ReINVEST: A pharmacotherapy-based intervention to reduce domestic violence offending

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ReINVEST: A pharmacotherapy-based intervention to reduce domestic violence offending

RESEARCH FINDINGS REPORT

Justice Health Research Program, UNSW Sydney

November 2025

FOREWORD

This summary report describes the implementation and results of a novel double-blind, randomised, placebo-controlled trial (RCT) — ReINVEST. The trial investigated the effectiveness of a commonly prescribed antidepressant (a selective serotonin reuptake inhibitor, SSRI) called sertraline, administered to men with convictions for violence (including domestic violence) who were also highly impulsive. The study represents a world-first, large-scale RCT of a pharmacological approach to reducing violence, with the primary outcome unambiguously determined by linkage with Criminal Justice System records. The study commenced recruitment in late 2013 and continued for almost a decade until the last follow-up was completed in mid-2022.

ReINVEST revealed that many men who use violence have troubled upbringings, mental health disorders, substance use issues, system conflict, unemployment and relationship challenges. Their level of unmet need was such that simple administration of medication without addressing these broader needs would have failed in our duty of care. Hence, engagement with their complex needs became an essential ingredient of the ReINVEST approach.

ACKNOWLEDGEMENTS

The National Health and Medical Research Council of Australia initially funded this trial through a Partnership Grant (#533559), awarded in 2009, with financial support from NSW Justice Health & Forensic Mental Health Network. After the grant was exhausted, significant funding was provided by the NSW Department of Communities & Justice. Stopgap funding was provided by UNSW in 2021 to address COVID-related disruptions.

Recruitment was facilitated by former NSW Chief Magistrate Judge Graeme Henson and former Deputy Chief Magistrate Judge Jane Mottley, who helped develop a policy allowing magistrates to refer participants directly from the bench. We are grateful to professionals and participants' partners/families who participated in the Women's Advisory Group and Victim-Survivor Group, helping develop the ReINVEST Partner and Family Policy.

Lastly, we wholeheartedly thank the participants who agreed to join the trial and engage in a study that might ultimately help break the cycle of violence.

SUGGESTED CITATION

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EXECUTIVE SUMMARY

"I've evolved…I just couldn't believe it. Like I was actually stepping back and listening to what other people had to say before I blow my top." Trial participant

Context

Domestic and family violence (DFV) devastates Australian communities. It affects 4.2 million Australian adults, with one woman killed every nine days by a current or former partner. Despite decades of investment in perpetrator programs, evidence of effectiveness remains limited. Most interventions show minimal impact and lack rigorous evaluation, with systematic reviews consistently highlighting poor methodological quality across the field. In response, ReINVEST was established to test whether treatment with an SSRI (sertraline) could reduce violent offending in highly impulsive men with histories of violence and DFV.

The ReINVEST trial design

This double-blind, placebo-controlled RCT screened 1,738 men, with 630 included in the trial. All participants were involved in an initial 4-week phase where they all received sertraline. After this, they were randomised to either the placebo (n=311) or sertraline (n=319). Most of the men were recruited from community corrections (60%) and courts (16%). The trial combined medication with comprehensive psychosocial supports for both the placebo and sertraline groups, recognising that medication alone is insufficient to engage this complex, high-needs population.

Key findings from the RCT

Compared to the placebo group, sertraline demonstrated [1]:

- a 23% reduction in domestic violence offending at 12 months (p = 0.089).
- a 21% reduction in domestic violence offending at 24 months (p = 0.045).
- The result for general violent reoffending was inconclusive.

Additional analyses throughout the trial also found:

- A 45% reduction in domestic violence offending in the sertraline group when compared to a group with same eligibility criteria who were not randomised (p<0.001).
- Among participants with higher medication adherence, sertraline was associated with a 30% reduction in domestic violence offending at 24 months compared to placebo.
- A 44% reduction in recurrent domestic violence offending (i.e., more than one offence) at 24 months (p = 0·020) compared to placebo.

During the initial 4-week period when all participants were taking sertraline, participants showed improvements across multiple measures, including:

- Depression (Beck Depression Inventory Total Score): 54.6% improvement.
- Psychological Distress (K-10 Total Score): 43.9% improvement.
- Labile Anger & Aggression (AIAQ Total Score): 27.6% improvement.
- Anger Expression Index (STAXI-2): 23.8% improvement.
- Impulsivity (BIS Total Score): 16.4% improvement.

Qualitative insights

Throughout the ReINVEST trial, including the initial pilot phase, extensive qualitative research was conducted with participants, families, and stakeholders to better contextualise the primary trial findings. Women's voices were particularly powerful: in a qualitative sub-study, 96% of partners reported maintained or increased safety, 85% reported positive behavioural changes in partners, and 77% reported improved personal wellbeing.

Stakeholders from magistrates and lawyers to corrections officers recognised the substantial value of the trial, with many describing participant changes as "unbelievable." ReINVEST successfully engaged men who typically fall through service gaps, providing holistic support that addressed not just violence but the complex web of trauma, substance use and social disadvantage that characterised their lives.

Implementation readiness

After nearly 20 years of development and refinement, including a feasibility study, ReINVEST demonstrated that pharmacotherapy can play a foundational role as a behavioural circuit breaker: creating space for meaningful change. However, successful engagement and support of this cohort of men ideally requires more than medication.

The trial's evolution from a simple pharmacological study to a comprehensive wrap-around service revealed critical success factors, including independence of our university-led clinical team from mainstream systems, assertive outreach, trauma-informed care, care navigation and sustained therapeutic relationships built on trust and safety. The excellent clinical safety profile of the medication (fewer adverse events than in the placebo group) and favourable cost-effectiveness ratio (approx. $7,000 per participant versus $150,000 for incarceration) suggest potential for broader implementation.

Next steps

Given the DFV crisis in Australia and globally, as well as current policy priorities to combat this, the results from this world-first trial reflect exciting (and timely) insights.

Based on the extensive trial evidence and our implementation experience, we propose:

1. Urgently transitioning the trial into an ongoing program, with a focus on:
    - delivering clinical excellence,
    - generating world-first innovative research,
    - ongoing program evaluation and continuous improvement, and
    - growing the next generation of forensic clinicians, fostering expertise in DFV.

2. Maintaining a *degree of independence* from mainstream services, while still working closely with them. Based upon our trial findings, the program's autonomy contributed significantly to the engagement, trust, flexibility and, ultimately, retention of ReINVEST participants.

3. Delivering a holistic support model including:
    - medication,
    - trauma-informed clinical counselling,
    - assertive outreach,
    - 24-hour crisis support,
    - care navigation and coordination,
    - culturally safe practices designed for (and with) First Nations Australians, and
    - partner safety planning.

BACKGROUND AND RATIONALE

"We need to change the approach by all governments, because it's not enough to support victims. We need to focus on the perpetrators and focus on prevention… This is a national crisis" Prime Minister Anthony Albanese, 2024

Violence is among the leading causes of death and injury worldwide [2]. In Australia, violent offender incarceration increased by 31% between 2014-2024, now representing 45% of the prisoner population [3]. Acts intended to cause injury has consistently remained one of the most common principal offences committed since 2012 in Australia [4]. The rates of violent recidivism are similarly concerning, with 39% of individuals convicted of violent offences being reconvicted for another violent offence within a decade, while 64% are reconvicted for any type of offence.

Domestic and family violence impacts one in six Australian women, with an estimated annual cost of $22 billion [5-7]. On average, one woman is killed every 9 days by a current or former partner. It is a major public health problem with substantial social, health and economic impacts. Domestic violence can cause a range of avoidable diseases and injuries among women including depressive disorders, anxiety disorders, early pregnancy loss, suicide and self-inflicted injuries, alcohol use disorders and preterm birth and low birthweight complications [8].

Children exposed to DFV experience detrimental long-term effects on their development and an increased risk of physical and mental health issues, suicidal ideation, learning difficulties and behavioural problems [9]. Critically, children exposed to DFV are more likely to experience DFV themselves as a victim and/or perpetrator in the future compared to people who were not, perpetuating an intergenerational cycle of violence [10, 11].

DFV policy context

With domestic violence and sexual assault continuing to increase over time, policy attention has intensified. The NSW Government previously established a Premier's priority to reduce domestic violence reoffending by 25% by 2023, and separately to reduce adult reoffending by 5% by 2023. The current NSW Domestic and Family Violence Plan (2022-2027) outlines strategic priorities emphasising primary prevention and actions addressing drivers and risk factors for DFV at individual, relational, community and societal levels.

At national level, the Closing the Gap framework includes Target 10: a commitment to reduce the rate of Aboriginal and Torres Strait Islander adults held in incarceration by at least 15% by 2031 (from a 2019 baseline of 2,296 per 100,000 adults). As well as Target 13: which aims to reduce DFV against First Nations women and children by at least 50% by 2031. The National Plan to End Violence against Women and Children (2022-2032) also supports a shared goal that all people live free from gender-based violence and are safe in all settings including at home, at work, at school and in the community.

These targets reflect growing recognition that directly addressing perpetrator behaviour on an individual level is essential to reducing violence and DFV. Achieving these goals requires evidence-based interventions that can demonstrate meaningful and sustained individual behaviour change. The current policy environment creates both urgency and opportunity for implementing proven approaches to reducing violent reoffending, particularly domestic violence.

However, despite substantial investment in perpetrator-focused intervention programs, the evidence supporting their effectiveness remains limited. Systematic reviews consistently find modest effects, high attrition rates and significant methodological limitations in existing studies. A recent umbrella review of perpetrator-focused interventions concluded that most studies have limited evidence of efficacy and many are characterised by poor methodological quality [12]. There is an urgent need for rigorously evaluated and proven preventative programs to be adopted – at scale – to address this growing "national crisis".

Rationale for a pharmacological approach

In response to the lack of effective interventions to reduce violence and DFV, in 2008 our team proposed the use of SSRIs based on emerging evidence regarding their clinical efficacy to reduce impulsive aggression in psychiatric populations.

Impulsivity has been associated with criminal behaviour, including violent crime. Studies show that higher levels of impulsivity are associated with youth delinquency and self-reported criminal activity. Impulsivity is also associated with recidivism, especially violent recidivism. It has been suggested that impulsivity might be an appropriate target for efforts to reduce DFV.

Serotonin is a neurotransmitter produced centrally in the brainstem that plays an essential role in mood, appetite, sleep and cognition. The "serotonin deficiency hypothesis" suggests that chronically low serotonin function predisposes individuals to impulsivity and reactive aggression. Multiple lines of evidence support this association: violent offenders show reduced levels of serotonin's primary metabolite (5-hydroxyindoleacetic acid, 5-HIAA) in cerebrospinal fluid and brain imaging studies reveal that people prone to impulsive aggression have alterations in their serotonergic system consistent with low synaptic serotonin availability.

Medications that increase the availability of serotonin in the brain, particularly SSRIs like citalopram and sertraline, have shown promise in reducing impulsive aggression in clinical trials involving patients with personality disorders and intermittent explosive disorders. These studies, while promising, have almost always been conducted with psychiatric populations, primarily examining changes in psychological/behavioural measures. Prior to ReINVEST, there had been no research examining the relationship between medications and social/criminological measures such as offending outcomes.

Background to the ReINVEST trial

In 2008, based on this compelling evidence for a pharmacological approach to reduce impulsive aggression, we piloted an intervention among male offenders recruited from three Sydney Local court complexes [13]. The pilot aimed to determine if sertraline could reduce a range of impulsive behaviours and assault types among violent men. Potential participants were screened by a clinical nurse consultant against the inclusion criteria of at least two prior convictions for violence, as well as impulsivity, determined by a high score (over 70) on the Barratt Impulsiveness Scale. If eligible, they were then referred for a medical assessment by the study psychiatrist.

In this "open label" feasibility study everyone received 100mg of sertraline for three months. Across all outcome measures for the 20 individuals who completed the 3-month follow-up, there were significant changes in impulsivity (35% reduction from baseline to 3 months), irritability (45% reduction), labile anger (63% reduction), direct assault (51% reduction), verbal assault (40% reduction), indirect assault (63% reduction), along with improvements in depression score (62% reduction) and mental health (46% improvement). Further, all those who completed the three-month trial requested a referral to continue sertraline under the supervision of their own general practitioner, indicating perceived benefit.

As part of the planning for a large-scale randomised control trial, we inquired about potential demand for such an intervention among prisoners as part of the 2009 NSW Inmate Health Survey. Overall, 51% of those who scored over 70 on the Barratt Impulsiveness Scale (the threshold score for the proposed intervention) expressed interest in learning more about the trial and 54% remained interested despite being informed that a placebo would be used. Finally, 46% said they would be willing to attend a hypothetical post-release program based on the intervention. These preliminary clinical findings, alongside the high demand for such a program, suggested an urgent need to more comprehensively trial this type of perpetrator-focused pharmacological intervention.

THE REINVEST APPROACH

"...I just felt like I had someone to talk to... about the way I was feeling, and stuff like that. Which in my life, I've never had a chance like that" Trial participant

In late 2013, following the award by the NHMRC of a Partnership Grant, the full ReINVEST trial commenced. It represented a world first double-blind, placebo-controlled randomised clinical trial with an active run-in phase (i.e., a brief period where both groups take the SSRI before being randomised). The trial was designed to evaluate the effectiveness of sertraline in reducing reoffending rates among individuals with a history of violent offending.

Primary objective: Evaluate the effectiveness of sertraline in reducing violent recidivism in impulsive, repeat-violent offenders.

Secondary objectives: Examine effectiveness in improving domestic violence reoffending and behavioural measures (depression, psychological distress, trait impulsivity, anger expression/control and overall aggression).

The study received ethical approval from UNSW Human Research Ethics Committee, NSW Aboriginal Health & Medical Research Council, Corrective Services NSW and Justice Health & Forensic Mental Health Service. Additionally, the trial was oversighted by an Independent Data Safety Monitoring Board.

Participant eligibility

Following an initial screening against the inclusion/exclusion criteria (see Table 1, below) by an experienced mental health clinician, a comprehensive medical and psychiatric assessment was undertaken as part of the eligibility screening prior to entering the study. The assessment process included a comprehensive semi-structured psychiatric examination, a medical examination, baseline questionnaires and referral for pathology testing. This thorough assessment process was essential to ensure participant safety and identify any contraindications to sertraline treatment.

Table 1. Inclusion/exclusion criteria for participation in the trial

Inclusions	Exclusions
• Male sex and over the age of 18 years • History of two or more violent offences (e.g. manslaughter, robbery, assault, domestic violence) • Score of 70 or over on the Barratt Impulsiveness Scale • Medically fit to undertake the trial • Able to provide informed consent • Ability to communicate in English	• Current use of any serotonergic drug • Current use of Antabuse (disulfiram) medication • History of adverse drug reactions to selective serotonin reuptake inhibitors • Current use of any anti-psychotic medication or prescription of an anticonvulsant medication for a mood disorder or the prescription of lithium carbonate • Severe mental illness (e.g. schizophrenia, bipolar disorder, major depression) • Considered to be at high risk of suicide • Anticipation of receiving a custodial sentence • Significant renal or hepatic impairment • Inability to provide informed consent • Conviction for murder or child sexual assault • Impending deportation, moving interstate, returning to a remote area

Recruitment and referral

Participants were recruited primarily from Community Corrections Offices and local court complexes. Potential participants were approached by their community corrections officer, legal representative or ReINVEST clinician.

Table 2. Inbound referrals during the trial		
Community Corrections	1,759	59.5%
Magistrate	459	15.5%
Legal Aid	201	6.8%
Self	175	5.9%
Lawyer	81	2.7%
Clinician	63	2.1%
Other	40	1.4%
Aboriginal Legal Service	35	1.2%
Aboriginal Services Unit	10	0.3%
Total	**2,956**	**100%**

Study protocol

Following successful screening by a nurse (for eligibility) and a psychiatrist (for medical fitness), the trial consisted of three phases for all men:

Run-in phase (4 weeks, single-blind):

- All participants received sertraline (25mg for one day, 50mg the following day, and increased to 100mg thereafter).
- Weekly clinical contact with highly skilled mental health clinicians.
- Assessment of tolerability, adherence and commitment to 12-month follow-up.
- Identification of participants who reacted poorly to the medication or were unwilling to commit to the full trial duration.

Randomised phase (12 months, double-blind):

- Participants who completed run-in were randomised 1:1 to continue sertraline (100mg daily) or switch to matching placebo following down titration from sertraline (placebo group).
- Randomisation used minimisation techniques stratified by age (<30/≥30 years), Aboriginal or Torres Strait Islander status, BIS score (70-90/91-120), LSI-R score and study location (15 sites).
- Regular clinical contact (minimum once every 4 weeks, more frequent as needed).
- Weekly well-being check-in phone call.
- 24-hour toll-free hotline access to clinical team.
- Comprehensive psychosocial support continued for all participants regardless of treatment allocation, including consultations with psychiatrists, mental health nurses and psychologists.
- Neither participants nor clinicians knew medication allocation (sertraline or placebo).

Extended follow-up phase (12- 24 months):

- Following completion of the 12-month treatment phase, in consultation with trial clinicians participants could elect to continue receiving blinded study medication (sertraline or placebo) if clinically appropriate and feasible.
- Participants who chose not to continue were titrated off medication and referred to their GP.
- All participants continued to be monitored via criminal justice data linkage for up to 24 months post-randomisation, regardless of continued trial participation.

More than just a pill: the comprehensive support model

A critical aspect of ReINVEST is that while it was initially conceived as a medication-only randomised clinical trial, it quickly became apparent that the broader unmet psychosocial needs of participants could not be ignored. We identified that such needs, when addressed through holistic psychosocial supports, could promote retention and likely have benefits in terms of reoffending. In addition, when men are properly supported, sertraline can work synergistically, offering greater potential benefits such as lasting behaviour change and/or further reductions in offending.

Our comprehensive wraparound support model included:

- *Trauma-informed, non-judgmental clinical engagement:* Experienced mental health clinicians (clinical nurse consultants, registered nurses, registered psychologists, consultant psychiatrists) provided ongoing clinical support, recognising that many participants had experienced childhood trauma, abuse and marginalisation.
- *Assertive outreach and case management:* Clinicians proactively contacted participants, met them at convenient locations, and maintained engagement even when participants were difficult to reach. This flexibility was essential for a complex, highly mobile population.
- *Care navigation across health and welfare services:* Assistance accessing mental health treatment, GPs, drug and alcohol services, housing support, employment services and legal system navigation assistance. Clinicians served as advocates and navigators through the complex web of health, welfare, justice and social service systems.
- *Partner and family engagement with safety planning:* A comprehensive partner and family support plan and policy was in operation and developed in consultation with Domestic Violence NSW and the Department of Communities and Justice. Partners could contact the clinicians, receive support and participate in safety planning.
- *24/7 crisis support line:* Participants (and family members) had access to after-hours telephone support for crises, medication questions or concerns.
- *Flexible, ongoing support:* No fixed program duration—participants could continue receiving support as long as they found it beneficial, with many choosing to extend beyond the initial 12-month period.

Outcome measurement

We measured outcomes in two main ways: through official conviction records and participant questionnaires. Official records provided objective information available for all participants, even those who stopped attending visits. Self-report measures captured participants' mental health, anger, and other behaviours.

Primary outcome:

- Violent reoffending: Defined as the first convicted violent offence within 12 months post-randomisation. Violent offences were determined according to the Australian and New Zealand Standard Offence Classification (ANZSOC) 01 – 06 categories. This included homicide, acts intended to cause injury, sexual assault, dangerous/negligent acts, abduction or harassment and robbery; and were assessed via record linkage to the New South Wales Bureau of Crime Statistics and Research's Reoffending Database (ROD).

Secondary outcomes:

- Domestic violence reoffending: Defined as the occurrence of any convicted domestic violence offence, ascertained via linkage to ROD. These were identified using specific lawpart codes in the ROD designated as domestic violence-related, including violent acts, breaches of protective orders and property damage within a domestic context.
- Self-reported offending: This was measured via self-report at the 22-week follow-up point.
- Psychometric measures (self-report): Changes from baseline in mental health, impulsivity, aggression and anger were assessed using a suite of validated instruments, including the Anger, Irritability and Assault Questionnaire (AIAQ), State-Trait Anger Expression Inventory (STAXI-2), Barratt Impulsiveness Scale (BIS), Kessler-10 Psychological Distress Scale (K-10), SF-12 Health Survey (Mental and Physical health components) and Beck Depression Inventory (BDI).
- Alcohol and substance use: These were measured via self-report at the 22-week follow-up.
- Partner safety and wellbeing: This was assessed qualitatively in a sub-study involving in-depth interviews with 27 female partners and family members, undertaken by independent researchers from the University of South Australia.

Statistical approach

- The trial's main statistical analysis was based on the intention-to-treat principle specified in our Statistical Analysis Plan [1] prior to unblinding of the data.

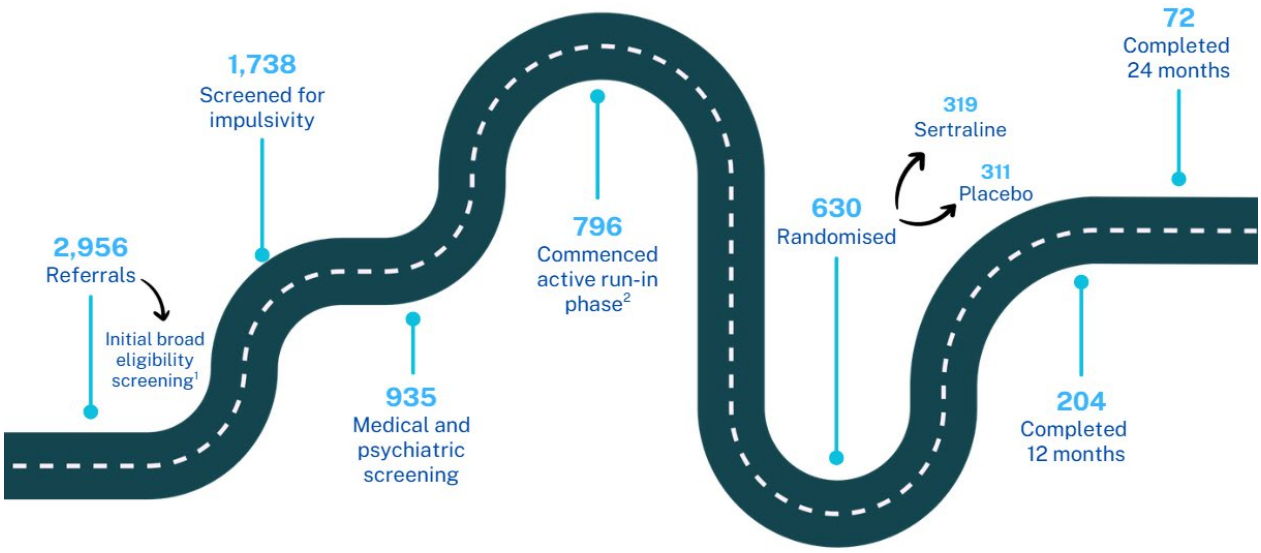
- The primary outcome (violent reoffending) and the secondary DV reoffending outcome were analysed using an unadjusted generalised linear model (GLM) with a log-link function to estimate relative risks (RR) and 95% confidence intervals (CI).
- Analyses for participant-reported outcomes were conducted using a complete-case method. Continuous outcomes were compared between groups using t-tests. Categorical outcomes were compared using chi-squared tests.
- Repeat offending was assessed using Poisson mixed-effects models with the log of follow-up time as an offset to account for varying exposure periods.
- Qualitative data were analysed using a range of standard approaches involving systematic coding, including thematic analysis.

PRINCIPAL TRIAL FINDINGS

"And then I started talking to [participants] who were on ReINVEST…they actually felt like it was helping them… And they say to me "I'm not as angry as I used to be". Which is a good thing, because it's often a precursor for committing offences…this inability to control yourself." Lawyer of trial participant

2,956 men were referred to the trial over the recruitment period from October 2013 to September 2021. The recruitment and assessment process proceeded through several stages. A total of 1,738 individuals were screened for the study, with 630 participants randomised to either placebo (n=311) or sertraline (n=319) during this period. Of the men who were randomised, 204 (32%) completed 12 months of the study and 72 (11%) completed 24 months. All 630 participants were included in the primary analysis.

Referral, screening and randomisation summary



[1] *Based on an initial high-level eligibility screening, 509 individuals were excluded mostly due to medication-related or mental health-related reasons (particularly current major mental illness or current SSRI use), and 423 dropped out mostly due to not being interested or being uncontactable.*
[2] *This represents a 46% participation rate among those contacted and screened—similar to other studies in high-risk populations.*

Participants represented a complex, high-risk population with extensive trauma histories, substance use and criminal justice involvement. The sample reflected the characteristics of men most likely to perpetrate violence and domestic violence but least likely to engage with traditional interventions. The combination of high impulsivity, personality disorders, trauma histories and extensive prior offending poses substantial barriers to behaviour change, yet this is the reality of the perpetrator population requiring intervention. Key characteristics of our 630 participants at the start of the trial are summarised in Table 3.

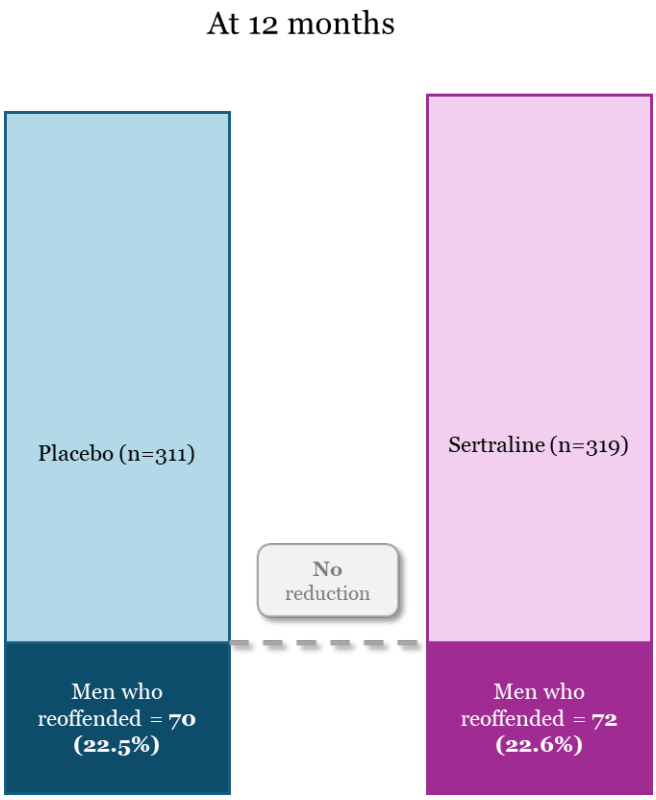
Table 3. Characteristics of the participants at baseline

Characteristics	Overall N = 630	Sertraline n = 319	Placebo n = 311
Age at randomisation (years), Median (IQR)	32 (25, 40)	32 (25, 39)	32 (25, 41)
Unknown	9	5	4
Indigenous status			
Indigenous	188 (30%)	100 (32%)	88 (28%)
Non-Indigenous	440 (70%)	217 (68%)	223 (72%)
Unknown	2	2	0
Working in the past 6 months	380 (61%)	189 (59%)	191 (62%)
Unknown	5	1	4
Juvenile detention	140 (22%)	73 (23%)	67 (22%)
Unknown	5	2	3
Number of previous offences			
Any offence	9 (4, 15)	9 (4, 17)	9 (5, 15)
Violent offence	2 (1, 4)	2 (1, 4)	2 (1, 3)
Domestic violence (DV) offence	2 (0, 4)	2 (0, 4)	2 (0, 4)
Violent DV offence	1 (0, 2)	1 (0, 2)	1 (0, 2)
Barratt Impulsiveness Scale - Total Score, Median (IQR)	85 (77, 92)	85 (77, 91)	85 (77, 92)
Kessler-10 - Psychological Distress Scale, Median (IQR)	14 (8, 21)	14 (8, 20)	14 (9, 22)
SF-12 - Mental Health Score, Median (IQR)	43 (30, 52)	43 (30, 52)	43 (31, 51)
SF-12 - Physical Health Score, Median (IQR)	55 (51, 58)	55 (51, 58)	55 (51, 57)
AIAQ Total Score, Median (IQR)	72 (56, 88)	71 (55, 86)	73 (56, 89)
STAXI - Anger Expression Index, Median (IQR)	51 (43, 60)	50 (42, 59)	52 (43, 61)
EYSENCK – Impulsivity Score, Median (IQR)	14 (11, 16)	14 (12, 16)	14(11, 16)
Beck Depression Inventory Score, Median (IQR)	9 (4, 15)	8 (4, 15)	10 (4, 16)

Primary outcome: violent offending

Violent offending refers to crimes where someone physically harms or threatens another person, ranging from assault to more serious offences like homicide.[1] A primary outcome event (violent offence within 12 months) occurred in 72 (22.6%) of 319 participants assigned sertraline and 70 (22.5%) of 311 assigned placebo (Relative Risk 1.00, 95% CI 0.75-1.34; p=0.99). The lack of effect on general violent offending likely reflects the heterogeneity of violent offences, which range from premeditated instrumental acts to reactive emotionally driven incidents.

Violence offences at 12 post-randomisation



Significant reductions in domestic violence offending

In contrast to general violence where no differences were found between groups, domestic violence showed significant reductions in reoffending. Domestic violence was defined according to all relevant domestic violence lawpart codes, as detailed in Table 1 of the Supplementary Materials of this report.

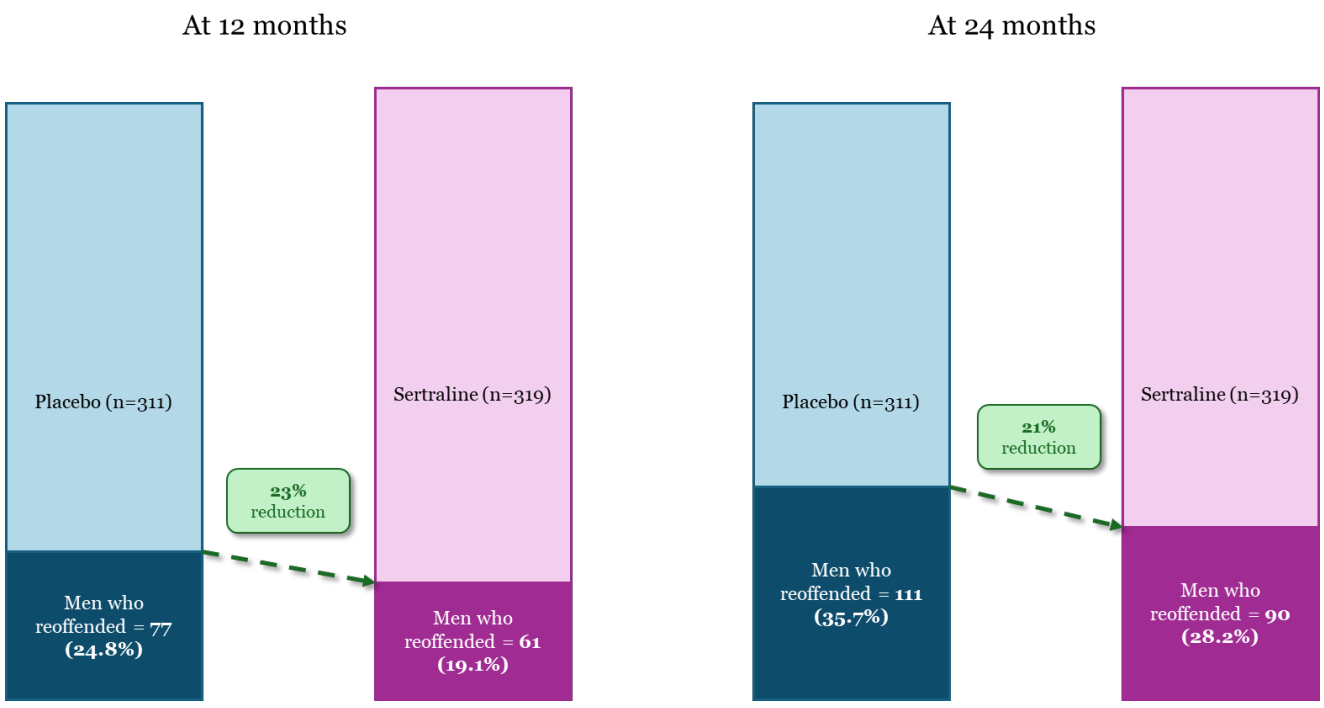
[1] Violence refers to the following Australian and New Zealand Standard Offence Classification (ANZSOC) categories: 01 (homicide and related offences); 02 (acts intended to cause injury);03 (sexual assault and related offences); 04 (dangerous and negligent acts endangering persons);05 (abduction, harassment and other offences against the person); 06 (robbery, extortion and related offences).

Domestic Violence offending within 12 months post-randomisation occurred in 138 out of 630 participants (21·9%). The proportion of DV offences was markedly lower in the sertraline group, 61 out of 319 (19·1%) compared to 77 out of 311 (24·8%) in the placebo group (RR 0·77; 95% CI, 0·57, 1·04; p=0.089). This corresponds to a 23% relative risk reduction in domestic violence reoffending between the two groups. Although this difference in DV offending between the sertraline and placebo groups did not quite reach the conventional threshold of statistical significance, it nonetheless indicates a clinically meaningful reduction.

At 24 months post-randomisation, domestic violence offending was lower in the sertraline group, 90 of 319 (28·2%), compared to the placebo group, 111 out of 311 (35·7%) (RR 0·79, 95% CI 0·63, 0·99; p=0.045). This reflects a statistically and clinically significant 21% relative risk reduction in domestic violence reoffending between the two groups.

These positive findings are particularly important because domestic violence frequently involves emotionally-charged, impulsive reactions within intimate relationships—precisely the type of aggression most likely to be modulated by serotonergic enhancement. This finding arguably represents the most policy-relevant outcome from ReINVEST. Given current government priorities to reduce domestic violence reoffending, this 21% reduction in the risk of domestic violence offending at 24 months—if replicated in implementation—could make a meaningful contribution to addressing Australia's current DFV crisis.

Domestic violence offences at 12- and 24-months post-randomisation



An additional analysis of second-year outcomes was undertaken to further unpack the 24-month DV finding. We analysed trial engagement among participants who were event-free (i.e., no domestic violence offences) at 12 months to identify any meaningful differences between the sertraline and placebo groups. Among trial participants who remained engaged beyond 12 months, the rate of DV offending in the second year was lower in the sertraline group (7·8%) than the placebo group (13·8%). In contrast, among participants who had disengaged by 12 months, the rates of DV offending were similar between the sertraline (13·7%) and placebo (14·9%) groups. This additional analysis, though based on a small sample size and requiring cautious interpretation, suggests that the longer participants stayed on sertraline, the more effective it was at reducing domestic violence offending compared to placebo.

Treatment adherence and domestic violence outcomes. To further understand whether medication adherence influenced outcomes, we examined domestic violence offending patterns based on how consistently both sertraline and placebo participants took their medication over the trial period. This was assessed on responses to the following question at the monthly follow-up: *"How many days per week, on average, did you actually ingest your study medication?"*.

Adherence to treatment was defined as taking the trial medication for 5 in 7 days or more (i.e., more than 70% of medication taken). Participants were then classified as: Most adherent (classified as adherent in ≥70% of monthly visits during the trial period), Medium adherent (30.0–69.9% of monthly visits), and Least adherent (<30% of monthly visits). Among participants who were Medium or Most adherent, sertraline was associated with a 30% reduction in domestic violence offending at 24 months compared to placebo (RR 0·70, 95% CI 0·49-0·98, p<0.05). This reduction was statistically significant. In contrast, no significant treatment difference was observed among participants who were Least adherent. These findings suggest that the benefits of sertraline in reducing domestic violent offending are greater for participants who had more frequent and sustained exposure to the medicine.

Repeated domestic violence offending. To examine whether sertraline reduced not just the occurrence but also the frequency of domestic violence reoffending, we further examined patterns of repeat offending. This was defined as more than one domestic violence offence over the 24-month period post-randomisation. This required us to use Poisson mixed-effects models with the log of follow-up time as an offset to account for varying exposure periods and multiple offences per participant. We found that sertraline reduced the rate of repeated domestic violence offending by 37% compared to placebo at 24 months (Incidence Rate Ratio [IRR] 0·63, 95% CI 0·40–0·99, p=0·045), with the effect remaining significant at 44% after adjusting for covariates (IRR 0·56, 95% CI 0·35–0·91, p=0·020). This finding indicates that sertraline's benefits go beyond preventing initial

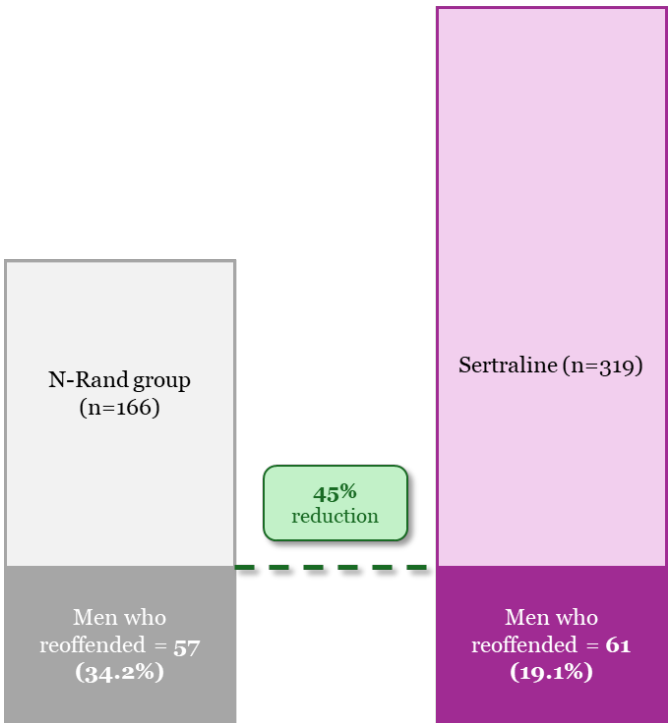
reoffending, also reducing the frequency of repeated domestic violence offences among those who reoffend.

Domestic violence offending: comparison to run-in baseline

We conducted another analysis, pre-specified in the trial Statistical Analysis Plan, to compare domestic violence offending rates between participants randomised to sertraline after completing the run-in phase (n=319) versus those who met eligibility criteria but did not proceed beyond the run-in phase (n=166), using equivalent follow-up periods for both groups. Of the 166 men who entered the run-in phase but were not randomised (hereafter 'N-Rand' group), the main reason for non-randomisation was loss of contact (n=75). The primary purpose of this analysis was to test the generalisability of the study findings, as well as offer meaningful information regarding the overall effects of trial participation.

For domestic violence (DV) offending at 12 months, the rate of offending was 34·2% in the N-Rand group, compared to 24·8% in the placebo group and 19·1% in the sertraline group. After adjusting for measured baseline differences, the risk ratio for 12-month violent and DV offending remained lower for sertraline vs. N-Rand (RR 0·55; 95% CI 0·39, 0·75, p<0.001). Overall, this translated to a statistically significant 45% relative risk reduction in DV offending at 12 months for the sertraline group compared to the N-Rand group.

Domestic violence offences at 12 between sertraline and N-Rand groups



Possible explanations for the DFV reduction effect

Several mechanisms may explain why sertraline showed differential effects on domestic violence compared to general violence.

Repeated exposure to triggers: In domestic contexts, individuals are repeatedly exposed to the same triggers and stressors within intimate relationships. Sertraline's effects on reducing impulsive responses to provocation may be particularly relevant in these volatile, recurring situation

Emotional regulation in intimate relationships: Domestic violence often occurs in the context of heightened emotional arousal, relationship conflict, and perceived abandonment or rejection. SSRIs' effects on mood, anxiety and emotional regulation may be especially beneficial in these interpersonal contexts

Partner support and monitoring: The ReINVEST partner engagement policy meant that many participants' partners were aware of the intervention and could encourage medication adherence and notice behavioural improvements. This relational context may have enhanced treatment effects specifically for domestic violence.

Behavioural improvements in the active run-in phase

During the 4-week period when all participants received sertraline plus support, dramatic improvements occurred, including an average: 54.6% improvement in depression, 43.9% improvement in psychological distress, 27.6% improvement in labile anger & aggression and 16.4% improvement in impulsivity. These improvements are particularly notable because they occurred rapidly (within just 4 weeks) and across multiple domains—not just impulsivity. The breadth and magnitude of these changes suggest that the intervention was addressing multiple interconnected pathways to violence. Table 3 provides more details regarding the changes in behavioural measures during the week active run-in period.

Table 4. Changes in behavioural measures					
Behavioural Measures	**Baseline** (n = 619)	**Randomisation** (n = 619)	**Difference**	**Improvement (%)**	**Paired *t*-test** p
Barratt - Impulsiveness scale	85.03 (9.87)	71.13 (12.11)	-13.90	16.3%	<.001
Barratt - Attention	22.19 (3.66)	17.99 (4.14)	-4.21	19.0%	<.001
Barratt - Motor impulsiveness	29.93 (4.39)	24.63 (4.85)	-5.29	17.7%	<.001
Barratt - Planning	32.96 (4.7)	28.5 (5.45)	-4.45	13.5%	<.001
Beck Depression inventory	10.67 (8.38)	4.85 (5.39)	-5.83	54.6%	<.001
K-10 - Psychological distress	14.68 (8.56)	8.26 (6.39)	-6.42	43.7%	<.001
SF-12 - Mental health	41.32 (12.46)	48.71 (10.23)	7.38	17.9%	<.001
SF-12 - Physical health	53.17 (7.46)	53.07 (6.25)	-0.10	-0.2%	0.784
AIAQ - Total score	70.92 (22.82)	51.3 (23.88)	-19.63	27.7%	<.001
AIAQ - Irritability	18.33 (6.07)	13.79 (6.47)	-4.53	24.7%	<.001
AIAQ - Anger score	11.56 (4.99)	7.47 (5.21)	-4.09	35.4%	<.001
AIAQ - Direct assault	17.12 (7)	12.22 (6.96)	-4.89	28.6%	<.001
AIAQ - Verbal assault	16.76 (5.46)	12.98 (5.52)	-3.78	22.6%	<.001
AIAQ - Indirect assault	6.84 (3.67)	4.76 (3.29)	-2.08	30.4%	<.001
STAXI - State anger	16.92 (4.64)	16.89 (5.21)	-0.03	0.2%	0.916
STAXI - Trait anger	24.41 (6.67)	19.28 (6.22)	-5.13	21.0%	<.001
STAXI - Anger expression-out	20.23 (4.99)	16.59 (4.72)	-3.64	18.0%	<.001
STAXI - Anger expression-in	19.18 (4.22)	16.47 (4.42)	-2.71	14.1%	<.001
STAXI - Anger control-out	17.72 (4.63)	20.92 (5.3)	3.20	18.1%	<.001
STAXI - Anger control-in	18.7 (4.85)	21.25 (5.42)	2.55	13.6%	<.001
STAXI - Anger expression Index	50.98 (13.6)	38.89 (15.9)	-12.10	23.7%	<.001
EYSENCK – Impulsivity	13.39 (3.8)	11.29 (4.59)	-2.10	15.7%	<.001
EYSENCK – Venturesomeness	11.24 (3.07)	11.2 (3.05)	-0.04	-0.4%	0.679
EYSENCK – Empathy	11.38 (3.69)	11.31 (3.68)	-0.07	-0.6%	0.572
DUKE - Social support index	24.19 (4.54)	25.63 (4.25)	1.44	6.0%	<.001

Note – STAXI and the SF-12 were measured two weeks after randomisation (n=533) (i.e., at 6 weeks). Improvement: negative score indicates no improvement.

Overall engagement with the trial was an important success factor

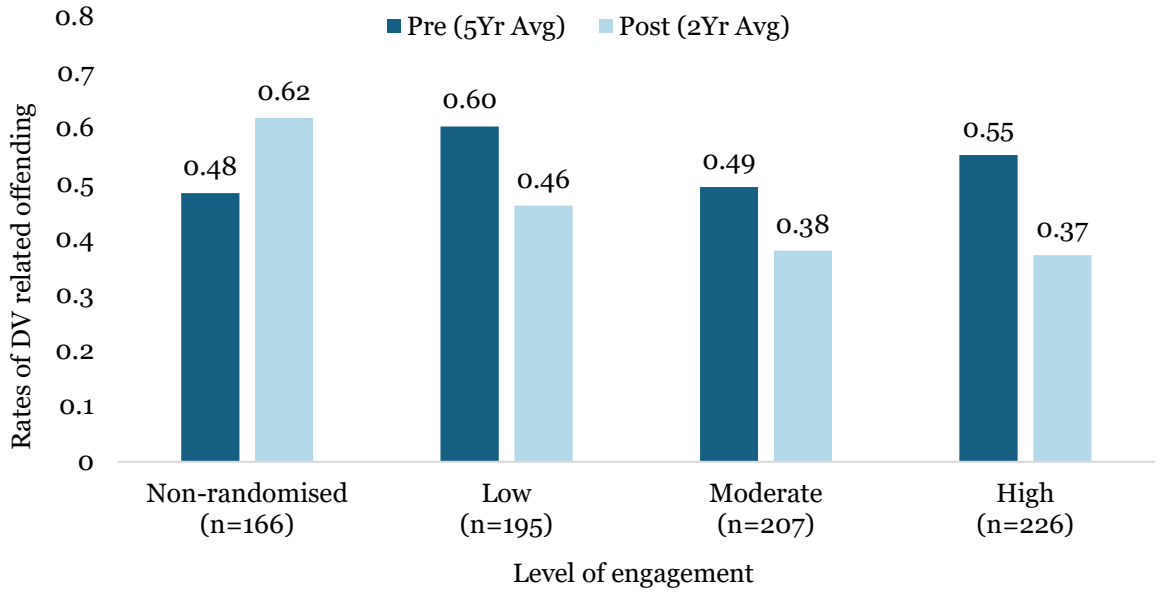
In additional analyses aimed at getting a broader perspective on the pattern of offending we examined rates of offending in the 5 years pre-randomisation versus 2 years post-randomisation. Trial participant offending data for the 7-year period was accessed through the NSW ROD. We analysed offending rates based on engagement level, defined by number of contacts with participants primarily during the first-year post recruitment; Low (0-3 contacts); Moderate (4-10 contacts); and High (>10 contacts). Critically, this analysis combined the sertraline and placebo groups, as it was concerned

with differential offending rates based on engagement with the overall ReINVEST trial – including the comprehensive support and wraparound services offered to all participants.

Overall, those who had higher levels of engagement with ReINVEST (>10 contacts in first year), were observed to have significant "pre versus post randomisation" reductions in the rate of total offending (35%), violent offences (37%), domestic violence (33%), violent acts (domestic violence related) (39%), domestic violence related property offences and breaches (26%), non-domestic violence related violence (38%), and a 24% decrease in incarceration days. Conversely, those in the N-Rand group showed much smaller reductions in reoffending across total offending (15% reduction) and violent offences (20% reduction). There was even an increase in domestic violence offences (29% increase) in the N-Rand group.

This 29% increase in domestic violence offences is noteworthy when compared to a 33% reduction within the high engagement group. We reviewed the score distribution in the non-randomised group to confirm that the observed rise in DV related offences rate *was not* driven by a small number of participants with excessive rates, suggesting engagement with the ReINVEST program was important. The graph below visualises this effect across engagement level for DV offending.

Engagement with the trial and DV offences 5 years pre and 2 years post randomisation



These findings have important implications for implementation. They suggest that success requires not just the medication but sustained therapeutic relationships with skilled clinicians who can maintain engagement over time. The comprehensive support model—assertive outreach, flexible meeting arrangements, care navigation, trauma-informed approach—was essential for achieving and maintaining this level of engagement with a highly marginalised population. As mentioned above, the longer someone stays in the program, the more opportunities there is for the pharmacotherapy to

facilitate positive behavioural changes. This synergy between program engagement, wraparound services, and the SSRI are, we argue, the "ReINVEST effect" in practice.

Excellent safety profile

An independent Data Safety Monitoring Board (IDSMB) was convened to oversee safety aspects of the trial. IDSMB membership comprised a former director of the NHMRC Clinical Trial Centre, an experienced biostatistician, a forensic psychiatrist with experience with this population and a director of programs within Corrective Services NSW. No adverse findings were made by the IDSMB regarding the trial.

Adverse events: Serious adverse events occurred in 22 (6.9%) participants receiving sertraline and 29 (9.3%) receiving placebo—demonstrating that sertraline was as safe as or safer than placebo. This excellent safety profile is consistent with the known tolerability of SSRIs in general populations.

PROGRAM INSIGHTS

> *"The house became peaceful quiet instead of terrified quiet. That might not sound like much, but after ten years of fear, it was everything." Partner of trial participant*

This section synthesises key mixed methods findings from the trial as they relate to the overall acceptability and feasibility of the ReINVEST program. It is based on the incredible amount of data collected and analysed over the trial period. This includes insights from research papers and reports that are either published or awaiting publication, all of which are detailed in Table 2 of the Supplementary Materials.

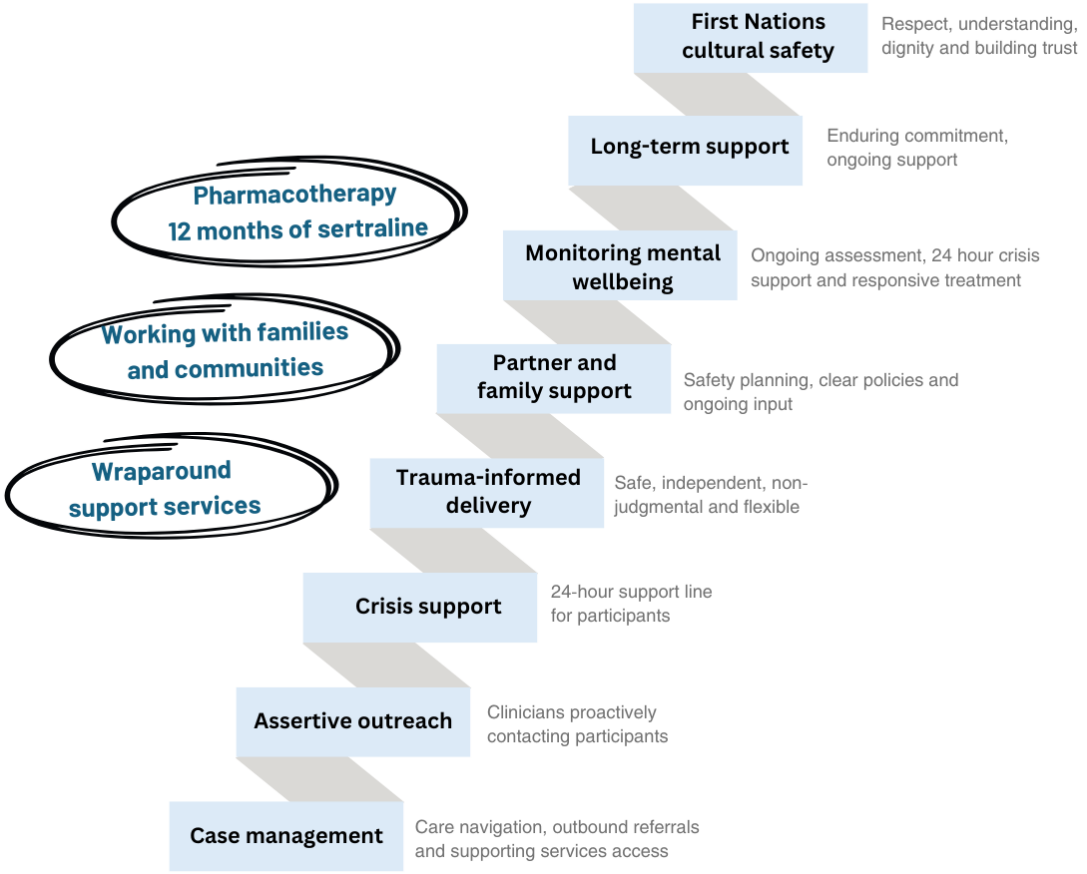
The importance of comprehensive wraparound supports

Early in the trial, clinicians faced a pivotal decision that would shape ReINVEST's evolution over the course of the study. During initial assessments, participants presented with overwhelming complexity - homelessness, untreated mental illness, substance use, relationship crises. The sheer level of unmet need of these men was staggering. It was evident that pharmacotherapy alone would be insufficient to address the complexities of this cohort; more comprehensive supports would be required.

This decision reflected both ethical and practical considerations. As one of the lead clinicians explained: *"We couldn't ignore someone's homelessness while asking them to take medication regularly. We couldn't discuss anger management with someone in methamphetamine withdrawal. Everything was connected."*

The comprehensive "wrap around" model that emerged addressed multiple interconnected needs. For many men, this trial became the first time they had been able to "open up" to a health professional about their psychological and social needs. This became essential. For some men, housing stability enabled medication adherence. For others, substance use treatment reduced violence triggers and mental health support addressed underlying trauma. Employment assistance provided purpose and routine. Each element reinforced the others, creating conditions for sustainable change.

The holistic ReINVEST approach



Working with men who had 'fallen through the cracks'

Prior to their engagement with ReINVEST, trial participants occupied a unique gap in the service delivery ecosystem. Mental health services often excluded them due to their histories of violence and lack of formal psychiatric diagnoses. Corrections programs could not adequately address their mental health needs. General practitioners were reluctant to prescribe psychotropics to men with extensive criminal records. When they did access traditional services, the highly structured nature of the programs often resulted in them struggling to maintain ongoing attendance. For many of these men,

this ultimately resulted in disengagement or discharge from the services they needed to change their behaviour.

The ReINVEST program's flexibility and autonomy from mainstream services emerged as a crucial feature of the ReINVEST approach. Operating through a university, rather than traditional service, helped reduce institutional mistrust; a point reported to clinicians by many participants. ReINVEST clinicians were able to meet participants where they were - physically, mentally and socially. Participants could discuss drug use without fear of repercussions, violent thoughts or relationship problems without fearing legal consequences. This point of difference from traditional services, and clear space from the mainstream systems and programs, likely translated into many men engaging (rather than avoiding) our trial. This supported genuine therapeutic relationships built on safety and trust.

However, this was not an "anything goes" approach. Whilst clinicians were supportive, warm, friendly and engaged well with the participants; they also modelled the respect and boundaries required to engage in a trusting, therapeutic relationship. The clinicians reinforced boundaries when required, challenged inappropriate or antisocial comments/behaviours and provided participants with alternate ways of dealing with stress or anger. This "firm, but fair" approach, underpinned by a trauma-informed, non-judgemental and genuinely caring participant-clinician relationship, was absolutely essential to reach these men and, ultimately, stop them falling through the cracks.

Women's experiences: partner and family outcomes

Qualitative research with 26 partners and family members revealed further powerful insights centred on the voices of women [14]. Participants described a *"continuum of change"* beginning with small behavioural shifts that gradually transformed entire family dynamics.

Safety improvements (96% maintained or increased safety): Women spoke of no longer *"walking on eggshells,"* being able to *"let their guard down,"* and children becoming less anxious. One partner explained: *"I used to sleep with a hammer under my bed. Since he started this medication, I can sleep more easily, and I don't need to sleep with the hammer anymore. We talk about our problems and don't argue anymore".*

Behavioural changes observed: Partners noticed men beginning to listen during arguments, helping with household tasks, showing patience with children and developing strategies to manage their anger. *"He went from punching walls to saying 'I need a walk.' That's huge,"* one woman noted.

Impact on women's wellbeing: Beyond safety, women reported their own mental health improving. Reduced anxiety, better sleep, renewed hope for the future. Several returned to work or study after years of reactive crisis management. The ripple effects extended through entire families.

The critical role of clinician support: Nearly all women mentioned the importance of being able to contact ReINVEST clinicians. Having someone who understood their situation, who could provide safety planning and emotional support, who did not judge their choices, proved invaluable.

Stakeholder perspectives

Magistrates initially referred to ReINVEST with scepticism as it was a 'trial' and there were concerns about referring men to a placebo group but became strong advocates after receiving feedback and seeing preliminary results. One reflected: *"I'd sentenced some of these men multiple times. Nothing worked. Then they come back after ReINVEST and they're different people. One man I'd given up on brought his kids to court to show me how well they were doing."*

Community Corrections Officers witnessed transformations they struggled to explain. *"I had one client who was basically feral when he started - homeless, aggressive, drunk constantly. Through ReINVEST he got housed, got sober, got a job. When he brought his daughter to meet me, we both cried. I never thought I'd see that,"* one officer recounted.

Legal professionals noted that ReINVEST participants were more likely to comply with bail conditions, engage constructively with legal proceedings and avoid reoffending while matters were pending. Several lawyers became regular referrers after seeing client outcomes.

Implementation challenges (and solutions)

The ReINVEST clinical team faced numerous challenges supporting this complex cohort, especially in the sustained retention of men in the trial. However, as reported in the principal trial findings, the longer people engaged with ReINVEST, the better their outcomes. Therefore, over the last 15+ years we have tested and iterated various strategies to address the inherent retention and adoption challenges in programs like these. We found that the factors discussed below are particularly important to address to ensure perpetrator-focused programs such as ReINVEST are implemented successfully.

Flexible and comprehensive: To ensure ongoing engagement, ReINVEST clinicians needed to be flexible in how they provided services to trial participants. This included flexible appointment scheduling to accommodate chaotic lives; assertive outreach by clinicians to prevent disengagement; long-term commitment with no arbitrary endpoint; and practical supports to address competing priorities.

Targeted strategies for participant retention: In addition to our holistic approach, it was shown during the trial that behavioural nudges were also an important way to retain men in the study. In a sub-study as part of the ReINVEST trial [15], participants receiving text message "nudges" had a 53% higher chance of completing 12 months of the trial as well as engaging meaningfully (i.e. at least 10 post-randomisation contacts, indicating high engagement).

Resource implications: The comprehensive model required more resources than initially budgeted. This meant that each clinician could manage fewer participants than anticipated due to crisis intervention needs, court support requirements and family engagement. However, as we have

emphasised throughout this report, while more costly, this intensity appeared essential to effectiveness.

Balancing competing needs: Managing perpetrator intervention alongside victim safety required careful protocols developed over years. The team learned to maintain therapeutic relationships with men while supporting partner safety, to encourage disclosure while managing mandatory reporting obligations and to promote engagement while ensuring accountability (see the section on partner and family safety, below, for more details).

Cost-effectiveness considerations: At around $7000 per participant annually, ReINVEST costs a fraction of incarceration (approximately $150,000) or repeated emergency responses, not to mention the other costs associated with domestic violence. Our qualitative research revealed additional economic benefits: partners maintaining employment, children's improved school attendance, participants gaining work stability and reduced burden on mainstream healthcare. These, collectively, produce a strong argument for the cost-effectiveness of perpetrator-focused prevention programs such as ReINVEST.

Public support: In an additional sub-study [16], it was identified that perpetrator-focused programs had more public support than previously suggested. The study found 86% taxpayer support for treatment approaches, with 67% willing to pay additional taxes for effective programs. Willingness-to-pay was highest among those with direct experience of violence (offenders: $142, victims: $82, general public: $61).

Culturally safe, trauma-informed and community focused

Our holistic and trauma-informed approach evolved through recognition that most participants had experienced significant childhood trauma themselves. Clinicians adopted a "firm but fair" approach that acknowledged these histories without excusing violent behaviour, creating space for men to discuss their own victimisation while maintaining accountability. Ensuring clinical, family and cultural safety while maintaining a strong community focus was paramount throughout the trial.

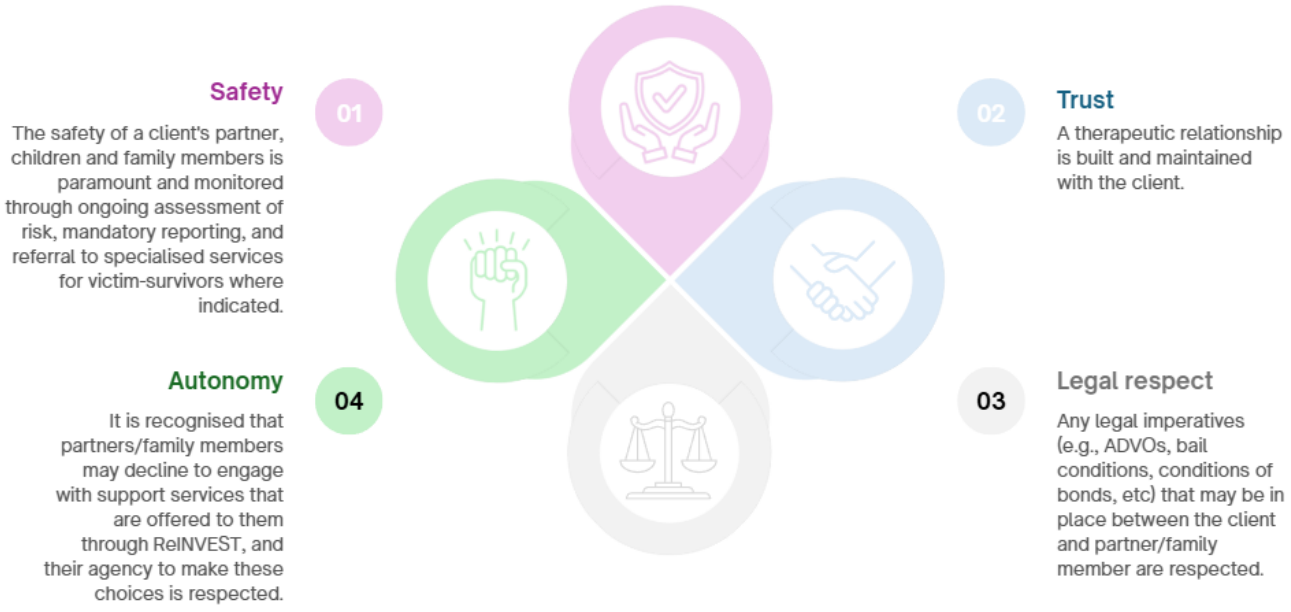
First Nations engagement with ReINVEST. Around one-third of ReINVEST participants identified as Aboriginal and/or Torres Strait Islander. ReINVEST had effective working relationships with Aboriginal Community Controlled Health Organisations, Aboriginal Legal Service, Aboriginal workers from Domestic Violence NSW and Local Court Aboriginal Client & Community Support Officers. Several members of the ReINVEST Victim-Survivor Group (described in following section) were First Nations Australians and became an invaluable resource for service planning and ongoing evaluation. Our extensive consultation with Aboriginal health organisations ensured cultural appropriateness, particularly given the overrepresentation of Aboriginal men in both violence perpetration and victimisation statistics. The program's independence from government systems

proved especially important for Aboriginal participants given historical and ongoing experiences of institutional racism that can create deep mistrust of mainstream services.

The staff recruitment process for ReINVEST included the essential criteria of experience working with, and understanding the needs of, First Nations Australians with a strong knowledge of the negative impacts of colonisation, racism and discrimination. Staff cultural competency was crucial and embedded into ReINVEST organisational practice to enhance engagement and encourage positive outcomes for Aboriginal and Torres Strait Islander Peoples, aligning with Closing the Gap targets and the NSW Premier's Priority to Reduce DV reoffending.

Partner and family safety. Women's safety was a priority throughout the trial. A Women's Advisory Group and Victim-Survivor Advisory Group, including representatives from Domestic Violence NSW and women with lived experience, met regularly to review protocols and ensure victim safety was never compromised. Their input directly shaped the Partner and Family Safety Protocol, which detailed how the program would manage partner contact, safety concerns and mandatory reporting. As one partner noted in the qualitative research: *"They never forgot that while they were trying to help him, I was the one living with the consequences."* This careful attention to safety was recognised and valued by a number of partners interviewed, who reported that having access to ReINVEST clinicians for support and safety planning was crucial to their own wellbeing.

Key principles of the ReINVEST Partner and Family Safety Protocol



SUMMARY AND BEST NEXT STEPS

"I've noticed since my partner started with the trial that there has been a change in his mood, as he seems more settled or calmer within himself. His reactions have slowed and [he's] less quick to react in disagreements. I've also noticed the real honesty he's been providing to his worker when doing the questionnaires and it's been good to see him actually be able to look back and realise the changes he's made since he's been on the program. Overall, I believe it has made a helpful difference in him and our relationship."

Partner of trial participant

ReINVEST represents a world first double-blind, RCT that investigated the effectiveness of sertraline, administered to men with convictions for violence (including domestic violence) who were also highly impulsive. Our experience revealed that many men who use violence have troubled upbringings, mental illnesses, substance use issues, unemployment and relationship challenges. The level of unmet need was such that simple administration of medication without addressing these broader needs was deemed inappropriate. Hence, engagement with their complex needs became an essential ingredient of the ReINVEST approach.

The trial was inconclusive with respect to general violent offending. However, clinically meaningful reductions were observed in domestic violence offending - particularly important as domestic violence involves emotionally charged, impulsive reactions within intimate relationships.

The dramatic improvements during the 4-week active run-in phase, positive effects of sertraline at 12- and 24-months post-randomisation, strong program engagement effects and overwhelmingly positive partner/family outcomes demonstrate that the combination of pharmacotherapy with trauma-informed psychosocial support represents a promising approach for preventing domestic violence perpetration.

ReINVEST offers an implementation-ready model with proven delivery mechanisms, established referral pathways, strong cost-effectiveness, significant public support and a clear blueprint based on real-world experience and context. The program successfully engaged a population that typically "falls through the cracks" of traditional services, providing comprehensive support that addressed the full spectrum of participants' complex needs.

ReINVEST demonstrates that with appropriate pharmacotherapy, many of these men can achieve meaningful behavioural change and reductions in offending. The findings provide a new evidence-based option for addressing domestic violence at the perpetrator level, working in conjunction with victim-focused services and offering a pathway to intervention for high-risk individuals who may not otherwise engage with existing mainstream programs.

Priority next steps

Our recommendation is for ReINVEST to be extended from a trial into a full program across NSW and Australia more broadly.

The trial has also identified a number of research priorities for future investigation:

- Identifying predictors of SSRI response (precision medicine approach i.e., pharmacogenomics) for targeted intervention.
- Develop systems for measuring close to real-time program effectiveness that will be enable evaluation and continuous improvement.
- Effectiveness of SSRIs on domestic violence and behavioural measures in other groups such as women, people with mental illness, personality disorders and those without prior DV convictions at high risk of DV offending.
- Understanding mechanisms differentiating domestic from general violence effects.
- Working closely with First Nations groups to ensure that implementation is culturally sensitive and appropriately implemented.
- Defining the optimal duration and intensity of medication and support.
- Unpacking the role of substance use as mediator or moderator.
- Systematic measurement of partner and child outcomes.
- Leverage findings to develop a family level intervention.
- Economic modelling of cost effectiveness, the social return on investment from reduced incarceration and broader societal benefits of the program.

Policy implications

ReINVEST provides rare rigorous evidence for a domestic violence perpetrator intervention. The clinically meaningful reductions in domestic violence reoffending in the sertraline group compared to the placebo group (23% reduction at 12 months; 21% reduction at 24 months) in parallel with the 45% reduction in the sertraline group when compared to the N-Rand group are extremely promising results. These significant reductions, if replicated at scale, could contribute substantially to government violence reduction targets and reduce levels of incarceration.

It is worth emphasising that convictions represent the tip of the iceberg in terms of DFV with much going unreported. Perpetrator programs like ReINVEST are preventative in nature; meaning they offer the unique potential for perpetrator and family supports to address underlying needs (psychological, relational and social) *before* escalation into violent offending. This implies there is scope for upstream value that goes beyond the conservative findings we report. Thus, ReINVEST represents a unique opportunity to address Australia's DFV crisis at its roots, and lead global efforts to break the cycle of violence.

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SUPPLEMENTARY MATERIALS

Supplementary Table 1. Offence codes for domestic violence

Lawpart code	ANZSOC code	Offense description
64782	213	Common assault (DV)-T2
64780	211	Assault occasioning actual bodily harm (DV)-T2
65020	1531	Contravene prohibition/restriction in AVO (Domestic)
70753	291	Stalk/intimidate intend fear physical etc harm (domestic)-T2
64883	1219	Destroy or damage property (DV)
64882	1219	Destroy or damage property <=$2000 (DV)-T2
77103	211	Reckless wounding (DV)-T1
64748	211	Recklessly wound any other person (DV)-T1
64908	111	Murder (DV)-SI
82221	211	Intentionally choke etc person with recklessness (DV)-T1
64772	212	Assault officer in execution of duty (DV)-T2
64884	1211	Damage property by fire/explosion >$15000 (DV)-T1
64746	211	Recklessly cause grievous bodily harm (DV)-T1
64737	211	Wound person intend to cause grievous bodily harm (DV)-SI
70754	291	Attempt stalk/intimidate intend fear of harm (domestic)-T2
67804	311	Indecent assault person under 16 years of age (DV)-T1
77099	211	Reckless grievous bodily harm (DV)-T1
64887	1211	Damage property by fire/explosion <=$2000 (DV)-T2
64888	1211	Damage property by fire/explosion (DV)
64881	1219	Destroy or damage property >$2000 & <=$5000 (DV)-T2
64800	311	Assault with act of indecency (DV)-T2
64781	211	Assault occasioning actual bodily harm in company of other(s) (DV)-
64738	211	Cause grievous bodily harm to person with intent (DV)-SI
64724	121	Cause wounding/grievous bodily harm to person with intent to
64885	1211	Damage property by fire/explosion >$5000 &<=$15000 (DV)-T1
64775	1562	Resist officer in execution of duty (DV)-T2
73453	491	Refuse to provide necessities of life injure health (DV)-T1
64783	311	Sexual intercourse without consent (DV)-SI
64861	511	Take/detain person with intent to obtain advantage cause actual
64896	532	Threaten to destroy/damage other persons property (DV)-T1
64810	312	Commit act of indecency with person 16 years or over (DV)-T2
64828	311	Commit act of indecency with victim under 10 years (DV)-T1
64879	1219	Destroy or damage property >$15000 (DV)-T1
64806	311	Aggravated Indecent Assault (DV)-T1
64751	211	Attempt choke etc with intent commit indictable offense (DV)-SI
64886	1211	Damage property by fire/explosion >$2000 &<=$5000 (DV)-T2
77100	211	Reckless wounding - in company (DV)-T1
69120	1531	Attempt to breach prohibition/restriction in Domestic AVO
67801	311	Agg sex assault- deprive liberty (DV)-SI
67764	1219	Destroy/damage property in company <=$2000 (DV)-T2

64909	131	Manslaughter (DV)-SI
70722	311	Agg indecent assault-victim has cognitive impairment (DV)-T1
67813	311	Sexual intercourse with person under age of 10 years (DV)-SI
67838	311	Sexual intercourse person under 10-under authority (DV)-SI
64863	511	Take/detain child with intent to remove from parental control DV-SI
64895	121	Destroy/damage property with intent to endanger life (DV)-SI
64875	1122	Fire firearm at dwelling-house disregard for safety (DV)-SI
64736	532	Send etc document threatening death or grievous bodily harm (DV)-T1
64745	211	Recklessly cause grievous bodily harm in company (DV)-T1
64747	211	Recklessly wounds other whilst in company (DV)-T1
64774	211	Assault person with intent to resist/prevent apprehension (DV)-T2
64777	1562	Wilfully obstruct officer in execution of duty (DV)-T2
64779	211	Assault person with intent to commit serious indictable off (DV)-T2
64786	311	Agg sex assault- victim under the age of 16 years (DV)-SI
64790	311	Agg sex assault-threat to inflict ACTUAL BODILY HARM victim
64795	311	Aggravated sexual assault in company deprive liberty (DV)-SI
64803	311	Agg indecent assault- victim intellectual disability (DV)-T1
64805	311	Agg indecent assault- victim under authority (DV)-T1
64814	311	Agg indecency-victim <16 & under authority offender (DV)-T2
64858	511	Take/detain person with intent to obtain advantage (DV)-SI
64730	121	Attempt to administer poison to person with intent to murder (DV)-SI
64873	1122	Fire firearm manner likely injure persons/property (DV)-T2
85915	311	Sexual intercourse with child under the age of 10 years (DV)-SI

Supplementary Table 2. ReINVEST papers and reports		
Topic	**Theme**	**Status**
Sertraline to reduce recidivism in Impulsive Violent offenders (ReINVEST): A Randomised Double Blind Clinical Trial	Main findings – ITT / Supplementary analysis	Lancet *eClinicalMedicine*. December 2025. DOI: 10.1016/j.eclinm.2025.103668
Sertraline hydrochloride for reducing impulsive behaviour in male, repeat-violent offenders (ReINVEST): protocol for a phase IV, double-blind, placebo-controlled, randomised clinical trial	Protocol paper	BMJ Open. 2021 DOI: 10.1136/bmjopen-2020-044656
Pharmacotherapy to reduce violent offending? Offenders might be interested.	Willingness to participate	ANZ J Psychiatry 2019 DOI: 10.1177/0004867419835937
Tackling violent crime using pharmacotherapy.	Opinion piece	Judicial officers bulletin 2020 Vol. 32, No. 10, Nov 2020: 103-108
Are we getting value for money from behavioral interventions for offenders? A research note reviewing the economic evaluation literature.	Economic perspective on trial	American J Criminal Justice 2018 DOI: 10.1007/s12103-017-9399-1
Assessing societal and offender perspectives on the value of offender healthcare: a stated preference research protocol.	Stated preference research protocol	BMJ Open 2019 DOI: 10.1136/bmjopen-2018-024899
Societal preferences for the treatment of impulsive-violent offenders: a discrete choice experiment.	Preferences for treatment programmes for impulsive violent offenders.	BMJ Open 2021 DOI: 10.1136/bmjopen-2019-033935
Neuropsychiatric correlates of olfactory identification and traumatic brain injury in a sample of impulsive violent offenders.	Olfaction and TBI	Frontiers in Psychology 2023 DOI: 10.3389/fpsyg.2023.1254574
Self-reported traumatic brain injury in a sample of impulsive violent offenders: neuropsychiatric correlates and possible dose effects.	Olfaction and TBI	Frontiers in Psychology 2023 DOI: 10.3389/fpsyg.2023.1243655
ReINVEST trial partner and family interviews: qualitative content analysis	Women's views on ReINVEST	Report available 2022 https://researchoutputs.unisa.edu.au/11541.2/39664
"You think that, again, that's the medication": reflecting on qualitative methods for interviewing family members of violent and impulsive men in an intervention trial	Reflective piece on the experiences of families	Qualitative Research in Psychology 202 DOI: 10.1080/14780887.2023.2240733
Predicting attrition of men with a history of violence from randomised clinical trials	Attrition from ReINVEST	Trials 2023 DOI: 10.1186/s13063-023-07774-3
The Impact of Behavioural Nudges on Clinical Trial Retention of Men with a History of Violent Offending	Nudges	Justice, Opportunities, and Rehabilitation 2025 DOI: 10.1080/2997965X.2025.248006

Supplementary Table 2. ReINVEST papers and reports		
Topic	**Theme**	**Status**
The co-constitution of chaos: The entangling of individual and institution in the Australian criminal justice system	Inner- Outer-chaos in participants' lives	Journal of Criminology. 2025. DOI: 10.1177/26338076241309653
Women's experiences of changes in related men's impulsivity and domestic violence following men's participation in the ReINVEST clinical trial	Partner/family member views	BMC Public Health 2025 DOI: 10.1186/s12889-025-24056-6

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