length *(if in treatment)*				
< 6 months	25 (46.3)	22 (44.0)	47 (45.2)	1 (14.3)
6–12 months	9 (16.7)	13 (26.0)	22 (21.2)	1 (14.3)
> 12 months	20 (37.0)	15 (30.0)	35 (33.7)	5 (71.4)
Screened positive for depression (PHQ-9)	31 (57.4)	34 (68.0)	65 (62.5)	15 (55.6)
Screened positive for anxiety (GAD-7)	24 (44.4)	25 (50.0)	49 (47.1)	12 (44.4)
Screened positive for PTSD (PC-PTSD-5)	32 (61.5)	30 (60.0)	62 (60.8)	10 (37.0)
Screened positive for personality disorder (SAPAS scale)	47 (87.0)	41 (83.7)	88 (85.4)	20 (74.1)
ACE Total score ranges from 0 to 10 – mean (SD)	4.5 (2.4)	4.5 (2.5)	4.5 (2.4)	3.3 (2.7)

GAD-7, Generalised Anxiety Disorder-7; PHQ-9, Patient Health Questionnaire-9.

Source

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TABLE 7 Feasibility estimates and 95% CIs for male participants and (ex)-partners in the ADVANCE feasibility trial

Male participants			Female (ex)-partners of men in the trial		
Feasibility parameters	**Proportion**	**Proportion, % (95% CI)**	**Feasibility parameters**	**Proportion**	**Proportion % (95% CI)**
Eligibility rate	147/2127	6.9 (5.9 to 8.1)	–	–	–
Recruitment rate	104/147	70.7 (62.7 to 78.0)	Recruitment rate	27/104	26.0 (17.9 to 35.5)
Randomisation rate	104/104	100.0 (96.5 to 100.0)	–	–	–
Follow-up rate	51/104	49.0 (39.1 to 59.0)	Follow-up rate	17/27	63.0 (42.4 to 80.6)

Source

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TABLE 8 Estimated treatment differences for male participants at 16-week follow-up

Outcome measure	*n*	Estimated difference (intervention control)	95% CI
PHQ-9 total score	51	−0.49	−3.81 to 2.83
GAD-7 total score	51	−0.67	−3.80 to 2.46
PC-PTSD-5 total score	51	0.08	−1.01 to 1.16
ABI-R perpetration total score	50	−1.31	−4.06 to 1.43
CBS (partial) perpetration total score	50	−0.17	−1.05 to 0.71
PAS (anger subscale) total score	49	1.9	−3.51 to 7.31
BSCS total score	50	−1.49	−6.41 to 3.43
BIDR-16 total score	51	−0.12	−8.20 to 7.96

BIDR-SF, Balanced Inventory of Desirable Responding – Short Form; CBS, Controlling Behaviours Scale.

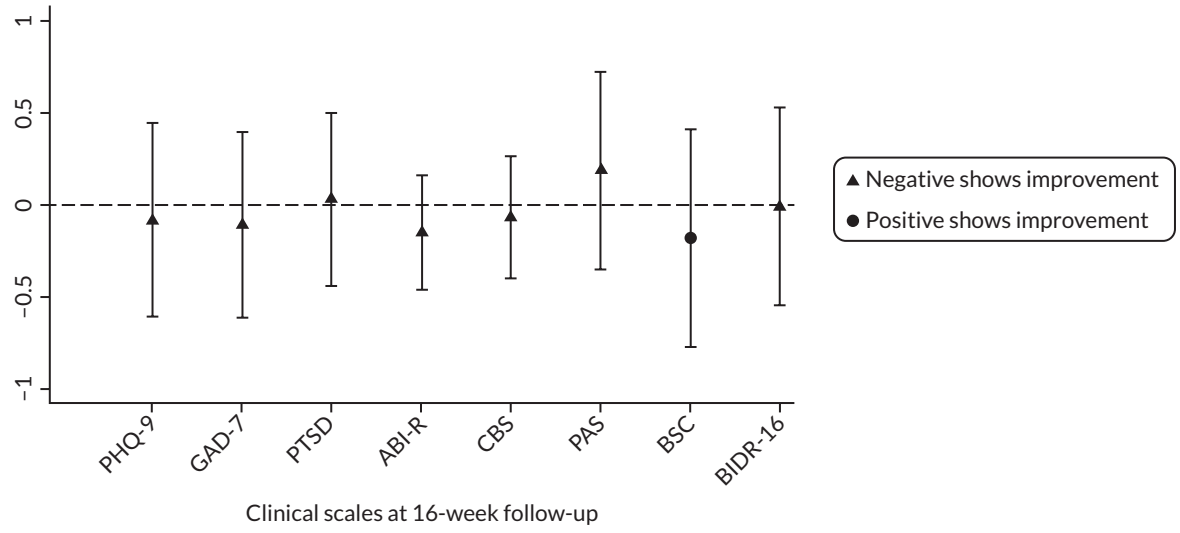

FIGURE 13 Standardised effect sizes at 16-week follow-up for male participants in the ADVANCE feasibility study. BIDR-SF, Balanced Inventory of Desirable Responding – Short Form. Reproduced with permission from Gilchrist *et al.*[7] This is an Open Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) licence, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited. See: https://creativecommons.org/licenses/by/4.0/. The figure includes minor additions and formatting changes to the original text.

TABLE 9 Compliance for the male participants allocated to ADVANCE

Compliance (out of 14 compulsory sessions)	*n*	Mean (SD)/median (LQ–UQ)	95% CI	Range
Rate of intervention session attendance (%) – median (LQ–UQ) *100% = 14 sessions*	47	28.6 (0.0–50.0)	7.1 to 35.7	0–92.9
Cycle 1	15	35.7 (0.0–50.0)	7.6 to 63.8	0–92.9
Cycle 2	25	14.3 (0.0–35.7)	−2.7 to 31.3	0–92.9
Cycle 3	7	64.3 (42.9–78.6)	44.0 to 84.5	0–85.7

LQ, lower quartile; UQ, upper quartile.

manual and we let everybody go round the table and say two last words. One of them, his words were "life changing"' (facilitator, London, cycle 3).

Across the cycles, men benefited from being in a group of men with shared experiences and appreciated the support they received from other group members. In all three cycles, men were impressed by the skills, enthusiasm and sensitivity of the facilitators, which motivated men to continue attending.

Intervention safety

Two serious adverse events were recorded and assessed by the DMEC chair and NHS Ethics Committee as unrelated to the trial.

Economic evaluation

Overall, the total group session duration was 126.25 hours, and the total cost was £8585 across six sets of intervention delivery. Among male participants, the mean costs in the control arm were consistently higher than in the intervention arm.

Limitations

Delays between randomisation and the group starting resulted in cycle 1 in London not being undertaken. Attendance was low overall, although it improved by cycle 3. A low proportion of men's (ex)-partners were recruited.

Discussion

It was possible for trained staff to safely deliver ADVANCE to male IPV perpetrators in substance use treatment services, and for risk to their (ex)-partners to be effectively managed and mitigated through case management and integrated support. Challenges encountered were similar to other evaluations of complex interventions: staffing and contextual issues.[165]

The reduction across cycles in the number of days from randomisation to the individual sessions (46.7 to 17.2 days) and the first group session (from 46.6 to 39.1 days) starting could have impacted on attendance as the median rate of intervention session attendance increased to 64.3% by cycle 3. Improvements in attendance and retention by cycle 3 may also be related to researchers and staff being more confident with study procedures.

The low recruitment of (ex)-partners confirmed it would not be feasible to conduct a future trial of ADVANCE using (ex)-partners' reports of IPV victimisation as the primary outcome. Alternative ways of assessing outcomes should be considered, including using record linkage.

Feasibility of conducting a definitive trial

Funders supported progression to a definitive trial: ≥ 60% of eligible male participants recruited (met); ADVANCE acceptable to staff and male participants (partially met); ≥ 70% of participants followed up (not met) and no increase in the level of substance use or IPV perpetrated by men in the intervention arm 16 weeks post randomisation (met; data not presented).

Work package 5: effectiveness and cost-effectiveness randomised controlled trial of the ADVANCE group intervention plus substance use treatment as usual compared to substance use treatment as usual only

Aims

To explore the efficacy and cost-effectiveness of ADVANCE to reduce IPV by men in treatment for substance use + substance use TAU compared to substance use TAU only.

Lessons learnt from the feasibility randomised controlled trial for work package 5 [and subsequently work package 4(ii)]

Due to the low eligibility rate (7%) of men approached in waiting rooms in WP4(i), substance use treatment staff should identify and screen men. Evaluating ADVANCE based on (ex)-partners' outcomes was not feasible, as just 26% were recruited. Our review highlighted similar difficulties in other trials. The primary outcome should be IPV perpetration by men. To recruit more women, researchers rather than ISS workers make the first contact with (ex)-partners and tell them about the trial, with a subsequent call from ISS for all women. Facilitators rather than keyworkers deliver weekly coaching calls to build and maintain therapeutic alliance throughout ADVANCE. Finally, a 'champion' should be identified as the key point of contact at each service to streamline communication with the research team.

Trial design, sample size and primary outcome

A parallel-group individual RCT on a 2 : 1 basis to the intervention arm: 378 men randomly allocated to receive the ADVANCE group intervention + TAU (n = 252) or TAU only (n = 126). Self-reported IPV perpetration by men in substance use treatment using the Abusive Behaviour Inventory (ABI) – partner form (perpetration) in the previous 4 months at 12 months post randomisation would have been the primary outcome.[166] Incremental cost-effectiveness and cost–utility analysis of the intervention over and above TAU was to be undertaken. A mixed-methods nested process evaluation was planned to understand the intervention's functioning.

Results

The UK government imposed a lockdown on 16 March 2020 due to COVID-19. No participants had been recruited when the trial was paused on 17 March 2020 and later stopped due to group delivery not being possible. ADVANCE was then adapted for digitally supported delivery [WP3(ii)] and the feasibility of its delivery evaluated [WP4(ii)].

Work package 3(ii): adapting the ADVANCE group intervention for digitally supported delivery (ADVANCE-D)

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Aims

To iteratively adapt the ADVANCE group intervention for remote digitally supported delivery (ADVANCE-D).

Methods

We followed an iterative methodology using a person-based approach,[167,168] and mHealth development framework[169] to adapt ADVANCE, involving:

1. *Conceptualisation*. Scoping reviews of existing literature and emerging guidance on delivering psychosocial interventions remotely and/or digitally were undertaken. We consulted key professionals from criminal justice, substance use and IPV perpetrator and survivor organisations to identify remote delivery and risk management practices.
2. *Formative research*. Multiple rounds of consultations with key stakeholders: staff from substance use services, two Learning Alliances, men who used substances and IPV victims/survivors to ensure their views and experiences were grounded in adaptations of proposed approaches and materials. PPIE were consulted on paper prototypes of website sessions and engagement contexts, and their experiences of using technology[170] to understand how best to deliver and communicate digital content. Comments were fed back to developers and designers to inform the development of a digital prototype of the first three website sessions, including the avatar (digital coach). NGTs[138] were used to reach consensus with both Learning Alliances (total of 20 key stakeholders) on the paper prototype, the digital/blended model options and the look and feel of the avatar and website practice sessions.
3. *Pre-testing*. Individual video consultations took place with eight male substance use service users on the website prototype. Men were given a link to a test website and then were asked to share their screen and to 'think aloud' while using it. Their views about intervention flow, structure and design were recorded.[168] Decisions on whether to modify were based on whether changes were likely to impact on acceptability, feasibility, persuasiveness, motivation, engagement[168] using MoSCoW criteria.[139]

Results

Decisions on the adaptation

1. Delivering perpetrator interventions during lockdown required an enhanced risk management approach.
2. Digitally supported interventions required different engagement and retention strategies.
3. Digital poverty and limited digital literacy across our population required provision of access to technology and digital data.

We identified 23 key studies on the barriers and facilitators to uptake, engagement and retention, satisfaction and therapeutic alliance with remote interventions/services. We developed selection criteria around digital literacy and included guided content, that is, coaching. We found 27 articles adapting interventions for remote delivery, all of which had migrated a face-to-face intervention to online delivery, for example, using Zoom (Zoom Video Communications, San Jose, CA, USA).

Rationale for blended delivery of website sessions and coaching calls

Stakeholder consultation at the pandemic's outset highlighted that many criminal justice and substance use services decided not to migrate to online delivery opting for telephone check-in sessions instead, to monitor risk, safety, relationship status, substance use and signpost services/make necessary referrals. The ADVANCE team planned to translate the 12 group sessions into 12 interactive avatar-led digital sessions, using quizzes and film clips to provide educational material and strategies on managing risk to maximise and maintain engagement. Blended delivery was agreed as the best approach to deliver ADVANCE remotely, combining the website sessions and phone/video call coaching from a facilitator.[171,172] As the team developed the website materials, it became clear that personal contact would be needed to promote use of the materials and monitor risk: a meta-review identified a lack of human support limited engagement with digital interventions,[173] and computerised CBT had a smaller impact on depression and anxiety if service users did not receive regular support worker contact.[174] Other studies have shown significant improvements in outcomes for programmes that combine self-directed support with coaching.[175,176] In ADVANCE-D, facilitators make the website material available to participants at the appropriate time on the digital platform as part of service delivery. They then provide an individual coaching call to follow up with service users after they have completed each website session.

Rationale for video groups

Over time, services became more confident that with appropriate risk management, video groups could be safely delivered. As exposing participants to emotive and potentially distressing material without offering support or challenging offence-supportive beliefs was considered a risk, website sessions were designed to build on the learnings from the video groups.

Addressing digital poverty

To address digital poverty,[177–179] tablets with front-facing cameras with 4G connectivity and headphones were sent to men ready to use and research staff provided technology support. Monthly mobile data were contingent on attendance, and men who completed ADVANCE-D could keep the tablet. Women, who could view but not interact with the ADVANCE-D website content, were offered smartphones with mobile data, addressing the risk of their own phone activity being monitored or intercepted by the perpetrator and allowing them to view the safety messages for women.

Therapeutic alliance and group size

Online groups must pay attention to building therapeutic alliance and to group process.[180] These can be developed through group agreements and structured formats to attenuate anxiety. Paying attention to social cues and signs of emotionality (facial expression, tone of voice or body language) and asking more questions than usual to clarify responses and reactions can help to build therapeutic alliance online.[171] These techniques, as well as attending to group dynamics, giving equal time and attention to all members of the group and promoting positive, respectful communication, were built into the ADVANCE-D model and emphasised in training and integrity support meetings.

Studies of therapeutic groups, comprising 5–13 participants, suggests group size does not predict outcomes.[181] Slightly smaller groups are more appropriate for participants with learning disabilities or behavioural problems or for CBT-based groups due to level of skills imparted.[182] ADVANCE-D sought to recruit between 6 and 12 participants per group.

Participant risk and safety

Social distancing and lockdown resulted in extra challenges for IPV perpetrators, including mental illness.[183] Thus, facilitators need to pay additional attention to participants' emotional well-being, their substance use, their home living situation and note and act on any change in risk relevant factors.

Consultations with Drive, Caledonian and other IPV researchers[184] emphasised the importance of a group agreement, including rules on not misusing technology (e.g. for illegal or abusive means), keeping cameras on to allow facilitators to

gauge potential intoxication and substance use, personal identifying items (e.g. photos of children) to be out of range, and not attending/completing sessions intoxicated. Participants were asked to complete and join sessions in a private room where they could not be overheard and to use the headphones provided.

Check-outs, one-to-one coaching calls and specific ADVANCE-D materials, including the self-soothing boxes and relaxation techniques, were identified as strategies to help manage difficult thoughts or emotions. Consultations with Respect emphasised that scheduling times to complete website sessions with facilitators would encourage participant to refrain from substance use before/during a session.

The ISS workers completed the Domestic Abuse, Stalking, Harassment and Honour Based Violence Assessment (DASH)[185] with women, and facilitators completed the Brief Spousal Assault Form for the Evaluation of Risk (B-SAFER)[186] with men, to assess suitability and manage and mitigate risk, alongside regular supervision and four case management meetings between facilitators and ISS workers. The clinical risk lead provided integrity fortnightly support meetings online to all professionals to discuss ADVANCE-D content, group processes, online delivery, risk and safety management to support staff in their roles.[187]

ADVANCE-D

The content and underpinning theory remained the same as ADVANCE [WP3(i)]. ADVANCE-D includes: an individual session with a facilitator to set goals, develop a personal safety plan and increase motivation; a video group to prepare men for taking part; and six fortnightly video groups delivered by two trained facilitators. There are 12 weekly self-directed website sessions to recap and practice skills learnt in the video group sessions, each followed by a coaching call with facilitators to account for best practice in terms of monitoring and managing risk and safety and increasing skills and knowledge. A refresher session is offered 1 month after the last video group (*Figure 14*, *Table 10*).

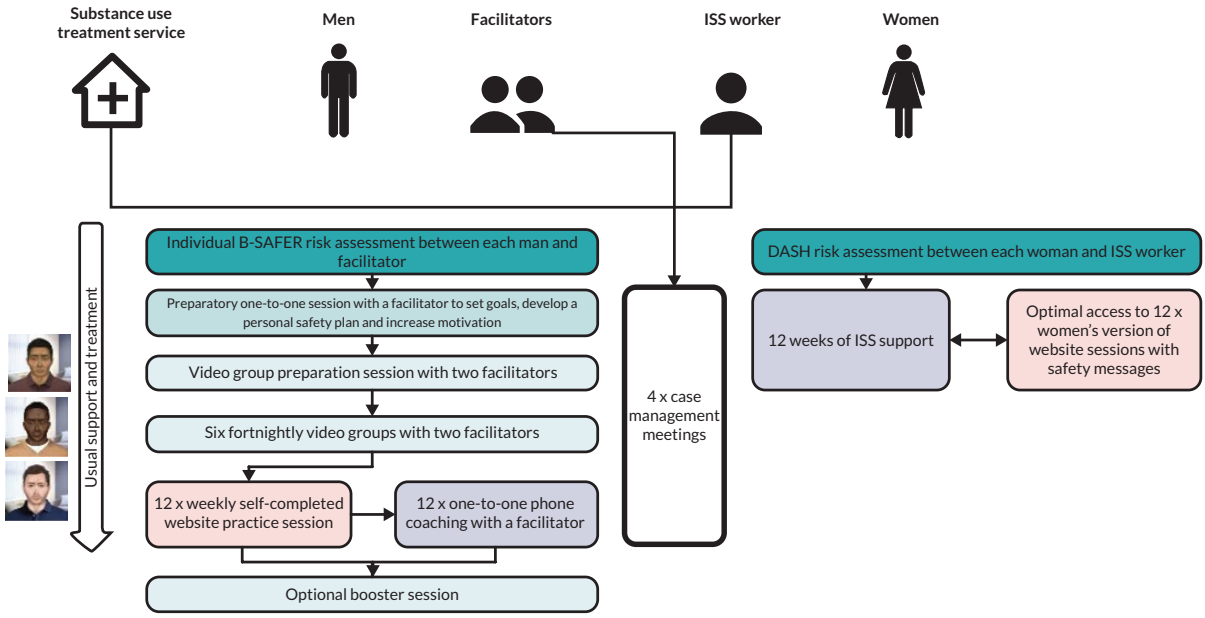

FIGURE 14 The ADVANCE-D model. Reproduced with permission from Gilchrist *et al.*[6] This is an Open Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) licence, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited. See: https://creativecommons.org/licenses/by/4.0/. The figure includes minor additions and formatting changes to the original text.

TABLE 10 Description of the ADVANCE-D group and website sessions

Video group session title	Session objectives
1. Understanding abuse	1. Understand the aims of the group 2. Understand what IPA is and how substance use can affect such behaviours 3. Learn new skills that can help in times of distress 4. Shift focus from managing your relationship to managing yourself 5. Understand how substance use affects self-regulation 6. Be able to identify self-regulation and monitoring skills
2. Handling challenges	1. Examine costs and pay-offs of being abusive 2. Identify activating events 3. Have improved self-awareness 4. Understand key aspects of IPA behaviours and how substance use affects them 5. Understand the impact of IPA on women
3. Difficulties in families	1. Recognise the impact of childhood experiences 2. Be able to identify the impact on children of witnessing IPA 3. Be able to identify the impact of parental substance use on children 4. Identify the strategies that lead to repeat or not repeat 5. Be able to recognise and challenge relationship jealousy 6. Become aware of unhelpful automatic thoughts and core beliefs
4. Times of distress	1. Recognise challenges to communication in relationships and when using substances 2. Reduce abusive communication and increase respectful egalitarian communication 3. Understand what distress is 4. Learn to manage mood and emotions 5. Understand how substance use affects distress
5. Relating well	1. Identify high-risk situations for IPA 2. Increase skills for staying safe 3. Understand the impact of behaviours in different relationships: substance-using relationship, non-substance-using partners, substance-using discordant relationships 4. Be able to identify features and benefits of equal relationships 5. Be motivated and capable of using respectful behaviours in relationships
6. Planning to be better	1. Create and engage with positive social networks 2. Identify meaningful activities and positive behaviours 3. Select realistic positive goals 4. Identify explicit positive life goals 5. Describe new skills, identify strengths and progress 6. Identify positive resources to help maintain change
Website session title	**Session objectives**
1. Introduction	1. Understand the aims of the sessions 2. Understand what intimate partner abuse (IPA) is and how substance use can affect such behaviours 3. Learn new skills that can help in times of distress
2. Managing myself	1. Shift focus from managing your relationship to managing yourself 2. Understand how substance use affects self-regulation 3. Be able to identify self-regulation and monitoring skills
3. Being a man	1. Examine costs and pay-offs of being abusive 2. Identify triggering situations 3. Have improved self-awareness 4. Practise behavioural analysis
4. Impact of IPA	1. Understand key aspects of IPA behaviours and how substance use affects them 2. Understand the impact of IPA on women 3. Continue to practise behaviour analysis
5. Children and parenting	1. Recognise the impact of childhood experiences 2. Be able to identify the impact on children of witnessing IPA 3. Be able to identify the impact of parental substance use on children 4. Accept the past, build resilience and learn from mistakes 5. Identify the strategies that lead to repeat or not repeat

continued

TABLE 10 Description of the ADVANCE-D group and website sessions (*continued*)

Website session title	Session objectives
6. Relating well	1. Promote respectful and equal behaviours in ongoing relationships 2. Give up controlling behaviours within a relationship 3. Be able to recognise and challenge relationship jealousy 4. Become aware of unhelpful automatic thoughts and core beliefs
7. Improving communication	1. Recognise challenges to communication in relationships and when using substances 2. Reduce abusive communication and increase respectful egalitarian communication 3. Develop a staying safe plan
8. Dealing with distress	1. Understand what distress is 2. Learn to manage mood and emotions 3. Understand how substance use affects distress 4. Understand thinking errors and their impact
9. Planning to be better	1. Identify high-risk situations for IPA 2. Develop plans to manage high-risk situations 3. Increase skills for staying safe
10. Positive relationships	1. Understand the impact of behaviours in different relationships: substance-using relationship, non-substance-using partners, substance-using discordant relationships 2. Be able to identify features and benefits of equal relationships 3. Be motivated and capable of using respectful behaviours in relationships
11. New future, people's plans, positive activities	1. Create and engage with positive social networks 2. Identify meaningful activities and positive behaviours 3. Select realistic positive goals 4. Identify explicit positive life goals
12. Recap 'what have we learnt'	1. Describe new skills, identify strengths and progress 2. Identify positive resources to help maintain change 3. Identify further referrals 4. Understand where to reach help, support, follow-up and to say goodbye

Work package 4(ii): feasibility and acceptability of delivering the ADVANCE digitally supported intervention

For more information, see Gilchrist *et al.*[10] *Report Supplementary Material 2* describes the SAP, and *Appendix 3* describes the health economics report for WP4(ii). Some text in this chapter has been reproduced with permission from Gilchrist *et al.*[10] This is an Open Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) licence, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited. See: https://creativecommons.org/licenses/by/4.0/. The text below includes minor additions and formatting changes to the original text.

Aims

To explore the feasibility and acceptability of digitally supported delivery of ADVANCE-D to reduce IPV perpetration by men receiving treatment for substance misuse.

Objectives

- men's eligibility, recruitment and uptake rates; women's support uptake rates assessed the feasibility of delivering ADVANCE-D
- attendance and completion rates; rating scales about website sessions; longitudinal qualitative interviews; follow-up rates; adverse events; therapeutic alliance assessed the acceptability of ADVANCE-D.

Study methods

A multicentre, non-randomised feasibility study with a nested process evaluation.

Recruitment, setting and participants

Men were screened during June 2021–November 2021 for eligibility against the inclusion criteria by substance misuse treatment staff or researchers. Recruitment flyers invited men to contact researchers for information. Forty-five men, who had perpetrated IPV in the past 12 months towards a female (ex)-partner with whom they still had contact, were recruited from community substance misuse treatment services in England (London, n = 3; the West Midlands, n = 1; and the South West, n = 1), Wales (South Wales, n = 1) and Scotland (Lothian, n = 1). Men receiving a perpetrator intervention, who had an order preventing them from contacting their (ex)-partner or where there were other safety concerns, were ineligible. A trained facilitator then assessed eligible men's suitability for ADVANCE-D using the B-SAFER.[186] Low-risk men were deemed suitable to participate.

A different researcher completed the baseline assessment with the male and female in the dyad.[8] Researchers texted or e-mailed (ex)-partners with brief study information and then rang them to invite them to participate. Regardless of whether (ex)-partners agreed to participate, all were contacted and offered support by an ISS worker who completed the DASH[185] risk assessment.

Client-centred outcomes

Changes in outcomes for men and their (ex)-partners were evaluated pre and post intervention. The ABI, rather than the ABI-R used in WP4(i), assessed men's IPV perpetration. Measures with low understanding, acceptability and completion ratings in WP4(i) were excluded from WP4(ii): URICA-DV, Communications Patterns Questionnaire – Short Form (CPQ-SF),[152] Intimate Partner Violence Responsibility Attribution Scale (IPVRAS)[15] and Balanced Inventory of Desirable

Responding – Short Form (BIDR-SF).[158] To account for the digitally supported delivery of ADVANCE-D, the Working Alliance Inventory applied to Virtual and Augmented Reality – Short Revised; assessed therapeutic alliance rather than the WAI-SR.[188] All other client-centred outcomes remained the same as WP4(i) (see *Table 5*). A web-based electronic case report forms (CRFs) system (InferMed MACRO) was used to collect data.

Process evaluation

Up to four longitudinal qualitative interviews were conducted to capture: views about the intervention, changes and impact over time for men and their (ex)-partners, and staff's experience of delivering ADVANCE-D. Online feedback after each website session was completed. The interviews corresponded with completion of 4, 8, 12 and 14 weeks of ADVANCE-D. Therefore, interviews were only completed with men who remained engaged in ADVANCE-D at these pre-defined times.

Contingency management

Tablets were provided to men with 8GB of mobile data, with additional monthly data contingent on attendance. Men who completed the intervention could keep the tablet.

Research reimbursement

Participants were reimbursed (£10 voucher) per interview (up to a total of £60 vouchers).

Statistical analyses

Summary statistics were estimated to quantify relevant feasibility and acceptability parameters. *T*-tests were performed for outcomes pre and post intervention (where normality could be assumed) or Wilcoxon signed-rank test (where normality could not be assumed).

Health economics

The costs of providing ADVANCE-D and TAU were estimated. Descriptive statistics of quantities of various services used were calculated.

Qualitative analysis

Interviews and focus groups (staff) were recorded and transcribed verbatim. Patterns in themes across different participants and groups of participants were explored using the framework approach.[164] Data for each time point interview and category of interviewee were merged into a single framework to enable comparison, interpretation and synthesis of longitudinal data. Codes were developed and data thematically coded. The consolidated criteria for reporting qualitative research checklist were followed during analysis.[189]

Intervention

The ADVANCE-D components are outlined in *Table 11*.[140] All men also received their substance misuse TAU.

Key findings

Screening, recruitment and follow-up of men and their (ex)-partners are described in *Figures 15* and *16*.

Participant characteristics

Forty men were offered ADVANCE-D: 16 from London, 9 from the South West, 6 from the West Midlands, 5 from Lothian and 4 from South Wales. Their mean age was 40.6 (SD 7.9), the majority were White (31/40; 77.5%), not employed (29/40; 72.5%) and in a relationship living together or apart (28/40; 70%). Over half of their partners

TABLE 11 The TIDieR checklist for ADVANCE-D programme

Intervention components	
TAU	Men received their substance use TAU (e.g. group work, individual sessions, mutual aid and opiate substitution treatment)
Why	To reduce IPV perpetration
What	ADVANCE-D comprises eight core sessions: an individual session with a facilitator to set goals, develop a personal safety plan and increase motivation; a preparatory online group to prepare men for taking part in the intervention; and six fortnightly video groups delivered by two trained facilitators There are 12 weekly self-directed website sessions to recap and practise skills learnt in the video group sessions. Each website session is followed by a one-to-one video/phone coaching session with a facilitator An online group refresher session 1 month after the last online group is provided Fortnightly integrity support was provided to facilitators and ISS workers by the clinical lead
Who provided	Group sessions were provided by two trained facilitators from substance use treatment services. Facilitators received training on screening, risk assessment, case management and intervention delivery. One of the group facilitators delivered the individual sessions and phone coaching calls The website materials were delivered using a range of communication mediums, including text which is also spoken by a digital avatar and videos
How	The individual session and coaching calls were delivered by phone by facilitators. The six fortnightly online group sessions and the refresher group session were delivered online using Microsoft Teams (Microsoft Corporation, Redmond, WA, USA). These were delivered by two trained facilitators – where possible, one male and one female. The 12 weekly self-directed sessions were accessed through a bespoke website. Participants were provided with a tablet device and mobile data
Where	All content was delivered remotely. The individual session and coaching calls were delivered over the phone. The six fortnightly online groups and a refresher session were delivered using Microsoft Teams
When and how much	ADVANCE-D has 32 sessions and takes 21 hours to complete over 18 weeks, including the refresher session: • individual session with a facilitator to set goals, 45 minutes • online preparation for group session, 1 hour 15 minutes • 6 × 1 hour fortnightly online group sessions • 12 weekly self-directed website sessions, approximately 30 minutes per session • 12 coaching calls, 30 minutes per call • online refresher group, 1 hour
Tailoring	Not applicable
Modifications	No modifications to the intervention were made during the study

consented to participate in the study (21/40; 52.5%). Twenty-two men were interviewed qualitatively: 4 were interviewed once, 10 were interviewed twice, 6 were interviewed three times and 2 were interviewed four times. Of the 21 (ex)-partners recruited, 11 were interviewed qualitatively: 8 once, and 3 twice. All 12 facilitators (3 were interviewed once, 8 were interviewed twice and 1 was interviewed three times) and 7 ISS workers (4 were interviewed once, 3 were interviewed twice) were interviewed.

Client-centred outcomes

Table 12 compares participants' baseline and follow-up outcomes. Eight of the 11 women followed up reported a reduction in experiencing IPV, with 5 out of 11 reporting a reduction in experiencing controlling behaviours. They also reported reductions in their (ex)-partners using their/her children against her. Seventeen of the 25 men followed up, self-reported a reduction in using IPV, with 10 of 25 men self-reporting a reduction in using controlling behaviours. Men also reported reductions in using their/(ex)-partner's children against them, as did their propensity for anger. Seven of the 24 men followed up reported an increase in alcohol-free days, and 11 out of 25 men followed up reported a reduction in drug-free days, in the past month.

For the quality-of-life (QoL) measures, none of the scores was significantly different between baseline and 4-month follow-up for the 25 male or 11 female participants.

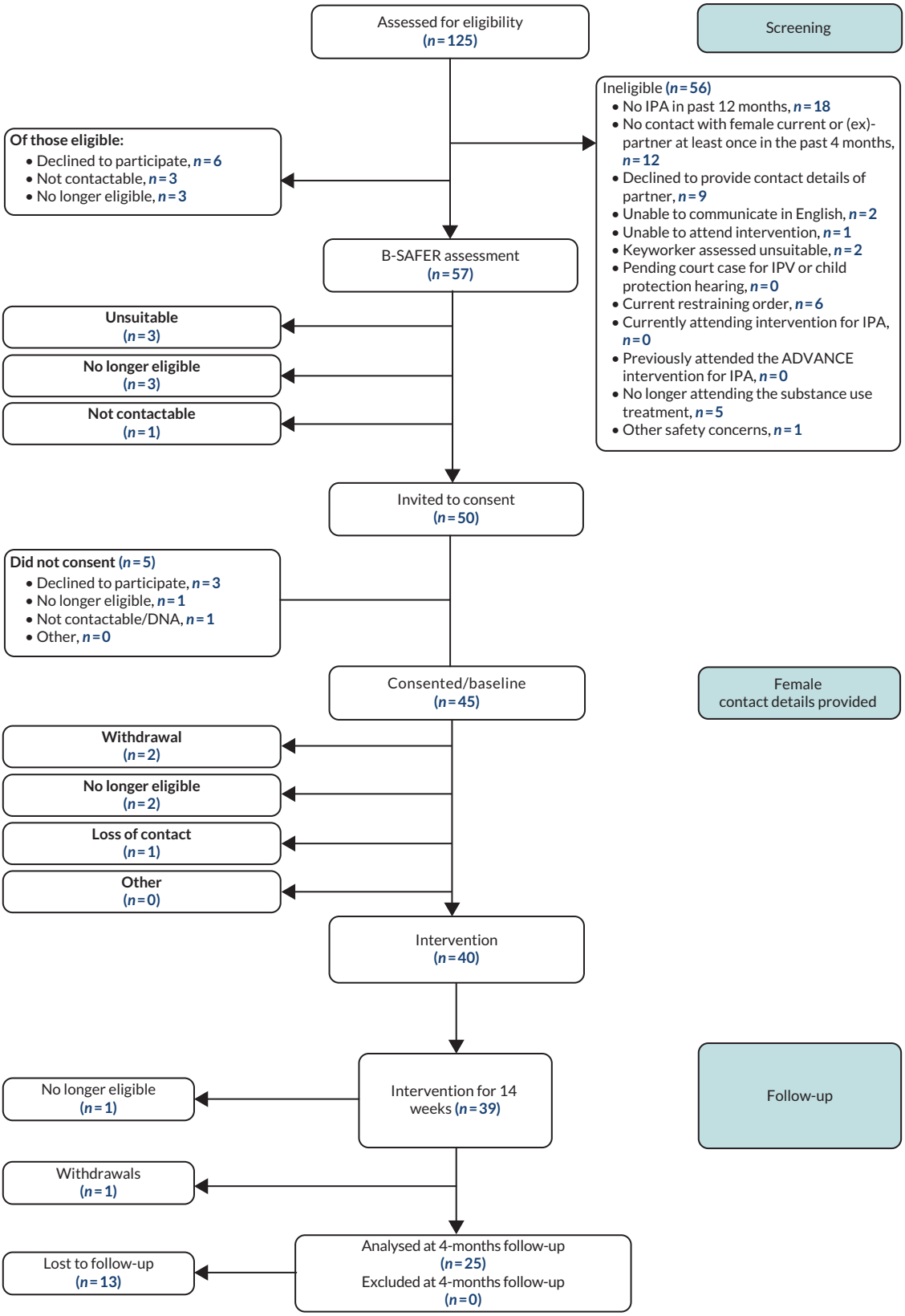

FIGURE 15 The CONSORT diagram for male participants in the ADVANCE-D non-randomised feasibility study. IPA, intimate partner abuse. Reproduced with permission from Gilchrist *et al.*[10] This is an Open Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) licence, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited. See: https://creativecommons.org/licenses/by/4.0/. The figure includes minor additions and formatting changes to the original text.

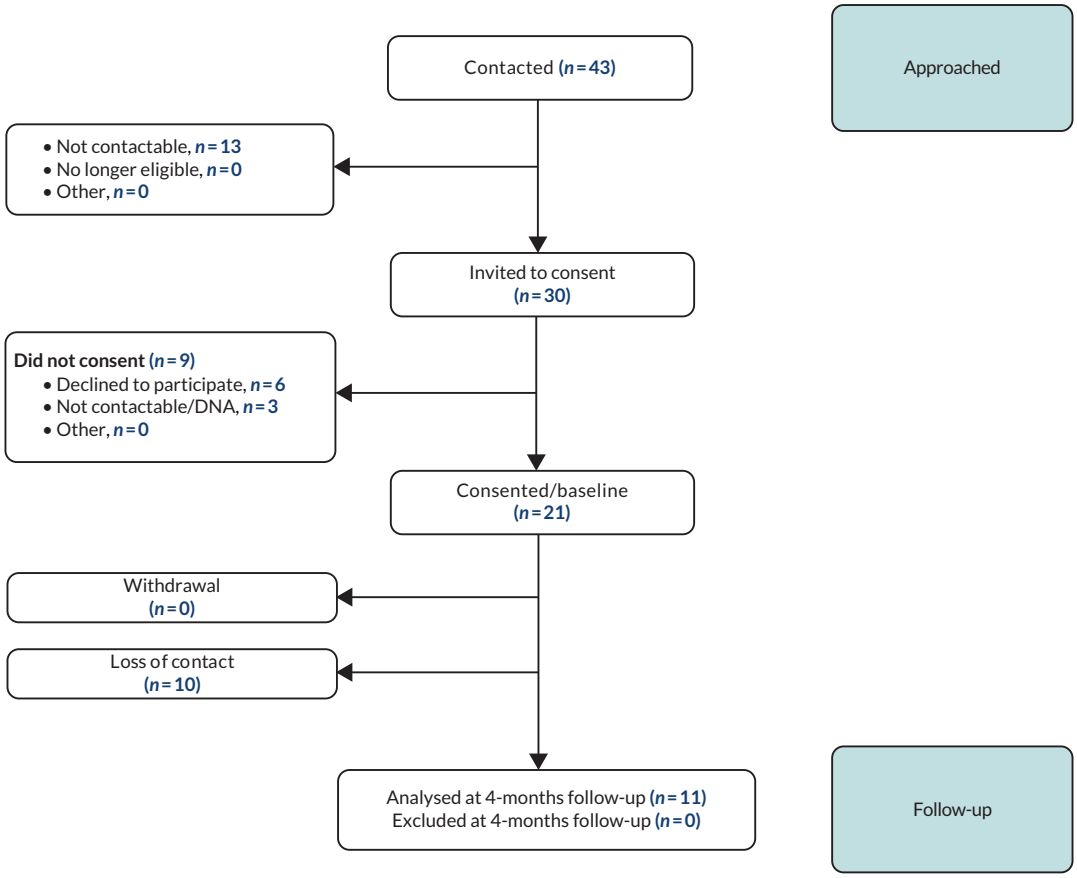

FIGURE 16 The CONSORT diagram for female participants in the ADVANCE-D non-randomised feasibility study. Reproduced with permission from Gilchrist *et al.*[10] This is an Open Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) licence, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited. See: https://creativecommons.org/licenses/by/4.0/. The figure includes minor additions and formatting changes to the original text.

Feasibility parameters

Table 13 describes the feasibility parameters for men and their (ex)-partners.

Acceptability parameters

- Many men preferred the convenience of digitally supported delivery stating accessing it from their homes and talking to facilitators by phone was 'easier, not as daunting' than travelling into a service especially for those with social anxiety or who were working. Others would have preferred 'face to face' feeling 'a little bit more engaged'.
- Men found the overall content 'really good', especially the videos, as they 'stick[s] in your head a bit more' and gave them 'the tools I need to do things a bit different and stop things getting worse'.
- Although several facilitators highlighted difficulties in contacting men for coaching calls, men rated therapeutic alliance highly and thought the: 'Coaching calls were absolutely brilliant … they reinforced a lot of the messages that we were doing in the groups, and it was real-time support with what was going on in my life, which I think is invaluable'.
- Facilitators valued the 'thorough' risk assessment at the beginning of ADVANCE-D and thought the intervention content was 'fantastic', 'valuable' and 'comprehensive'; however, many found it 'unrealistic' to cover the content in the time allocated for groups.
- Some facilitators believed remote delivery made it more 'accessible' and gave men more 'flexibility to attend', but others reported men had not 'got to grips with the technology' and that 'not having faces on screen distanced people' could make it difficult to manage risk.

TABLE 12 Client-centred outcomes for men and their (ex)-partners in the ADVANCE-D non-randomised feasibility study

Measure	Baseline			Follow-up		
	N	Mean (SD)	Median (IQR)	*N*	Mean (SD)	Median (IQR)
Male participants						
ABI (perpetration) score	44	40.6 (8.9)	38.0 (35.0–46.5)	25	34.2 (6.1)	33.0 (29.0–38.0)
CBS (partial) score	44	2.2 (2.1)	2.0 (0.0–3.5)	25	0.8 (1.3)	0.0 (0.0–1.0)
Use of social media in past 4 months score	44	2.8 (1.0)	2.0 (2.0–4.0)	25	2.2 (0.4)	2.0 (2.0–2.0)
Locked in, in the past 4 months score	44	1.1 (0.4)	1.0 (1.0–1.0)	25	1.0 (0.2)	1.0 (1.0–1.0)
Stalking in past 4 months score	44	3.0 (1.4)	2.0 (2.0–4.0)	25	2.4 (0.9)	2.0 (2.0–2.0)
Using children against partner in past 4 months score	44	4.6 (3.1)	5.0 (3.0–6.0)	25	4.2 (2.2)	5.0 (5.0–5.0)
Number of alcohol-free days in past 28 days	44	17.8 (11.4)	24.0 (5.5–28.0)	25	20.2 (9.9)	25.0 (16.0–28.0)
Number of drug-free days in past 28 days	44	15.1 (12.9)	20.0 (0.0–28.0)	25	18.1 (10.8)	24.0 (10.0–28.0)
PHQ-9	44	12.7 (8.2)	10.5 (6.0–20.5)	25	11.5 (8.1)	12.0 (4.0–18.0)
GAD-7	44	9.6 (6.2)	8.0 (4.5–14.0)	25	8.2 (6.4)	7.0 (2.0–14.0)
PAS (anger)	44	36.2 (10.6)	37.5 (29.0–42.5)	25	30.6 (11.8)	27.0 (24.0–40.0)
BSCS	44	40.0 (6.4)	38.5 (35.0–45.5)	25	38.5 (6.0)	39.0 (34.0–43.0)
PC-PTSD-5	43	2.1 (2.1)	2.0 (0.0–4.0)	21	2.6 (2.0)	3.0 (0.0–4.0)
Female (ex)-partners						
ABI-R (victimisation) score	21	47.7 (18.7)	44.0 (34.0–52.0)	11	38.8 (15.5)	31.0 (27.0–51.0)
CBS (partial) score	21	3.8 (4.0)	3.0 (1.0–5.0)	11	2.6 (3.0)	1.0 (0.0–5.0)
Use of social media in past 4 months score	21	3.2 (1.3)	3.0 (2.0–4.0)	11	2.5 (0.8)	2.0 (2.0–3.0)
Locked in, in the past 4 months score	21	1.1 (0.3)	1.0 (1.0–1.0)	11	1.5 (1.2)	1.0 (1.0–1.0)
Stalking in past 4 months score	21	3.5 (1.5)	4.0 (2.0–4.0)	11	2.3 (0.6)	2.0 (2.0–2.0)
Using children against partner in past 4 months score	21	4.5 (2.7)	5.0 (5.0–6.0)	11	2.4 (2.5)	1.0 (0.0–5.0)
Number of alcohol-free days in past 28 days	21	22.6 (8.9)	27.0 (20.0–28.0)	11	22.9 (9.0)	28.0 (22.0–28.0)
Number of drug-free days in past 28 days	21	22.1 (11.2)	28.0 (27.0–28.0)	11	27.0 (2.7)	28.0 (28.0–28.0)
PHQ-9	21	11.0 (8.0)	8.0 (7.0–16.0)	11	10.5 (6.2)	9.0 (5.0–16.0)
GAD-7	21	9.2 (6.1)	7.0 (6.0–12.0)	10	9.7 (6.1)	11.5 (5.0–14.0)
PC-PTSD-5	20	2.8 (2.0)	2.5 (1.0–5.0)	7	1.4 (2.0)	0.0 (0.0–3.0)

IQR, interquartile range.

- Facilitators and ISS workers welcomed the integrity support to 'strengthen the consistency and delivery'. They found information sharing between the facilitators and ISS 'very useful' as 'information that was coming from the partners themselves that was quite different to the information we were getting from the men' (facilitator).
- ISS workers also had difficulty getting hold of (ex)-partners for support calls.
- No adverse events from men or their (ex)-partners were associated with participating in ADVANCE-D.

TABLE 13 Feasibility estimates for male participants and (ex)-partners in the ADVANCE-D non-randomised feasibility study

Male participants			Female (ex)-partners of men in the study		
Feasibility parameters	**Proportion**	**Proportion, %**	**Feasibility parameters**	**Proportion**	**Proportion, %**
Eligibility rate	69/125	55.2	–	–	–
Suitability rate	47/125	45.6	–	–	–
Recruitment rate	45/69	65.2	Recruitment rate	21/43[a]	48.8
ADVANCE-D uptake (attended at least one session)	39/40	86.7	ISS support uptake	13/15	86.7
Follow-up rate	25/45	55.6	Follow-up rate	11/21	52.4]

a Only 43 female partners were contacted as we were aware at that time that 2 men would not be offered ADVANCE-D.

Source

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Attendance

The majority of men offered ADVANCE-D attended at least one session (39/40; 97.5%). On average, they attended 11.4 (SD 9.1) sessions (*Figure 17*), but attendance varied by site. For men, 48% of all sessions (core, website and coaching calls) offered were attended. Fifty-nine per cent of men attended 75–100% of the core sessions.

Website ratings

Men rated each website session men from 1 ('strongly disagree') to 7 ('strongly agree'). Overall, men found the website easy to use (mean 5.8; SD 1.7), understood each session's purpose (mean 6.2; SD 1.1), increased their knowledge and skills about topics covered (mean 5.9; SD 1.3) and were able to concentrate (mean 5.8; SD 1.4). Men were positive about the website: 'It was great. It was easy to use. I was impressed. It was better than I expected' (P040010), 'Very valid and great content' (P040015). Website sessions reinforced what they had learnt in group sessions and vice versa (P030020; P0400122): 'When you do the session by yourself online after the group, I find that helpful in a different way. you talk about stuff in the group and then you go and do the online session and then that's what I sit down with the notebook make notes. They work very well together' (P040011).

The look and feel of the website was updated based on users' feedback. In addition, the ability to select from three different avatars was added (*Figure 18*).

Health and social care service use

Costs of ADVANCE-D

The cost per man for facilitators to deliver ADVANCE-D was £131 (± £98), plus £106 (± £137) to support his (ex)-partner. Training costs were £1728 per staff member (with 3 facilitators and 1 ISS worker trained at each site). The costs of sustaining the ADVANCE-D platform were £4536.

Discussion

Despite 'considerable concern about the use of "online", "virtual", or "digital" programmes delivered remotely',[184] we found it was feasible to adapt face-to-face content from our ADVANCE group intervention for digitally supported remote delivery using a blend of video groups, self-completed website sessions and coaching calls. Similar to an

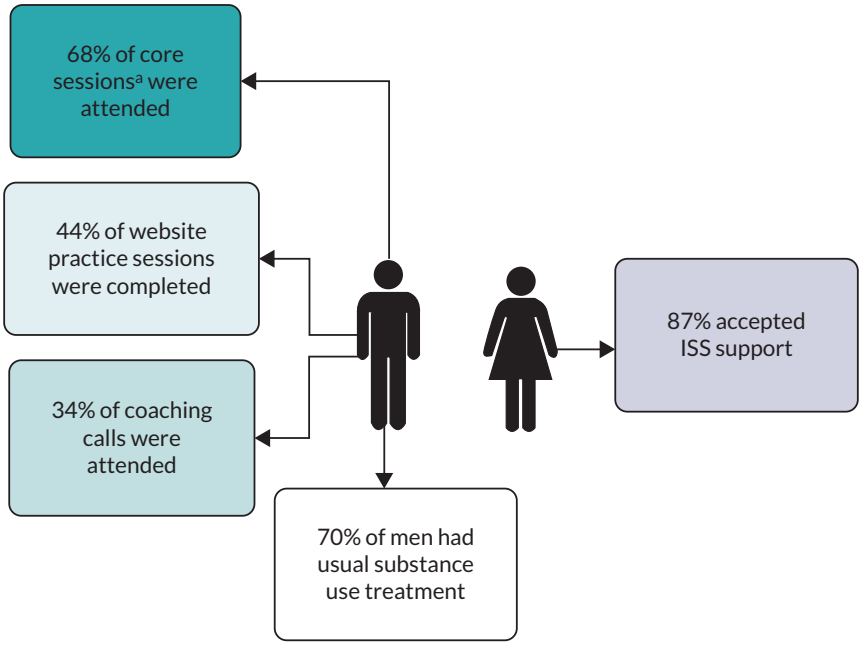

FIGURE 17 Summary of ADVANCE-D attendance by the type of session offered. a, core sessions = goal-setting session, 'welcome' video group session and 6 video group sessions.

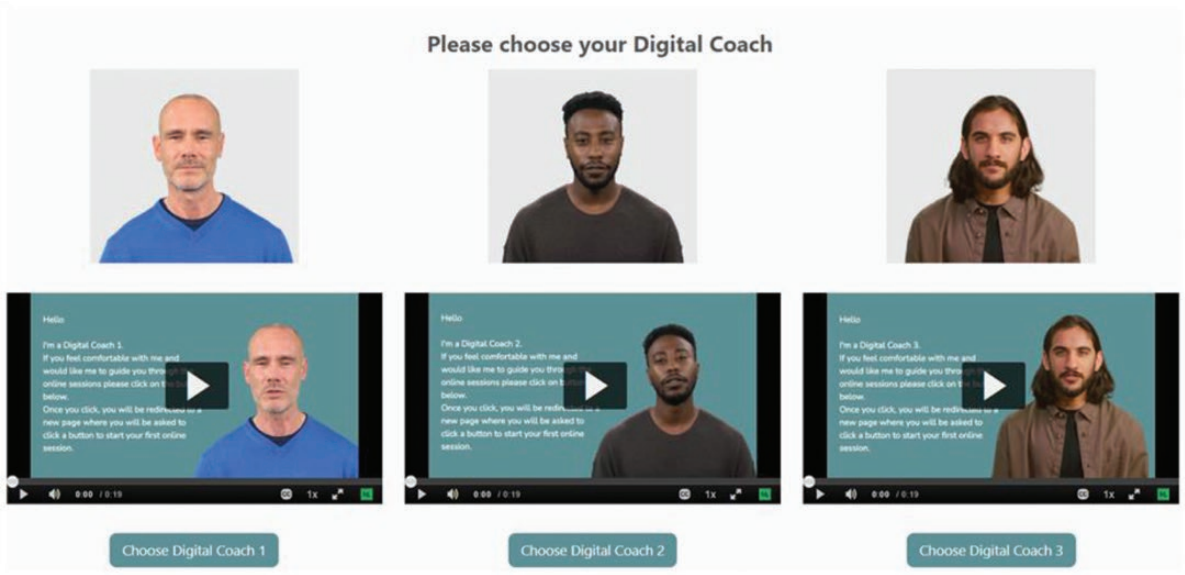

FIGURE 18 Updated ADVANCE-D avatar options.

exploratory study of a US online court-mandated perpetrator programme conducted pre COVID,[184] we found higher attendance by men in substance use treatment to ADVANCE-D than our in-person ADVANCE group intervention.[184] We also found higher retention and attendance in ADVANCE-D compared to ADVANCE. To our knowledge, this is the first evaluation of a digitally supported perpetrator intervention (for men who misuse substances) delivered during COVID-19.[183,190] By providing hardware, mobile data and headphones, we attempted to address digital poverty when delivering ADVANCE-D.

Limitations

The target sample size of 60 men was not reached. Findings are limited due to the small sample size and the non-randomised nature of this evaluation.

Cross-cutting work package: influencing policy and practice

Dissemination and debate

At inception of this programme grant, a blog and website were established to share findings, and post-relevant articles, reports and news on IPV and substance misuse. There are 68 subscribers to the ADVANCE blog, and 133 posts were published.

Findings were presented at 9 national and 35 international conferences. Eleven open access manuscripts were published. Two dissemination events were held at the research programme's conclusion: including 35 in person and 179 online national and international attendees. The hybrid event was opened by the Domestic Abuse Commissioner for England and Wales. A dissemination video was also produced: https://vimeo.com/725588324/4c3ce80940.

Summary reports were made available to participants, and presentations of findings were given to participating sites.

Learning Alliances

Learning Alliances consist of multiple stakeholders, disciplines and cultures working together to develop local cross-sector solutions.[191] We had previously established a successful Learning Alliance in London in 2014 which was continued during this programme. An additional Learning Alliance was established in the West Midlands. We aimed to hold 15 Learning Alliances, but 20 were held to guide the research by sharing experiences and informing best practice in IPV and substance misuse and transferring knowledge into practice, with many organisations participating in the piloting of ADVANCE and ADVANCE-D.

Conclusions on the research programme

What was and what was not successful

The ADVANCE has been offered to 54 men and ADVANCE-D to 40 men as part of feasibility work not designed to be able to demonstrate effectiveness. The promising findings should be interpreted with caution given the small sample sizes and study designs. A full effectiveness trial with longer-term follow-up is required to explore effectiveness. Our research has shown that both the in-person group (ADVANCE) and digitally supported (ADVANCE-D) interventions can be delivered safely by trained staff in substance use treatment. However, staff require protected time for delivery. The intervention content was well received by men and facilitators. Some men preferred digital over in-person sessions as they offered increased accessibility. Acknowledging that the non-randomised feasibility study of ADVANCE-D was conducted during the pandemic, we found higher attendance and follow-up rates for men offered ADVANCE-D compared to ADVANCE.

Direct comparison of attendance at ADVANCE and ADVANCE-D with other perpetrator interventions for men who misuse substances was difficult due to the heterogeneity in the duration and format of interventions. In the USA, a 12-session integrated individual intervention for court-mandated perpetrators who misuse substances found that 70% completed eight core sessions,[110] compared to 68% in ADVANCE-D. In the Netherlands, men attending Integrated treatment for Substance abuse and Partner violence, a 16-session group perpetrator intervention for men in substance misuse treatment, reported that 37% completed at least 75% of sessions (defined as treatment completion), with a mean of 9/16 sessions attended.[112] In ADVANCE-D, 59% of men completed at least 75% of the eight core sessions, and 48% of all 32 sessions offered were completed. Forty-four per cent of ADVANCE-D website sessions offered were completed. This finding is similar to one study of non-court-mandated, non-substance misusing perpetrators found they completed 44% of the eight online modules (guided self-help delivered via the internet with an identified therapist who provided support and guidance of therapeutic activities).[192]

Research, intervention development and adaptation were informed by the Learning Alliance and PWLE.

Implications for practice and lessons learnt

Our research identified the complex interplay between substance use and IPV perpetration in the context of intoxication, withdrawal, acquiring drugs, impact on relationships and wider dynamics of power, control and psychological vulnerabilities.

The systematic review and meta-analysis found little evidence for effective interventions to reduce IPV for men who misuse substances, highlighting the need for more research to identify what works for this population.

Findings from the feasibility RCT of the ADVANCE group intervention compared to TAU supported progression to a definitive trial.

While the pandemic necessitated a move from in-person to online intervention delivery,[193,194] ADVANCE-D has long-term applicability post pandemic, including in other settings. Supervised completion of ADVANCE-D website sessions and in-person (rather than remote) group and coaching sessions at substance use treatment services could enhance attendance, completion and engagement, and ensure adherence.

Integrated support for female (ex)-partners alongside regular case management meetings and clear, respectful and information sharing protocols are essential components of the ADVANCE and ADVANCE-D Programmes. Co-training and integrity support for facilitators and women's support services are needed to build strong professional relationships across services working with men and supporting women.

Recommendations for future research

Due to the small sample sizes in the evaluations of ADVANCE and ADVANCE-D and the limited data in our review, it was not possible to examine effective dosage or the effectiveness of individual intervention components. There remains a need for definitive comparative trials of these interventions.

Future studies should ensure outcomes from (ex)-partners are collected.[4]

Definitive trials of ADVANCE and ADVANCE-D are needed with longer-term follow-up recommended of at least 12 months, including an RCT comparing the effectiveness of ADVANCE and ADVANCE-D. Consideration should be given to using record linkage to assess recidivism and health and social care outcomes for perpetrators, victim/survivors and their children. Applicability of ADVANCE and ADVANCE-D in other settings and populations remains to be tested.

While working collaboratively with PWLE and key stakeholders effectively informed research phases and intervention development and adaptions based on experience and practice; the personal and professional impact of PPIE was not assessed. Further research to determine the impact of PPIE is needed.

Equality, diversity and inclusion

The proportion of ethnic (excluding White) minority men was 24% in both WP4(i) and WP4 (ii), representative of male substance use service users (ranging from 4% in the South West to 32% in London). A meta-analysis reported that service users strongly preferred a therapist with the same ethnicity.[195] Little health and social care research regarding digital therapy/interventions exists, but one study found most users chose avatars portraying their ethnicity.[196] A more recent review found online translation in medical consultations may improve patients' healthcare satisfaction.[197] WP4(ii), subsequent versions of the website avatar were developed, with PPIE input, to be more inclusive of other minority ethnic groups. Further research should determine whether additional languages and providing digital coaches portraying different ethnic minorities increases engagement and acceptability of the ADVANCE-D website sessions.

The ADVANCE and ADVANCE-D were designed intersectionally to ensure inclusivity, accessibility and suitability for male IPV perpetrators towards women from all cultures and ethnicities. Given the small sample of men from ethnic minority groups in our studies, nothing can be concluded about the acceptability and their progression through the programme. Further research with larger samples of ethnic minority men should explore ADVANCE and ADVANCE-D acceptability and effectiveness. Further research is needed to adapt ADVANCE and ADVANCE-D for women, and for gender and sexual minority groups.

A recent review of perpetrator programmes for ethnic minority men reported greater effectiveness with greater cultural engagement: through culturally trained facilitators, and addressing relevant cultural, patriarchal and gender norms.[198] ADVANCE and ADVANCE-D facilitators were trained to be culturally sensitive and responsive.

Men's average age in the ADVANCE and ADVANCE-D studies was over 40. In 2022–3, 60% of male substance use treatment users were over 40 years old and < 10% were under 30. Younger men might be reached through delivering the intervention to men in probation, armed forces, via police diversion schemes or other perpetrator services.

The intervention was designed to be inclusive and accessible for disabled (including learning disabilities) and neurodiverse men. The ADVANCE-D website includes a digital coach that speaks the words on screen to assist with literacy. Facilitators are encouraged to be flexible, adapt their input, provide between session support for those with additional needs (e.g. dyslexia or neurodiversity) and promote overlearning and automatic responding, given the short-term memory difficulties people with dyslexia can have.

A study exploring the experiences and perspectives of domestic abuse practitioners working with male perpetrators with autism and/or attention deficit hyperactivity disorder supported tailored and flexible approaches to programme delivery to address their specific needs, including preparation and support for programme engagement, addressing challenges with sensory sensitivities, programme structure and understanding of programme content.[199] Practitioners also recommended including one-to-one and/or online formats for neurodiverse men. While ADVANCE and ADVANCE-D acceptability for neurodivergent men remains to be explored, this report's recommendations were followed when designing ADVANCE-D. Both ADVANCE and ADVANCE-D interventions included one-to-one sessions, and ADVANCE-D allowed for flexibility and adapted content, and more one-to-one sessions (n = 13) and website sessions to build on group session discussions.

We developed the ADVANCE and ADVANCE-D programmes to reduce IPV in underserved men who misuse substances. Tablets (men), smartphones (women) and mobile data and technological support were provided to address digital poverty and literacy. Out with trial conditions, services or charities would need to meet these costs, but hardware could be reused with subsequent groups. Men could also attend services and use the services' Wi-Fi to complete the website sessions.

The PPIE included UK-wide people with IPV and/or substance misuse lived experience. The research team included members with a range of experience and expertise. More junior team members were supported with drafting manuscripts, grant applications and dissemination.

ADVANCE and ADVANCE-D addressed male-perpetrated IPV towards women. Future research should adapt or develop perpetrator programmes for gender and sexual minority groups.

Additional information

Contributions of authors

Gail Gilchrist (https://orcid.org/0000-0002-5616-6283) (Professor, Addictions). Was chief investigator for this programme and conceived the studies with the help of other authors, developed the research protocols in WP4(i), WP4(ii) and WP5, contributed to the design and adaptation of the ADVANCE [WP3(i)] and ADVANCE-D Programmes [WP3(ii)], chaired the London Learning Alliance and took overall responsibility for the programme management, manuscripts and dissemination. She led the drafting of this report.

Sandi Dheensa (https://orcid.org/0000-0002-6412-696X) (Research Fellow, Domestic Violence and Abuse Health Group). Conducted the feasibility RCT [WP4(i)] and non-randomised feasibility study [WP4(ii)]. She co-led the qualitative data analysis for these WP. She contributed to developing the evidence base that informed the adaptation of ADVANCE-D [WP3(ii)]. She contributed to manuscripts used in this report, dissemination and drafting this report.

Amy Johnson (https://orcid.org/0000-0002-0932-0276) (Research Assistant, Centre for Psychological Therapies). Collected and analysed the dyad interview data [WP1(i)], contributed to the systematic review (WP2), conducted the feasibility RCT [WP4(i)] and non-randomised feasibility study [WP4(ii)], contributed to the design [WP3(i)] and adaptation [WP3(ii)] of the ADVANCE and ADVANCE-D Programmes and contributed to manuscripts used in this report and dissemination.

Juliet Henderson (https://orcid.org/0000-0001-7795-6164) (Project Manager, Addictions). Was project manager and contributed to the meta-ethnography [WP1(i)] and the systematic review (WP2), collected and analysed the dyad interview data [WP1(ii)], conducted the feasibility RCT (WP4(i)) and non-randomised feasibility study [WP4(ii)], and contributed to developing the evidence base that informed the adaptation of ADVANCE-D [WP3(ii)]. She contributed to manuscripts used in this report and dissemination.

Polly Radcliffe (https://orcid.org/0000-0001-7414-8428) (Senior Research Fellow, Sociology and Addictions). Was a co-applicant and contributed to the conception of the studies in the programme grant. She was the qualitative methodological co-lead for the programme. She co-led the meta-ethnography [WP1(ii)], analysed the dyad interviews (WP2), conducted the feasibility RCT, and co-led the qualitative data analysis from the feasibility RCT [WP4(i)] and non-randomised feasibility study [WP4(ii)]. She contributed to manuscripts used in this report, dissemination and drafting this report.

Danielle Stephens-Lewis (https://orcid.org/0000-0001-6694-9954) (Research Fellow, Violence Prevention). Collected and analysed the dyad interview data [WP1(i)], contributed to the systematic review (WP2), conducted the feasibility RCT [WP4(i)], contributed to the design of the ADVANCE programmes [WP3(i)] and contributed to manuscripts used in this report and dissemination.

David Gadd (https://orcid.org/0000-0002-0362-7648) (Professor, Criminology). Was a co-applicant and contributed to the conception of the studies in the programme grant. He was the qualitative methodological co-lead for the programme. He co-led the meta-ethnography [WP1(i)], led the design and analysis of the dyad interviews [WP1(ii)], contributed to manuscripts used in this report and dissemination.

Beverly Love (https://orcid.org/0000-0003-0828-9876) (Research Fellow, Addictions). Conducted the feasibility RCT and contributed to the qualitative data analysis in WP4(i) and contributed to developing the evidence base that informed the adaptation of ADVANCE-D in WP3(ii). She contributed to manuscripts used in this report and dissemination.

Sabine Landau (https://orcid.org/0000-0002-3615-8075) (Professor, Statistics). Was a co-applicant and contributed to the conception of the studies in the programme grant. She was the quantitative methodological lead for the programme

and drafted the statistical sections of the protocol and SAP for WP4(i) and WP5 and interpreted the findings for the WP4(i). She contributed to manuscripts used in this report.

Laura Potts (https://orcid.org/0000-0002-2935-6532) (Trial Statistician, Statistics). Was the study statistician for WP4(i), she developed the first draft of the SAP for WP4(i) and WP5 and analysed WP4(i) and interpreted the findings. She contributed to manuscripts used in this report.

Steve Parrott (https://orcid.org/0000-0002-0165-1150) (Reader, Health Economics). Was a co-applicant and contributed to the conception of the studies in the programme grant. He was the health economics methodological lead for the programme, drafted the economic evaluation sections of the protocol for WP4(i), WP4(ii) and WP5 and interpreted the findings for the WP4(i) and WP4(ii). He contributed to manuscripts used in this report.

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Acknowledgements

The study team acknowledges the support with recruitment given by the NIHR South London Clinical Research Network for WP4(i) and the support received from King's Clinical Trials Unit. We would like to thank the participants, facilitators, services, members of the Learning Alliances and patient and public involvement (PPI) groups and local study champions. We would also like to acknowledge Dr Alison John, King's College London for overseeing the administration and financial management of the research programme; Dr Alyson Hunter, University of Bristol, for her contribution to the systematic review (WP2); Dr Benjamin Gardner, King's College London for his expertise in applying intervention design processes (WP3); Liz Ostrowski, Consultant from Respect, contributed to the design of ADVANCE-D [WP3(ii)] and Dr Lukasz Zalewski, King's College London, for supporting and managing the research platform that hosted ADVANCE-D during the non-randomised feasibility study [WP4(ii)]. The authors also acknowledge use of the research computing facility at King's College London, *Rosalind*. We would also like to thank

the designers and developers of the ADVANCE-D website [WP4(ii)] from Rochester Institute of Technology (version used in the non-randomised feasibility study) and from William Joseph (updated version of the website and avatars post study).

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Data-sharing statement

All data requests should be submitted to the corresponding author for consideration. Access to anonymised data may be granted following review.

Ethics statement

Ethical approval was granted for WP1(ii) from London – Stanmore Research Ethics Committee (Reference 17/LO/0395 on 30 March 2017. Ethical approval was granted for WP4(i) from the London – Fulham Research Ethics Committee (REC Reference 18/LO/0492) on 29 March 2018. Ethical Approval was granted for WP5 from York and The Humber – Sheffield Research Ethics Committee on (Reference 19/YH/0445) on 7 February 2020 and the amendment to change the methodology to a non-randomised feasibility study of ADVANCE-D for WP4(ii) was granted on 25 January 2021. Ethical approval was not required for WP1(i), WP2, WP3(i) or WP3(ii).

Information governance statement

King's College London is committed to handling all personal information in line with the UK Data Protection Act (2018) and the General Data Protection Regulation (EU GDPR) 2016/679. Under Data Protection legislation, The University of Edinburgh, the University of Bristol, the University of Worcester, Rochester Institute of Technology, Mary McMurran and RESPECT were Data Collaborators; King's College London was the Data Controller, and personal data were processed in accordance with their instructions.

Disclosure of interests

Full disclosure of interests: Completed ICMJE forms for all authors, including all related interests, are available in the toolkit on the NIHR Journals Library report publication page at https://doi.org/10.3310/AARR6611.

Primary conflicts of interest: None reported.

Publications

Huntley A, Stephens-Lewis D, Johnson A, McMurran M, Henderson J, Gilchrist E, *et al.* Determining the efficacy of interventions to reduce intimate partner violence (IPV) perpetration by men who use substances: a systematic review and meta-analysis. PROSPERO 2017:CRD42017056596. URL: www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42017056596

Gadd D, Henderson J, Radcliffe P, Stephens-Lewis D, Johnson A, Gilchrist G. The dynamics of domestic abuse and drug and alcohol dependency. *Brit J Criminol* 2019;**59**:1035–53. https://doi.org/10.1093/bjc/azz011

Gilchrist G, Dennis F, Radcliffe P, Henderson J, Howard LM, Gadd D. The interplay between substance use and intimate partner violence perpetration: a meta-ethnography. *Int J Drug Policy* 2019;**65**:8–23. https://doi.org/10.1016/j.drugpo.2018.12.009

Gilchrist G, Landau S, Radcliffe P, McMurran M, Feder G, Easton C, *et al.* A study protocol to assess the feasibility of conducting an evaluation trial of the ADVANCE integrated intervention to address both substance use and intimate partner abuse perpetration to men in substance use treatment. *Pilot Feasibility Stud* 2020;**6**. https://doi.org/10.1186/s40814-020-00580-7

Gilchrist E, Johnson A, McMurran M, Stephens-Lewis D, Kirkpatrick S, Gardner B, *et al.* Using the behaviour change wheel to design an intervention for partner abusive men in drug and alcohol treatment. *Pilot Feasibility Stud* 2021;**7**:191. https://doi.org/10.21203/rs.3.rs-136363/v1

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Appendix 1 Work package 1(i): summary of studies included in the meta-ethnography

Author	Aims	Country	Sample	Methods
Abdul-Khabir *et al.*[50]	'Explore methamphetamine-using women's experiences with IPV and reproductive health concerns'	USA	30 female methamphetamine users. Participants reported IPV (*n* = 19, 63%) as survivors (50%), perpetrators (40%) and/or both (27%)	Semistructured short interview
Boonzaier and de la Rey[51]	How women give meaning to their experiences of violence	South Africa	15 female survivors	Narrative interviews
Brazier[52]	'Explore how … women's experiences of IPA are embedded in and shaped by the historical and current socio-political context organising their everyday lives'	Canada	35 female survivors	In-depth interviews
Dhar[53]	'To get an in-depth understanding of the causes and concerns relating to domestic violence in the rural Indian context'	India	15 female survivors	In-depth interview
Ezard[54]	To explore alcohol use among conflict-displaced populations	Thailand	32 women, 67 men (unknown whether survivors or perpetrators). All men and 12/32 women drank	Interviews
Galvani[55]	'Explored women's views and experiences of alcohol's role in their partners violence to them'	England	20 female survivors	In-depth interviews
Gilbert *et al.*[56]	'Explored how partner violence may be related to psycho-pharmacological effects of drugs and to conflicts over procuring and splitting drugs'	USA	68 female survivors	Focus groups
Gilchrist *et al.*[57]	'Examine factors associated with IPV by male substance users'	Spain	17 male perpetrators	Mixed-methods surveys and in-depth interviews
Go *et al.*[58]	'Examine the pathways by which gender norms may influence marital violence'	India	23 men and 25 women (unknown whether survivors or perpetrators)	Interviews and focus groups
Hamilton and Goeders[59]	'Explore accounts of perpetrated violence among meth-using women'	USA	30 female methamphetamine users. 80% (*n* = 24) reported experiencing violence in their lifetimes: 67% (*n* = 20) had violence perpetrated against them, and 57% (*n* = 17) had perpetrated violence	In-depth interviews
Hayashi[60]	'Explores the experiences and determinants of IPV from the perspective of methamphetamine-using men and women'	USA	20 male (9 survivors of physical or sexual IPV) and 20 female (16 survivors of physical or sexual IPV) methamphetamine users. All participants reported experiencing psychological abuse	In-depth interviews
Hearn[61]	'Explores men's accounts of their violence towards known women'	England	75 male perpetrators of violence to known women	Interviews
Ludwig-Barron *et al.*[62]	Explores methamphetamine-using women's narratives of being taken hostage	USA	4 female methamphetamine users who had experienced hostage-taking	Interviews

Author	Aims	Country	Sample	Methods
Macy *et al.*[63]	Investigate the relationship between partner violence and substance abuse among women in substance use treatment services	USA	15 female survivors	Interviews
Matamonasa-Bennett[64]	'Explore the social/cultural factors in the intersections between alcohol and IPV'	USA	9 men with experiences of IPV, 5 of whom had perpetrated IPV, 2 were victims	Semistructured interviews
Mathews *et al.*[65]	Explores the views of incarcerated men who killed their partner on their violence and relationships with women	South Africa	20 males who killed their partners and family/friends of both survivor and perpetrator (number not stated)	Longitudinal interviews (3–4 with each man)
Menon[66]	Explores the role of patriarchal structures, mainly family structures, in relation to IPV	India	80 female survivors	Mixed-methods survey data and interviews
Nemeth *et al.*[67]	Examines acute, situational factors and chronic stressors that triggered severe intimate partner violence, which lead to man's detention	USA	17 dyads (17 male perpetrators and their female partners)	Recorded phone conversations
O'Brien *et al.*[68]	'Investigate the substance-related experiences of system-involved IPV survivors' who had been mandated to child protection programmes	USA	22 female survivors (majority had history of substance use)	Mixed-methods questionnaire and in-depth interviews
Radcliffe *et al.*[69]	'To better understand cross cultural constructions of IPV perpetration amongst men in treatment for substance use'	Brazil and England	40 male perpetrators (20 from England and 20 from Brazil)	Semistructured interviews
Satyanarayana *et al.*[70]	'Explored the intersection among alcohol consumption, gender roles, intimate partner violence (IPV) and mental health from the perspective of heavy drinking men who also perpetrate IPV and survivors'	India	10 male perpetrators and 10 female (unrelated) survivors	In-depth interviews
Watt[71]	'Describes the experience of male perpetrators of IPV to understand their perspective'.	USA	9 male perpetrators	Interviews
Watt *et al.*[72]	Mixed-methods study '(1) to examine experiences of physical IPV among methamphetamine users; (2) to identify factors associated with being a victim or perpetrator of IPV; and (3) to qualitatively examine the broader context of IPV in this population'	South Africa	17 male (4 perpetrators and 1 survivor) and 13 female (8 survivors) methamphetamine users	Mixed-methods questionnaire and in-depth interviews
Wilson *et al.*[73]	'Explores the dynamics of drinking and IPV from the perspectives of women with lived experience of alcohol-related IPV'; 'Alcohol's role in initiation and escalation of IPV'	Australia	18 female survivors	Interviews
Wood[74]	'Understand men's perspective on violence in their relationships with women'. 'All of the men had volunteered to participate in ISTOP, a 13-week program to change men who abuse partners'	USA	22 male perpetrators	Ethnographic methods and interviews
Wright *et al.*[75]	'Explore women drug users' experiences of abuse from intimate partners when being injected with illicit drugs'	England	45 women who inject drugs (not all identified as survivors)	Interviews

Appendix 2 Work package 4(i): the health economics report for the ADVANCE feasibility randomised controlled trial

Methods

The intervention costs consisted of cost of training healthcare professionals, post-training support and cost of the delivery of intervention. The related information was recorded by the research team. The trainers' time was costed at NHS band 7 of community-based scientific staff (£53/hour), and the trainees' time was costed at NHS band 5 of the same category (£34/hour).[1] The clinical supervisor was costed at the same band as the trainers.

Participants' and their current/ex-partners' service use was collected using self-reported questionnaires at baseline and 16-week follow-up. The services covered 'please see results'.

Outcome measures in economic evaluation were EuroQol-5 Dimensions, three-levelversion (EQ-5D-3L)[2] and the ICEpop CAPability measure for Adults (ICECAP-A).[3]

No formal cost-effectiveness analysis was conducted. Intervention costs were presented. Descriptions of services use and outcomes were presented by study arm on an intention-to treat basis. Recommendations with regard to the data collection for a cost-effectiveness analysis in a full economic evaluation were made based on completeness and frequency of use reported by the participants.

Results

Intervention costs

Table 14 shows the breakdown of the costs of training. The training sessions were held twice. Intervention was delivered in two cycles in each site. One site had another cycle planned, but it did not take place. The support sessions were costed for two cycles each site.

Among 54 participants in intervention arm, the cycle did not happen applied to seven participants. Nineteen never attended any pre-group individual sessions, 27 attended 2 and 1 attended 3. Length of these pre-group sessions were missing for three participants. The mean delivery cost of pre-group sessions was £35 per participant (n = 25).

Twenty participants did not attend any group sessions, while the rest attended from 1 to 11 sessions (mean 5.6 sessions, SD 3.5). The sessions were held 71 times in total. The median number of participants per group session was two (range 1–7). Thirty-two sessions were only attended by one participant. Overall, the total group session duration was 126.25 hours, leading to a total of £8585 in costs.

Service use

Table 15 lists participants' responses to the use of substance misuse treatment or healthcare service in relation to drug/alcohol-related problem. The most used medicine was methadone in both arms, followed by buprenorphine.

Less than half of the current/ex-partners in each arm reported any use of substance misuse treatment. Methadone remained the most used medications for drug/alcohol-related problem.

Table 16 lists participants' use of the healthcare and social services covered in the questionnaire. *Table 17* lists participants' use of the community healthcare and social services.

TABLE 14 Breakdown of training costs for the intervention

Cost item	Unit cost, £	Description	Costs, £
Training session round 1			
Accommodation and travelling	–	Hotel, catering, parking and travel where necessary	3610
Trainers' time	53	7.5 hours × 2 days × 2 trainers	1590
Trainees' time	34	7.5 hours × 2 days × 18 trainees	9180
Training session round 2			
Accommodation and travelling	–	Hotel and travel where necessary	3160
Trainers' time	53	7.5 hours × 3 days × 2 trainers	2385
Trainees' time	34	7.5 hours × 3 days × 14 trainees	10,710
Other			
Printing of manuals, booklets	–	–	895
Support session			
Supervisors' time	53	(1 hour session + 1 hour paperwork) × 6 sessions × 3 sites × 2 cycles	3816
Facilitators' time	34	(1 hour session + 1 hour paperwork) × 6 sessions × 32 facilitators/ISS workers × 2 cycles	26,928
Total costs			62,784

TABLE 15 Participants' use of substance misuse treatment or healthcare services in relation to substance misuse, by arm

	Baseline				16 weeks			
	Intervention		Control		Intervention		Control	
	n of null use	*n* (range) when use > 0	*n* of null use	*n* (range) when use > 0	*n* of null use	*n* (range) when use > 0	*n* of null use	*n* (range) when use > 0
	n = 54		*n* = 50		*n* = 22		*n* = 29	
Outpatient appointment	38[a]	15 (1–32)	36	14 (1–32)	17	5 (5–32)	23	6 (1–40)
Community-based service	2[b]	50 (1–75)	4[a]	45 (1–88)	6	16 (1–16)	3[a]	25 (1–20)
Ambulance (treat at scene)	46	8 (1–4)	44	6 (1–2)	22	0 (–)	26	3 (1–4)
Ambulance (transport)	48	6 (1–4)	41	9 (1–2)	22	0 (–)	24	5 (1–4)
A&E outpatient	45	9 (1–5)	46	4 (1–1)	22	0 (–)	26	3 (1–1)
A&E admission	48	6 (1–2)	44	6 (1–1)	22	0 (–)	27	2 (1–4)
Walk-in centre outpatient	51	3 (1–3)	47	3 (1–5)	22	0 (–)	28	1 (2)
Walk-in centre admission	52	2 (1–1)	50	0 (–)	22	0 (–)	29	0 (–)
MIU/urgent care centre outpatient	53	1 (1)	49	1 (1)	22	0 (-)	28	1 (1)
MIU/urgent care centre admission	54	0 (–)	50	0 (–)	22	0 (–)	29	0 (–)
Detoxification in hospital	52	2 (7–14)	49	1 (13)	22	0 (–)	29	0 (–)
Detoxification in residential unit	51	3 (6–14)	49	1 (19)	22	0 (–)	29	0 (–)
Rehabilitation in residential unit	53	1 (56)	50	0 (–)	22	0 (–)	29	0 (–)

A&E, accident and emergency; MIU, minor injury unit.
a One participant with missing data.
b Two participants with missing data.

TABLE 16 Participants' use of primary care, emergency and secondary care services, by arm

Services	Baseline				16 weeks			
	Intervention		Control		Intervention		Control	
	n of null use	*n* (range) when use > 0	*n* of null use	*n* (range) when use > 0	*n* of null use	*n* (range) when use > 0	*n* of null use	*n* (range) when use > 0
	n = 54		*n* = 50		*n* = 22		*n* = 29	
GP in office	12	42 (1–16)	14	36 (1–10)	8	14 (1–6)	12	17 (1–20)
GP at home	53	1 (1)	50	0 (–)	22	0 (–)	29	0 (–)
GP on telephone	40	14 (1–16)	39	11 (1–8)	19	3 (1–3)	19	10 (1–16)
Practice nurse in office	32	22 (1–9)	34	16 (1–3)	17	5 (1–24)	22[a]	6 (1–4)
Practice nurse at home	54	0 (–)	50	0 (–)	22	0 (–)	27[a]	1 (1)
Practice nurse on telephone	51	3 (1–2)	47	3 (1–1)	22	0 (–)	28[a]	0 (–)
Ambulance (treat at scene)	52	2 (2–3)	46	4 (1–1)	22	0 (–)	26	3 (1–2)
Ambulance (transport)	50	4 (1–2)	46	4 (1–1)	21	1 (1)	26	3 (1–2)
A&E outpatient	45	9 (1–2)	42	8 (1–4)	19	3 (1–1)	27	2 (1–1)
A&E admission	51	3 (1–2)	47	3 (1–1)	22	0 (–)	28	1 (2)
Walk-in centre outpatient	52	2 (1–2)	49	1 (1)	22	0 (-)	28	1 (1)
Walk-in centre admission	54	0 (–)	50	0 (–)	22	0 (–)	28	1 (1)
MIU/urgent care centre outpatient	53	1 (1)	48	2 (1–2)	21	1 (2)	28	1 (1)
MIU/urgent care centre admission	54	0 (–)	50	0 (–)	22	0 (–)	29	0 (–)
Outpatient appointment	45	9 (1–6)	39	11 (1–4)	19	3 (1–3)	22	7 (1–3)
Psychiatry outpatient	52	2 (2–2)	47	3 (1–2)	21	1 (3)	28	1 (1)
Psychology outpatient	52	2 (1–3)	50	0 (–)	22	0 (–)	28	1 (1)
Day case	52	2 (1–2)	46	4 (1–1)	22	0 (–)	28	1 (1)
Inpatient (episode)	50	4 (1–1)	44	6 (1–30)	21	1 (1)	27	2 (1–1)
Inpatient (nights)	50	4 (1–20)	44	6 (1–30)	21	1 (2)	27	2 (5–7)

GP, general practitioner.
a One participant with missing data.

For current/ex-partners, the use pattern was similar to the male participants. Most of current/ex-partners received prescriptions, some regularly. Few community and social services were used.

Maximum of 10 participants or their current/ex-partners in one arm at one time point had children under 18 stayed with them. Only one or two in one arm at one time point used any services, most of which was prescription.

Among those who had children under 18, overall majority did not have children in care. Two participants in the intervention arm and three in the control arm had children in care at baseline. One current/ex-partner in the intervention arm reported two children in care. At 16 weeks, no male or female reported having children in care at 16 weeks.

Most participants did not have any contacts with policing and criminal justice system. Around one-fifth of participants in each arm at baseline reported arrest, caution or Penalty Notice for Disorder (PND) by police and meeting probation officers. For current/ex-partners, only one in the intervention arm has seen a probation officer.

TABLE 17 Participants' use of community healthcare and social services, by arm

	Baseline				16 weeks			
	Intervention		Control		Intervention		Control	
	n of null use	*n* (range) when use > 0	*n* of null use	*n* (range) when use > 0	*n* of null use	*n* (range) when use > 0	*n* of null use	*n* (range) when use > 0
	n = 54		*n* = 50		*n* = 22		*n* = 29	
NHS 111	48	6 (1–2)	41	9 (1–4)	22	0 (–)	24	5 (1–5)
NHS counsellor	51	3 (6–16)	45	5 (1–4)	21	1 (5)	26[a]	2 (1–3)
Community psychiatric nurse	51	3 (1–4)	47	3 (1–4)	22	0 (–)	27	2 (2–4)
Clinical psychologist	52	2 (1–2)	49	1 (1)	22	0 (–)	29	0 (–)
Psychiatrist	51	3 (1–6)	47	3 (1–4)	22	0 (–)	27	2 (1–3)
Crisis resolution team	53	1 (2)	49	1 (1)	22	0 (–)	26[a]	2 (1–4)
District nurse	51	3 (1–2)	48	2 (1–2)	20	2 (2–24)	28	1 (1)
Health visitor	53	1 (2)	40	0 (–)	22	0 (–)	29	0 (–)
Occupational therapist	53	1 (1)	49	1 (1)	22	0 (–)	29	0 (–)
Physiotherapist	50	4 (1–4)	46	4 (1–7)	21	1 (4)	26	3 (1–6)
Prescriptions	20	34 (1–60)	10[a]	39 (1–56)	10	12 (1–18)	13	16 (1–25)
Social worker	48	6 (1–4)	46	4 (1–8)	21	1 (2)	25	4 (1–4)
Family support worker	53	1 (1)	48	2 (2–8)	22	0 (–)	28	1 (2)
Home care service (times)	54	0 (–)	50	0 (–)	21	1 (3)	28	1 (2)
Home care service (hours)	54	0 (–)	50	0 (–)	21	1 (2)	27[b]	0 (–)
Helpline	53	1 (1)	49	1 (1)	22	0 (–)	27	2 (1–2)

a One participant with missing data.
b Two participants with missing data.

Housing service and legal service were rarely used by both participants and their current/ex-partners. Overall, majority of participants in either arm remained unemployed throughout the study period. Paid time off was rare.

Outcomes

Figure 19 indicates that the factors affecting the QoL measured by EQ-5D-3L in the participants were mental rather than physical. Female current/ex-partners' response patterns were similar.

Figure 20 illustrates that most participants did not feel completely able to reach their full capacity in all domains of ICECAP-A, the worst of which was stability. The current/ex-partners' response reflected similar patterns.

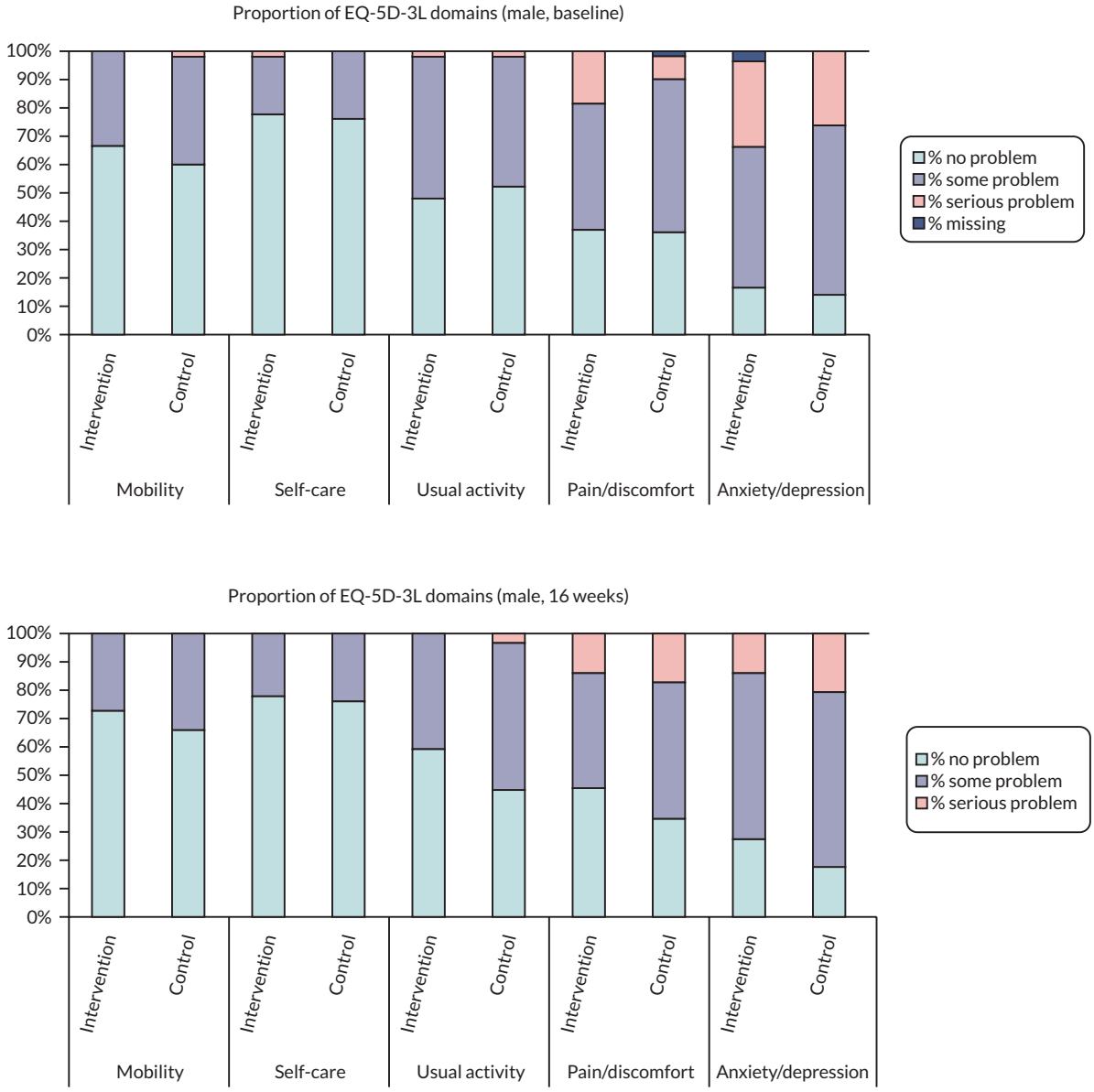

FIGURE 19 Proportion of participants rating on EQ-5D-3L domains at baseline and 16 weeks, by arm.

Discussion

For the feasibility study, the training was held in locations that were convenient for organising rather than for the facilitators. This led to travel and accommodation for majority of the facilitators/ISS workers attending the training, which might not be the most economical way of organising.

The missing data were mainly due to lost to follow-up. Item missing occurred rarely. Community mental health services appear to vary in terms of providers and may be under different names. Charities and voluntary services bring further confusion.

Housing services and refuge appeared to be rarely used, therefore might not be the major concern for the study population. The term 'use' appeared to be misleading as simple consultation might be considered 'use'. Given the high proportion of unemployment in the study sample, the assessment of productivity loss due to absence from work appears redundant.

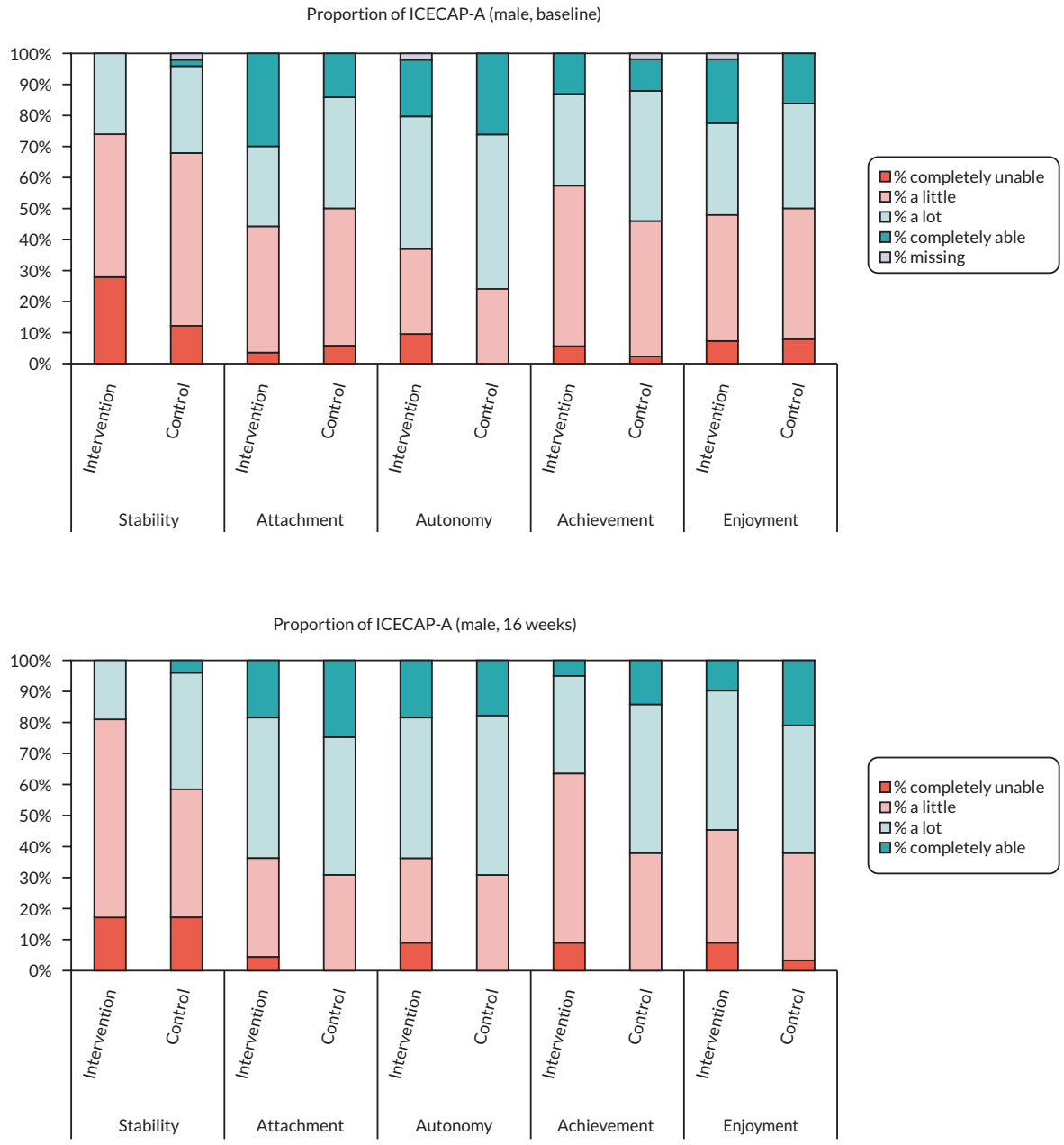

FIGURE 20 Proportion of participants rating on ICECAP-A at baseline and 16 weeks, by arm.

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Appendix 3 Work package 4(ii): the health economics report for the ADVANCE-D non-randomised feasibility study

Methods

Intervention costs consisted of development/design costs of the digital ADVANCE programme and operational costs of the intervention. Development/design costs included system/software design and development costs and new multimedia producing cost. Operational costs of the intervention included costs that occurred in staff training and intervention delivery with TAU alongside.

The training programme was planned to be delivered online over 3 days, followed by a one-hour video material to watch. Hard copies of B-SAFER manuals were obtained and posted to all seven sites. The women's support workers were to receive additional DASH training over 2 half-days. Following the training, 2-hour support session with the trainer was planned fortnightly. The costs of sustaining the digital platform were estimated based on the estimates made by the information technology department of King's College London. The intervention delivery was recorded as intervention progressed. The TAU sessions were similarly recorded and costed based on staff time and average staff pay grade with salary on-costs.

A bespoke service use questionnaire was administered as part of the CRF at baseline and 4-month follow-up, to collect the quantities of individual service use, covering a recall period of 4 months on both occasions. The services covered 'please see results'.

The outcome measures for economic evaluation was EQ-5D-3L[1] and the ICECAP-A.[2]

By the summary of the service use, the commonly used services and rarely used services were identified. The completeness of the different parts of the questionnaire was examined. We used the results to make suggestions for further revision of CRF in a full RCT.

Results

Intervention and treatment as usual costs

Design/development took 10 months, and it took approximately 8 months to complete delivery to all participants. The total design and development costs amounted to £73,150.

The training was held twice. Some attendees had received part of the training for their previous roles, so they did not attend the training programme in full. Due to turnover of staff post training, two additional facilitators had to be trained later via video-recording from the training programme and 1 hour telephone coach with the trainer, respectively. The training costs amounted to £48,375.

Five male participants became ineligible/withdrew before the intervention started, and one was unable to attend when the intervention started. One participant did not attend any individual sessions. The mean total duration of individual sessions was 150 minutes (SD 132) per participant (n = 31). The mean cost of individual sessions was £84 (SD £80) per participant (n = 33).

In total, 44 group sessions were conducted (mean duration = 65 minutes, SD = 8). Ten sessions were only attended by one participant, and four participants did not attend any group session. The total duration of the group sessions were

47.3 hours, costing £1704. The weighted mean cost of group session was estimated at £43 (SD £28) per participant (n = 40).

The operational costs of digital platform allocated to the delivery period were £4536.

Thirty-three participants had records of TAU, five of which did not attend any. Most of TAU were in the form of one-to-one session.

Nineteen female participants had records for women's support call, four of which were not offered and two were offered but did not accept. Among the 13 women that had taken support calls, the duration of the calls was not recorded for three. The calls took from 2 to 15 minutes.

Table 18 shows the number of participants with available data to estimate the costs and the mean costs of training, facilitated sessions, digital platform, TAU sessions and women's support call.

Service use

Most male participants received substance misuse treatment through community-based services (*Table 19*). Much fewer female participants received it.

Less than half male participants were prescribed medication for their alcohol/drug use, with most used medication as methadone, followed by buprenorphine and acamprosate. Few female participants were prescribed medication for alcohol/drug use, all of which were methadone.

Table 20 shows the number of participants used each of the healthcare services and their median number of use and its range. All services showed a pattern of using by a small number of participants.

Table 21 shows the number of participants used each of the community-based healthcare services and their median number of use and its range. All services, except for prescription, showed a similar pattern of being used only by a small number of participants.

One-fourth to one-third male participants and lower than half of female participants had children under 18 staying with them. Fewer than five participants at any point reported their children using any services, mostly prescription and social

TABLE 18 Summary of mean costs of intervention, TAU and women's support

Item	*n*	Costs, mean (SD)
Intervention training Per male participant	40	£1209 (–)
Intervention training Per staff member trained	28	£1728 (–)
Intervention sessions delivered by facilitator Per male participant	33	£131 (£98)
Intervention digital platform Per male participant	40	£113 (–)
Intervention digital platform Per site	7	£648 (–)
TAU sessions Per male participant	33	£113 (£123)
Women's support call Per female participant	16	£106 (£137)

TABLE 19 Number of participants use and median number of uses among them in the 4 months before baseline and follow-up interviews

	Baseline		4 months	
	n of use > 0 (%)	Median (IQR, range) of use	*n* of use > 0 (%)	Median (IQR, range) of use
Male participant	***N* = 44**		***N* = 25**	
Outpatient appointment	10 (23%)	4 (1–4, 1–10)	2 (8%)	1.5 (1–2, 1–2)
Community-based service	42 (95%)	6 (3–10, 1–64)	21[a] (84%)	8 (4–16, 1–32)
Ambulance	3 (7%)	1 (1–1, 1–1)	0 (–)	–
A&E outpatient	4 (9%)	1 (1–1.5, 1–2)	1 (4%)	2 (–)
A&E admission	2 (5%)	1 (1–1, 1–1)	0 (–)	–
Female participant	***N* = 21**		***N* = 10**	
Outpatient appointment	0 (–)	–	1 (10%)	2 (–)
Community-based service	5 (24%)	8 (4–8, 1–8)	2 (20%)	10 (4–16, 4–16)
Ambulance	1 (5%)	1 (–)	0 (–)	–
A&E outpatient	0 (–)	–	0 (–)	–
A&E admission	0 (–)	–	0 (–)	–

A&E, accident and emergency.
a Two participants reported unknown.

TABLE 20 Number of participants used healthcare services and their median number of uses

	Baseline		4 months	
	n of use > 0 (%)	Median (IQR, range) of use	*n* of use > 0 (%)	Median (IQR, range) of use
Male participant	***N* = 44**		***N* = 25**	
GP in person or online	5 (11%)	2 (1–3, 1–3)	8 (32%)	1 (1–2, 1–3)
GP on telephone	22 (50%)	2 (2–4, 1–8)	14 (56%)	2 (1–3, 1–10)
Practice nurse in person or online	5 (11%)	1 (1–2, 1–2)	3 (12%)	1 (1–16, 1–16)
Practice nurse on telephone	4 (9%)	2 (1.5–2.5, 1–3)	4 (16%)	1 (1–1.5, 1–2)
Ambulance	4 (9%)	1 (1–1, 1–1)	2 (8%)	1 (1–1, 1–1)
A&E outpatient	2 (5%)	1 (1–1, 1–1)	6 (24%)	1 (1–1, 1–2)
A&E admission	3 (7%)	1 (1–1, 1–1)	0 (–)	–
Outpatient appointment	4 (9%)	5.5 (1–12.5, 1–15)	4 (16%)	1 (1–2, 1–3)
Psychiatry outpatient	0 (–)	–	0 (–)	–
Psychology outpatient	0 (–)	–	0 (–)	–
Day case	0 (–)	–	0 (–)	–
Inpatient (episode)	1 (2%)	1 (–)	1 (4%)	1 (–)
Inpatient (nights)	1 (2%)	5 (–)	1 (4%)	18 (–)
Female participant	***N* = 21**		***N* = 10**	
GP in person or online	9 (43%)	1 (1–1, 1–2)	4 (60%)	1.5 (1–5, 1–8)
GP on telephone	14[a] (67%)	2 (1–4, 1–8)	7 (70%)	3 (1–5, 1–8)

TABLE 20 Number of participants used healthcare services and their median number of uses (*continued*)

	Baseline		4 months	
	n of use > 0 (%)	Median (IQR, range) of use	*n* of use > 0 (%)	Median (IQR, range) of use
Practice nurse in person or online	7 (33%)	1 (1–1, 1–5)	2 (20%)	2.5 (1–4, 1–4)
Practice nurse on telephone	3 (14%)	2 (1–3, 1–3)	2 (20%)	1 (1–1, 1–1)
Ambulance	3 (14%)	1 (1–1, 1–1)	2 (20%)	1.5 (1–2, 1–2)
A&E outpatient	5 (24%)	1 (1–1, 1–3)	2 (20%)	1.5 (1–2, 1–2)
A&E admission	3 (14%)	1 (1–3, 1–3)	1 (10%)	2 (–)
Outpatient appointment	5 (24%)	2 (1–7, 1–12)	3 (30%)	2 (1–4, 1–4)
Psychiatry outpatient	0 (–)	–	0 (–)	–
Psychology outpatient	0 (–)	–	0 (–)	–
Day case	2 (10%)	1 (1–1, 1–1)	0 (–)	–
Inpatient (episode)	1 (5%)	1 (–)	0 (–)	–
Inpatient (nights)	1 (5%)	1 (–)	0 (–)	–

a One participant reported unknown, one participant was not asked.

TABLE 21 Number of participants used community-based healthcare and social services and their median number of uses

	Baseline		4 months	
	n of use > 0 (%)	Median (IQR, range) of use	*n* of use > 0 (%)	Median (IQR, range) of use
Male participant	***N* = 44**		***N* = 25**	
Community mental health services	4 (9%)	3 (1.5–4, 1–4)	2[a] (8%)	4 (1–7, 1–7)
	3 (7%)	1 (1–2, 1–2)	1 (4%)	47 (–)
	27[a] (61%)	4 (1–4, 1–16)	12 (48%)	4.5 (2–9, 1–16)
Social services	4 (9%)	1 (1–8.5, 1–16)	5 (20%)	3 (2–4, 1–12)
Female participant	***N* = 21**		***N* = 10**	
Community mental health services	3 (14%)	3 (1–4, 1–4)	2 (20%)	5 (1–9, 1–9)
Community health services	1[a] (5%)	1 (–)	1 (10%)	1 (–)
Prescriptions	15 (71%)	4 (2–12, 1–32)	6 (60%)	5 (2–10, 1–14)
Social services	7 (33%)	1 (1–5, 1–13)	0 (–)	–

a One participant reported unknown.

services. Fewer than five male participants had their children in care, some of which were long term for multiple kids. No female participants reported having their children in care.

Fewer than 10 male participants had any contact with police or justice system, mostly police arrest, caution or PND and meeting probation officer. Only two female participants had contacts.

Two male participants and three female participants stayed with Local Authority housing service. All of these were free.

Six out of the seven male participants sought legal advice on Legal Aid. Three out of five female participants' legal advice were covered by Legal Aid.

No male participant reported attending other community group programme for domestic violence or abusive behaviour.

Outcomes

Figures 21 and *22* illustrate that the most male participants had at least some problems in anxiety/depression and pain/discomfort on EQ-5D-3L. Female participants not only reported at least some problems in anxiety/depression; they also reported severe problems in mobility, self-care and usual activity.

Figures 23 and *24* illustrate that most male participants felt less than complete capability in life, worst of which were stability and achievement. The female participants scored higher in attachment and autonomy attributes but lower in stability, achievement and enjoyment.

Discussion

Lost to follow-up is the main reason for missing data. The completeness and correctness were secured by the pre-specified data ranges for database. The use of mandated codes of 'not asked', 'not applicable' and 'unknown' helped improve the quality of data collection. However, clearer clarification of these terms should be given to researchers who conducted data collection.

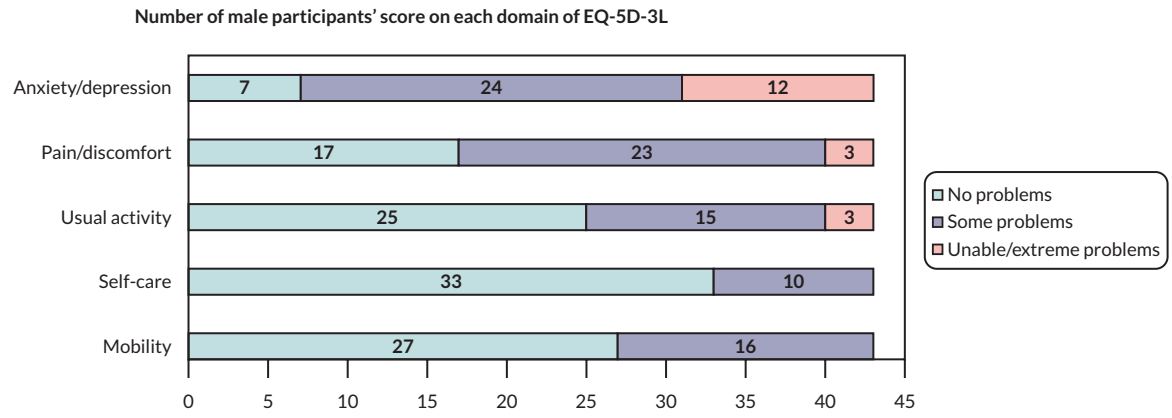

FIGURE 21 Number of participants score on each domain of EQ-5D-3L at baseline (*n* = 43).

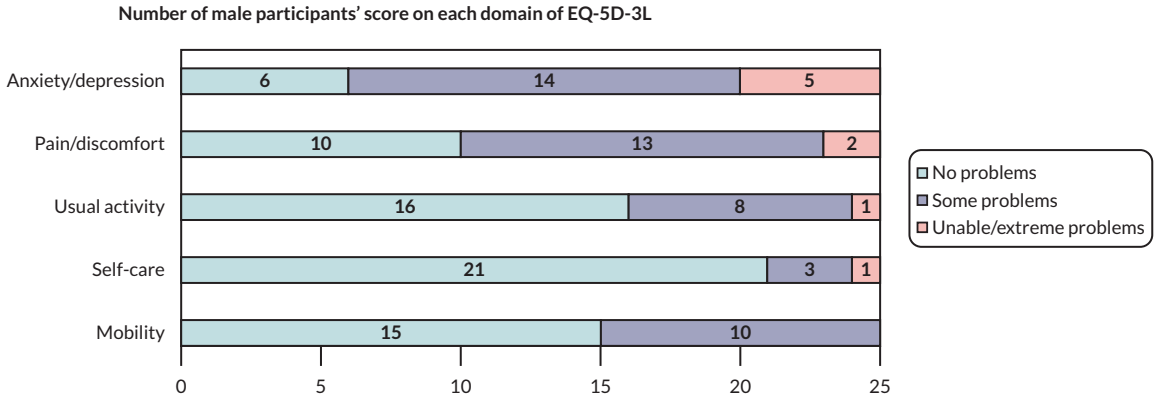

FIGURE 22 Number of participants score on each domain of EQ-5D-3L at 4 months (*n* = 25).

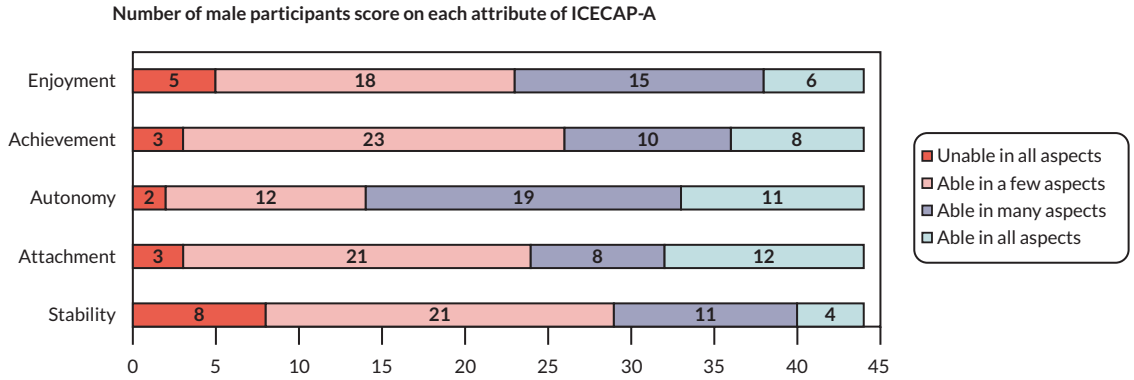

FIGURE 23 Number of male participants score on each attribute of ICECAP-A at baseline (*n* = 44).

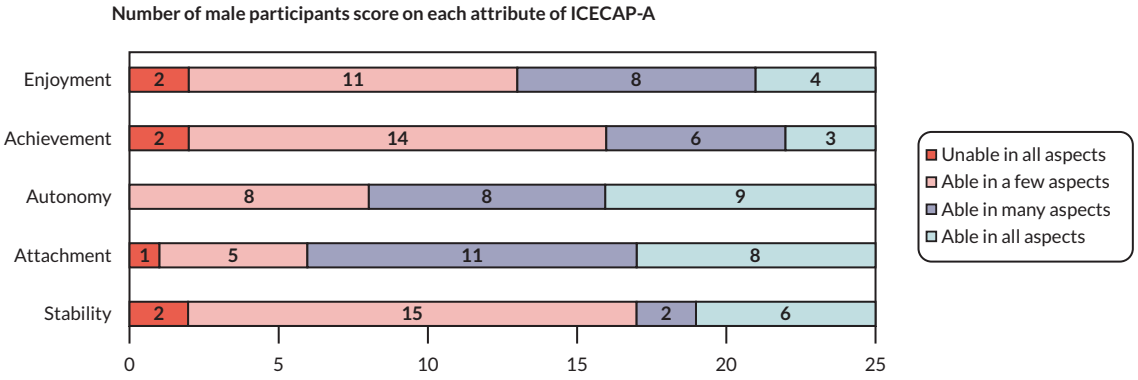

FIGURE 24 Number of male participants score on each attribute of ICECAP-A at 4 months (*n* = 25).

The observed training costs were higher than by protocol due to staff turnover and higher number of support sessions. Ninety-eight per cent of the costs of sustaining the digital platform for the intervention were for staff support. It should be noted that these costs were estimated based on the assumption that the intervention would be adopted by institutions with some level of digital capacity, and no extra hardware needs to be purchased.

The delivery plan of the intervention is hard to follow, leading to the same resource investment but fewer beneficiary.

None of the participants reported any use of psychiatry or psychology outpatient appointments, though these were of interest originally. Female current/ex-partners' contact with policing and justice system was negligible, comparing with male participants. Given the nature of the study population, the policing and justice system section could be removed or simplified for female participants.

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