

Technical Report

Pulling out of gambling treatment:

Research, service, practitioner, and client perspectives

(Technical Report: Extended Methods)

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June 2025

Acknowledgements

We would like to thank the invaluable input from an Expert Advisory Panel of people with lived experience of gambling harm with whom this project was co-designed, including Mele Siaosi Pese and Emma Hunter, among others. We would also like to acknowledge the research support provided by A/Prof Simone Rodda, Ms Monique Gandhi, and Dr Stephanie Dias, as well as the generous support and advice from Bridgitte Thornley and Karena Quigley from PGF Services, Lisa Campbell from Life Foundations, and Kenny Daly from Health New Zealand (Te Whatu Ora). Last but not least, we would like to thank the participants for their contributions to this project.

Funding

This project was funded by the Ministry of Health - Manatū Hauora Gambling Harm Research Programme.

Suggested citation

Hawker, C. O, Merkouris, S. S., Dowling, N. A., & Thomas, A. C. (2025). *Pulling out of gambling treatment: Research, service, practitioner, and client perspectives (Technical Report)*. Wellington, New Zealand: Ministry of Health.

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Table of Contents

APPENDIX A. SCOPING REVIEW: EXTENDED METHODS	5
A.1. Aims	5
A.2. Methods	5
Reference list of the included studies	2
APPENDIX B. SERVICE ANALYSIS: EXTENDED METHODS	9
B.1. Aims	9
B.2. Methods	9
<i>B.2.1. Design</i>	9
<i>B.2.2. Setting</i>	9
<i>B.2.3. Participants</i>	10
<i>B.2.4. Procedure</i>	10
<i>B.2.5. Ethics and Approvals</i>	10
B.3. Measures	10
<i>B.3.1. Client measures</i>	10
<i>B.3.2. Service utilisation measures</i>	11
B.4. Statistical Analysis	12
APPENDIX C. PRACTITIONER SURVEY & HUI: EXTENDED METHODS	13
C.1. Aims	13
C.2. Methods	13
<i>C.2.1. Design</i>	13
<i>C.2.2. Participants</i>	13
<i>C.2.3. Procedure</i>	13
<i>C.2.4. Ethics and Approvals</i>	14
<i>C.2.5. Measures</i>	14
<i>C.2.6. Statistical Analysis</i>	16
APPENDIX D. CLIENT SURVEY: EXTENDED METHODS	17
D.1. Aims	17
D.2. Methods	17
<i>D.2.1. Design</i>	17
<i>D.2.2. Setting</i>	17
<i>D.2.3. Participants</i>	18
<i>D.2.4. Procedure</i>	18
<i>D.2.5. Ethics and Approvals</i>	19
D.3. Measures	19
<i>D.3.1. Pre-treatment Measures</i>	19

<i>D.3.2. 1-month follow-up survey</i>	25
D.4. Statistical Analysis	28
TECHNICAL REPORT REFERENCES	30

Appendix A. Scoping review: Extended Methods

A.1. Aims

To map the definitions, estimates, predictors, reasons, consequences, and solutions of pulling out of treatment (typically called ‘dropout’ in research) reported during face-to-face psychological treatment in contemporary gambling research (last 20 years).

A.2. Methods

A scoping review was conducted following Arksey and O’Malley’s five-stage framework, enhanced by Levac et al.,^{1,2} and reported in accordance with the guidelines for Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for scoping reviews (PRISMA-ScR).³ A review protocol was registered in June 2024 (osf.io/8cnbe). Research questions were developed collaboratively. In February 2025, a systematic search was conducted across four databases (APA PsycInfo, Medline Complete, CINAHL, Embase) using keywords related to gambling, treatment, and dropout. The search was limited to English-language studies published from 2004 onwards. Grey literature was searched via the first 100 Google search results, and reference lists of included studies were manually screened.

Studies were eligible if they reported original quantitative or qualitative data on pulling out of treatment during face-to-face psychological treatment for adults seeking help for their own gambling. Titles and abstracts were screened independently by two researchers, followed by full-text review. Data were independently extracted in duplicate using a standardised form that captured study characteristics and the six key indices of pulling out of treatment. Discrepancies were resolved through discussion. The results were narratively synthesised, with

implications for research, policy, and practice discussed. Search strategy and eligibility criteria are detailed in Tables A1 and A2. The PRISMA-ScR flow diagram (Figure A1) outlines that the search yielded 2,127 studies, of which 66 studies (from 67 articles) were included, contributing data to the definitions (k=48; 73%), estimates (k=62; 94%), predictors (k=49; 74%), reasons (k=10; 15%), consequences (k=5; 8%), and solutions (k=2; 3%) indices of pulling out of treatment. A reference list of the included studies is provided at the end of this Appendix A.

Table A1. Search strategy and eligibility criteria for the scoping review

	Electronic search strategy
Group 1 – Gambling terms	<ul style="list-style-type: none"> • (TI gambl* OR AB gambl*)
Group 2 – Pulling out of treatment-related terms	<ul style="list-style-type: none"> • (TI dropout* OR AB dropout*) OR • (TI drop* out* OR AB drop* out*) OR • (TI drop-out* OR AB drop-out*) OR • (TI attrition OR AB attrition) OR • (TI retention OR AB retention) OR • (TI discontinu* OR AB discontinu*) OR • (TI withdraw* N3 treatment OR AB withdraw* N3 treatment) OR • (TI “premature cessation” OR AB “premature cessation” OR • (TI “premature termination” OR AB “premature termination”) OR • (TI non-complet* OR AB non-complet*) OR • (TI complet* OR AB complet*) OR • (TI “treatment refusal” OR AB “treatment refusal”) OR • (TI Homework of” OR AB Homework) OR • (TI attend* OR AB attend*) OR • (TI engage* OR AB engage*) OR • (TI adher* OR AB adher*) OR • (TI non-complian* OR AB non-complian*) OR • (TI complian* OR AB complian*)
Group 3 – Treatment-related terms	<ul style="list-style-type: none"> • (TI interven* OR AB interven*) OR • (TI treat* OR AB treat*) OR • (TI therapy OR AB therapy) OR • (TI program OR AB program)
Final search	<ul style="list-style-type: none"> • Group 1 AND Group 2 AND Group 3

Table A2. Eligibility criteria for scoping review

Eligibility criteria	
Inclusion criteria	<ul style="list-style-type: none"> • Data relates to during-treatment dropout from a psychological intervention for people who gamble, delivered face-to-face (in-person or via telehealth). The intervention: <ul style="list-style-type: none"> ○ Can be delivered in any format (e.g., individual, couple, group etc.). ○ Must be a tertiary intervention (i.e., treatment not prevention). ○ Must involve individuals who gamble (i.e., not affected others). ○ Must involve adult individuals who gamble (i.e., aged 18 years or above). • Study abstract must explicitly refer to the six indices of dropout under examination (definition, estimates, reasons, predictors, consequences, solutions). Additional notes regarding: <ul style="list-style-type: none"> ○ Definitions: Study must present an explicit definition regardless of the term used (e.g., adherence, compliance, retention, attendance; or inferred via definition of treatment completion). ○ Reasons: Study must present reasons explicitly reported by participants. ○ Solutions: Study must report on the use of interventions/strategies implemented to redress during-treatment dropout (e.g., does not include potential solutions offered by the authors in the Discussion nor study protocols to improve retention at follow-up).
Exclusion criteria	<ul style="list-style-type: none"> • Any study design providing original, empirical data. • Studies were published from 2004 onwards in the English language. • Data relates to dropout from an intervention that is primarily: <ul style="list-style-type: none"> ○ A primary or secondary intervention (e.g., prevention). ○ Self-directed or delivered online or via telephone. ○ Pharmacological treatment. ○ Neuropsychological treatment (e.g., cognitive bias modification). ○ For multiple conditions and includes a condition not of interest. ○ For affected others (e.g., family and friends of people who gamble). • Data is derived from composite outcome measures (e.g., measuring relapse and dropout together as an indicator of “treatment failure) where dropout-specific data was not analysed and presently separately. • Study abstract only refers to dropout as an implication of the study but is not actually explored in the study. • Study is published in a book chapter, dissertation, conference presentation/abstract.

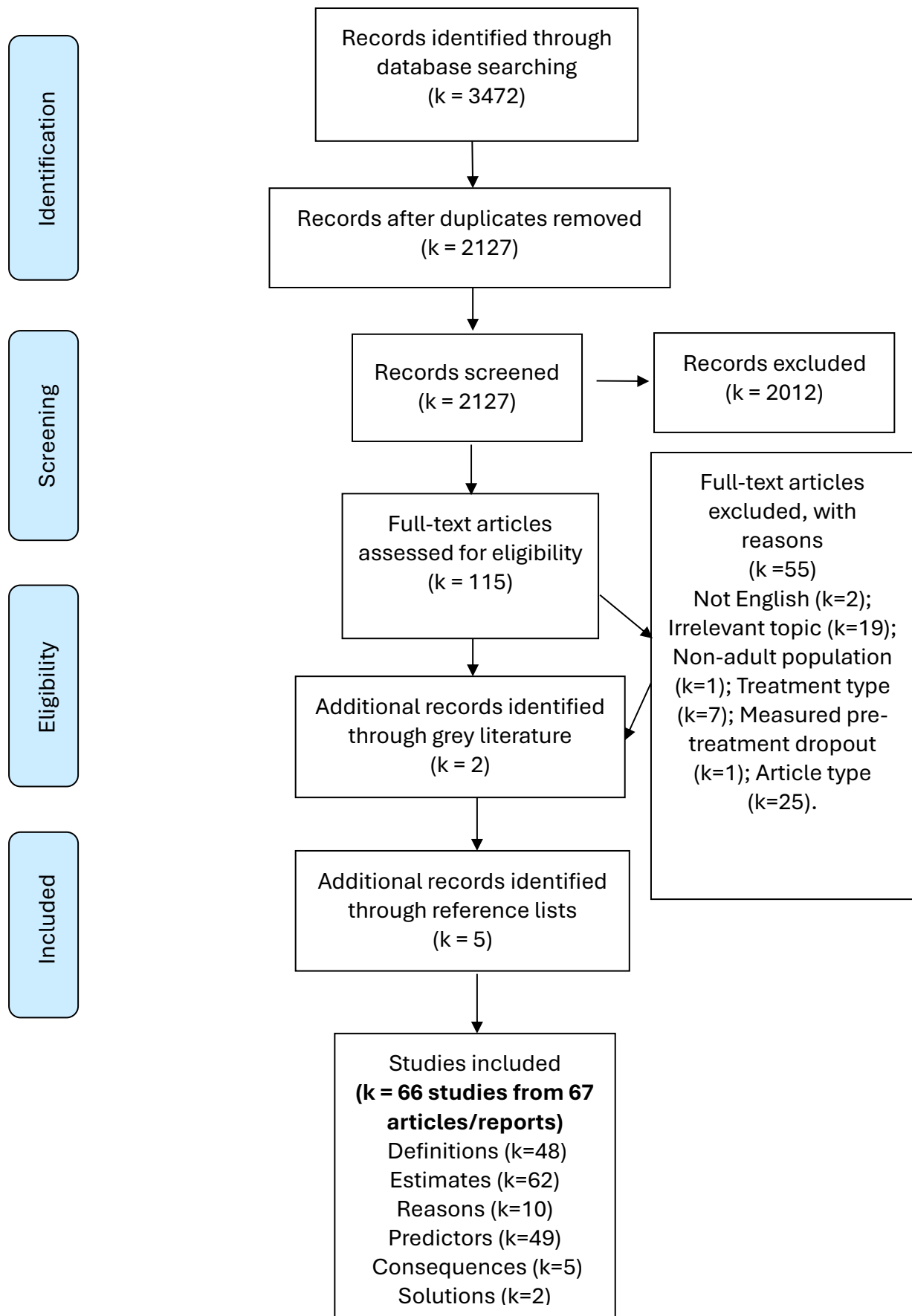


Figure A1. PRISMA-ScR flow diagram of search results for the scoping review

Reference list of the included studies

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Appendix B. Service analysis: Extended Methods

B.1. Aims

To examine estimates, reasons, and predictors of attendance^a (of a single session vs. multiple [2-5] sessions vs. a longer course of 6 or more sessions) using 10 years of routinely collected data from a national network of specialist outpatient gambling treatment services across Aotearoa New Zealand (2014-2023).

B.2. Methods

B.2.1. Design

Retrospective cohort study.

B.2.2. Setting

The New Zealand Ministry of Health funds free, community-based treatment for people affected by gambling harm. A typical “full intervention” comprises up to six 60-minute clinical sessions over three months, focusing on screening, therapy, relapse prevention, and exit planning, as well as ‘facilitation’ sessions to help clients access support for co-occurring issues. While six sessions is a common benchmark, treatment is flexibly tailored in length, content, format (individual, group, couple, family), and modalities (face-to-face, remote). Follow-up sessions are routinely offered at 1-, 3-, 6-, and 12-months. Treatment is delivered by a range of qualified professionals. Clients can self-

^aThis study focused on session attendance rather than “pulling out of treatment,” as clients could not be reliably classified as having pulled out due to the absence of a predefined treatment length, routine outcome measures, or systematically employed indicators of treatment completion.

refer or be referred through health, justice, or social services, gambling venues, or personal networks.

B.2.3. Participants

Participants were 18,642 outpatients admitted between 01/01/2014 – 31/12/2023 to a network of over 15 gambling harm support services in Aotearoa New Zealand. Inclusion criteria were: (1) adults (aged 18 years or above) seeking help for harm related to their own gambling; and (2) attending at least one full intervention session.

B.2.4. Procedure

De-identified data for this study were sourced from the Client-Led Integrated Care (CLIC) database, through a formal data access agreement with Health New Zealand.

B.2.5. Ethics and Approvals

Ethics approval was obtained from the Deakin University Human Research Ethics Committee (2024/HE000278). Health New Zealand retains any intellectual property rights it holds to the data and any requests for access to this data require their consent.

B.3. Measures

B.3.1. Client measures

Sociodemographic information. Client records reported age (at the first session), gender (male/female), cultural identity (self-identified), and annual household income (\$NZD; via seven income brackets).

Gambling-related characteristics. Past-year problem gambling severity was assessed by the 9-item Problem Gambling Severity Index (PGSI); total scores can be classified as non-problem gambling (score of 0), low-risk gambling (scores of 1-2),

moderate-risk gambling (scores of 3-7), and problem gambling (scores of 8-27).⁴ Past-month control over gambling was assessed by a single item with four response options ranging from “no control” to “complete control”. Past-month gambling expenditure (in New Zealand dollars lost) was assessed by a single item.

Risky alcohol use. Risky alcohol use was indicated by total scores of 5 or more for men and 4 or more for women on the three-item Alcohol Use Disorders Identification Test - Consumption (AUDIT-C).⁵

Depressive symptoms. Depressive symptoms were indicated by endorsement of either item on the two-item Patient Health Questionnaire (PHQ2),⁶ where the original 4-point scale was replaced with a binary yes/no scale.

Self-harm and suicidality. Self-harm and suicidality were indicated by endorsement of related ideation, planning, or behaviour in a single yes/no item.

Family concern. Family concern about the clients’ health or wellbeing was indicated by endorsement of a single yes/no item.

B.3.2. Service utilisation measures

Number of sessions attended. Practitioners reported the number of clinical, facilitation, and follow-up sessions) attended.

Treatment characteristics. Practitioners reported the intervention modality (face-to-face or remote) and format (individual, group, couple, or family) per session.

Reason for discharge. Where practitioners reported a session as the ‘last session’, they identified one of five reasons for the session ending (no further contact requested, unable to be contacted following three unsuccessful contact attempts,

transferred to another problem gambling service, transferred to a non-problem gambling service, or treatment plan complete).

Treatment status. Session attendance was used to define three client subgroups: (1) those who attended a single session; (2) those who attended between two and five sessions; and (3) those who attended six or more sessions.

B.4. Statistical Analysis

Analyses were conducted in Stata v18.0. Data from clients under 18 or over 100 years were excluded (n=88), along with one client missing gender information, resulting in a final sample of 18,642. Gambling expenditure data were winsorised at the 99th percentile to reduce the influence of extreme values. Due to reliance on intake measures, some variables had high rates of missing data (39.4%–49.2%: see Table B1).

Variables dichotomized for analyses included: income (ref: ≤\$100,000 vs. >\$100,000),⁷ problem gambling severity (ref: PGSI <8 vs. ≥8), gambling control (ref: none/little vs. some/full), risky alcohol use (ref: absent vs. present), depressive symptoms (ref: absent vs. present), self-harm/suicidality (ref: absent vs. present), intervention type (ref: individual vs. other), and modality (ref: face-to-face vs. remote).

Descriptive statistics were used to summarise sample characteristics and treatment attendance. Chi-square tests examined differences in reasons for discharge, limited to those with a recorded final session. To identify predictors of treatment attendance, relative risk ratios were calculated using multinomial logistic regression. The outcome variable had three categories: one session, 2–5 sessions, and 6 or more sessions (reference group). Variables significant in univariate models were included in the multivariate model. Results were considered statistically significant at $p < .05$.

Appendix C. Practitioner survey & hui: Extended Methods

C.1. Aims

To explore practitioners' perspectives on the definitions, estimates, predictors, reasons, consequences, and potential solutions related to clients pulling out of gambling treatment in Aotearoa New Zealand.

C.2. Methods

C.2.1. Design

Cross-sectional survey study and an online hui with a sub-group of participants.

C.2.2. Participants

Participants were 15 current practitioners across four gambling treatment services in Aotearoa New Zealand. A subsample of four practitioners from two services also participated in the follow-up hui. Practitioners were invited to participate if they were: (1) adults (aged 18 years or above); (2) current gambling harm treatment practitioners in New Zealand; and (3) sufficient in English literacy to complete the survey.

C.2.3. Procedure

Practitioners were recruited via convenience and snowball sampling through the online distribution of study flyers to specialist gambling treatment services across Aotearoa New Zealand. Services were invited to share the study with eligible practitioners, who accessed a 20-minute online Qualtrics survey. At the end of the survey, participants were asked whether they consented to be contacted for a follow-up hui to discuss service perspectives on the project findings and their implications for service delivery.

Those who consented were invited to select preferred times from a range of options. A hui timeslot was chosen to maximise participation and diversity (e.g., gender, cultural identity, role, service type). The two-hour hui was conducted via Zoom. While survey participants were not reimbursed, hui participants received a \$100NZD shopping voucher in appreciation of their time and input.

C.2.4. Ethics and Approvals

Ethics approval was obtained from the Deakin University Human Research Ethics Committee (2024/HE000278) and Aotearoa Research Ethics Committee (AREC24_63).

C.2.5. Measures

Background information. Practitioners provided demographic and professional background information, including age (in years), gender, country of birth, cultural identity (Māori, New Zealand European/Pākehā, Pacific, Asian, and/or Other), clinical role (counsellor, peer support worker, manager, team leader, and/or other) years of experience in delivering gambling harm services, and primary place of work.

Definitions. A series of open-ended items asked practitioners to define 'dropout', 'engagement,' and 'adherence' in the context of gambling treatment. Practitioners then ranked their preferred terminology to describe non-completion of a full course of treatment, out of 'dropout,' 'poor engagement,' 'poor adherence,' or 'other' (practitioner-specified), on a scale from 1 (most preferred) to 4 (least preferred).

Estimates. Practitioners estimated the proportion of their own clients, and their services' clients, who pull out of treatment early using two sliding scale items (0-100%)

Reasons. An initial open-ended item asked practitioners why they believe most clients pull out of treatment. A subsequent 12-item version of the Reasons for Leaving

Questionnaire,⁸ adapted based on findings from the project's scoping review, was used to assess how frequently practitioners encountered commonly reported reasons for pulling out of treatment in their practice. Example reasons were logistical barriers, worsening of problem severity, feelings of hopelessness, and clients getting what they needed from treatment. An open-ended "other" option was used to capture additional practitioner-specified reasons. The original true/false response scale was modified to a 5-point scale, from 1 (not at all often) to 5 (extremely often), with higher scores indicating more frequently encountered reasons.

Predictors. Practitioners were presented with a list of potential predictors of clients pulling out of treatment, based on the project's scoping review findings. These predictors spanned five domains, including: (1) nine sociodemographic factors; (2) 14 gambling-related factors (e.g., gambling urges); (3) 17 psychological factors (e.g., anxiety symptoms); (4) five social factors (e.g., lack of family support); and (5) 20 treatment-related factors, including 12 client-related factors (e.g., readiness to change), and 8 practitioner-related or treatment-specific factors (e.g., therapeutic alliance, therapeutic modality). Each domain included an open-ended "other" item to capture additional practitioner-specified predictors. Practitioners rated the perceived likelihood that each factor predicted clients pulling out of treatment on a 5-point scale from 1 (not at all likely) to 5 (extremely likely), with an additional "not sure" option. Higher scores indicated greater perceived likelihood of predicting pulling out of treatment.

Consequences. A series of five open-ended items asked practitioners to identify positive and/or negative consequences of pulling out of treatment on the client's gambling behaviour and issues, mental health and other addictive issues, social/family support and issues, engagement in future treatment, and any other consequences.

Solutions. Two open-ended items asked practitioners to identify their top five strategies (with at least two required) that practitioners or services could use to improve treatment attendance, and any additional comments about potential solutions.

C.2.6. Statistical Analysis

All statistical analyses were conducted using Stata v18.0.⁹ Quantitative data was summarised using descriptive statistics (means, standard deviations, frequencies, percentages). There was no missing data due to forced survey responses. “Not sure” responses to items assessing perceived predictors of pulling out of treatment were, however, treated as missing data, which explains variation in the number of respondents to each predictor item. Qualitative responses relating to definitions, reasons, consequences, and solutions to pulling out of treatment were analysed thematically, with responses grouped into major themes using thematic analysis techniques.¹⁰

Appendix D. Client survey: Extended Methods

D.1. Aims

To explore estimates, predictors, reasons, consequences, and potential solutions related to pulling out of gambling treatment at a 1-month follow-up among clients attending gambling harm services in Aotearoa New Zealand.

D.2. Methods

D.2.1. Design

Prospective, two-timepoint (pre-treatment and 1-month follow-up²) survey study.

D.2.2. Setting

Clients involved in this study attended specialist gambling treatment services across New Zealand. While treatment models varied across services, the models typically involve the provision of personalised psychosocial support delivered through a series of one-on-one clinical sessions. These sessions commonly focus on screening, goal setting, treatment, relapse prevention, and exit planning, with additional support available to address co-occurring issues through referral to other services. Treatment length and content were flexible, tailored to the client's needs, and not bound by a fixed number of sessions, though some services recommend up to six sessions over a three-month period. Services could offer sessions in-person or remotely (e.g., via phone or video). Practitioners could include a range of qualified professionals such as counsellors, psychologists, social workers, and peer support workers. Clients could

² The follow-up interval was limited to one month due to project delivery timeframes and delays in AREC ethics approval caused by review backlogs.

access services through various referral pathways, such as self-referral or referrals from health, social, justice, or community services.

D.2.3. Participants

At the time of reporting, participants were 35 clients across four gambling harm treatment services in Aotearoa New Zealand with completed follow-up surveys. Clients were invited to participate if they were: (1) adults (aged 18 years or above) currently living in New Zealand; (2) about to begin, or had recently begun (e.g., in the past month), psychological treatment for harm related to their own gambling; and (3) sufficient in English literacy to complete the surveys. At the time of reporting, 69 clients had completed pre-treatment surveys. Of these, 57 had been invited to complete the follow-up survey, of which 8 did not respond within the required timeframe, while 14 were still within the active response window.

D.2.4. Procedure

Purposive sampling was conducted through specialist gambling treatment services in New Zealand. Services were invited to support recruitment by sharing study information with eligible clients. Interested clients accessed a 30-minute online pre-treatment survey via a Qualtrics link. At the end of the survey, participants provided contact details to receive a 20-minute follow-up survey invitation one month later. Follow-up invitations were sent by email, with up to two weekly reminders. Participants were reimbursed up to \$75NZD in shopping vouchers: \$30 for completing the pre-treatment survey and \$45 for the follow-up.

D.2.5. Ethics and Approvals

Ethics approval was obtained from the Deakin University Human Research Ethics Committee (2024/HE000278) and Aotearoa Research Ethics Committee (AREC24_63).

D.3. Measures

D.3.1. Pre-treatment Measures

Background information

Sociodemographic characteristics. Using a series of single items, clients reported their age (in years), gender, birth country, ethnicity/ethnicities, marital status, employment status, and residential postcode in New Zealand.

Gambling-related measures

Gambling symptom severity and urges. The Gambling Symptom Assessment Scale (G-SAS)¹¹ was used to assess gambling symptom severity over the past week. The full 12-item scale was used to calculate total symptom severity, while the first four items were analysed separately to assess gambling urges. Items are rated on a scale from 0 to 4, with higher scores indicating greater symptom severity. Total scores range from 0 to 48, with established cut-points indicating mild (8–20), moderate (21–30), severe (31–40), and extreme (41–48) severity levels. The G-SAS has demonstrated strong internal consistency ($\alpha = .89-.91$).¹¹

Gambling harms. The 7-item Domain-General Gambling Harms Scale (DGHS-7)¹² was used to assess gambling-related harms experienced over the past year. Each item reflects a distinct domain of harm (financial, relationship, emotional, health, work/study, cultural, and legal) and is rated on a 5-point scale from 0 (no

impact) to 4 (major impact), with higher scores indicating greater harm. The DGHS-7 has demonstrated strong internal consistency ($\alpha = .88$).

Gambling behaviour. Two single items were used to assess recent gambling behaviour: the number of days gambled (frequency) and the total amount of money lost to gambling (expenditure) in the past month.

Gambling cognitions. The Gambling Fallacy subscale of the Jonsson-Abbott Scale (JAS)¹³ was used to assess distorted beliefs about gambling. The subscale includes three items assessing fallacies related to money (“*My gambling is a way to make money*”), skill (e.g., “*When I win, it is due to my skill*”), and chance (“*If I just gamble enough, my gambling will pay off*”). Responses are rated on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating stronger endorsement of gambling cognitions. The subscale has shown good internal consistency ($\alpha = .83$) and convergent validity¹³.

Gambling motives. Gambling motives were assessed using four items from the Gambling Motives Questionnaire–Financial (GMQ-F)¹⁴ selected based on their highest factor loadings. Each item represented a distinct motive: enhancement (“*because it’s exciting*”), social (“*because it makes social gatherings more enjoyable*”), coping (“*to forget worries*”), and financial (“*the thought of a jackpot*”). Items are rated on a 4-point scale from 1 (almost never/never) to 4 (almost always/always), with higher scores indicating stronger gambling motives. The GMQ-F has demonstrated good internal consistency ($\alpha = .88$).¹⁴

Gambling urge self-efficacy, importance, and priority. Three sliding-scale items¹⁵ were used to assess clients’ confidence in resisting gambling urges, the importance they placed on limiting or stopping gambling, and the extent to

which they prioritised this change in their lives. Items are rated on a scale from 1 to 10, with higher scores indicating greater self-efficacy, importance, or priority, respectively. These items provided brief, continuous indicators of psychological readiness and commitment to change.

Other gambling-related characteristics. A series of single items were used to assess: (1) age the client began gambling; (2) age the client began ‘harmful gambling’ (i.e., experiencing issues with gambling); (3) presence of a family history of harmful gambling; (4) current or past issue with gambling activities (number games, electronic gaming machines, informal private betting, table games, race betting, sports betting, and other); (5) current preferred gambling modality (venue, online, or both); and (6) presence of current gambling debt.

Psychological and social measures

Mental health and wellbeing. The Hua Oranga framework¹⁶ was used to assess mental health and wellbeing across four domains: taha wairua (spiritual), taha hinengaro (mental), taha tinana (physical), and taha whānau (family). Each domain was assessed using four items rated on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating greater wellbeing. Both total and subscale scores were calculated to provide overall and domain-specific indicators of wellbeing. Although internal reliability data for the full 16-item version are limited, the Hua Oranga is widely recognised for its strong cultural relevance in Māori and general New Zealand populations.¹⁷

Anxiety symptoms. Anxiety symptoms over the past two weeks were measured using the Generalized Anxiety Disorder 2-item scale (GAD-2).¹⁸ Items are rated on a 4-point scale from 0 (not at all) to 3 (nearly every day), with a total score of 3 or

more suggesting possible clinically significant anxiety.¹⁹ The GAD-2 has demonstrated good reliability ($\alpha = 0.81$) and validity as a screening tool.¹⁹

Depressive symptoms. Depressive symptoms were assessed using the Patient Health Questionnaire-2 item scale (PHQ-2),²⁰ which measures the frequency of depressed mood and anhedonia over the past two weeks. Items are rated on a 4-point scale from 0 (not at all) to 3 (nearly every day), with a total score of 3 or more suggesting possible clinically significant depression.¹⁹ The PHQ-2 has demonstrated good internal reliability ($\alpha = 0.83$) and validity as a screening tool.¹⁹

Risky alcohol use. A single-item screener from the Alcohol Use Disorders Identification Test (AUDIT-3)²¹ was used to assess the frequency of heavy drinking episodes (i.e., consuming six or more drinks on one occasion). Responses range from 0 (never) to 4 (daily or almost daily), with higher scores indicating riskier drinking behaviour. This item has been validated as a reliable standalone screener for hazardous alcohol use.²²

Substance use. Illicit substance use over the past month was assessed using a validated single-item screener,²³ which asked clients how many times they had used an illegal drug or taken prescription medication for non-medical reasons.

Impulsivity. Past-month impulsivity was assessed using six items from the State Impulsivity Scale (SIS),²⁴ comprising the two highest-loading items from each subscale: Reward (difficulty delaying immediate gratification), Automatism (repetitive behaviour despite lack of reward), and Attentional (acting quickly without adequate information). Items are rated on a 4-point scale from 1 (almost never) to 4 (almost always/always), with higher scores indicating greater impulsivity. The SIS has demonstrated strong internal reliability ($\alpha = .88$).²⁴

Dispositional coping. Selected subscales of the Brief COPE²⁵ were used to assess dispositional coping strategies, including helpful strategies (self-distraction, active coping, positive reframing, and planning) and unhelpful strategies (self-blame and behavioural disengagement). Each subscale consists of two items rated on a 4-point Likert scale, with higher scores indicating greater use of the strategy. The Brief COPE is a widely used measure of coping, with internal consistency ranging from .54 to .91 across different populations.^{25, 26}

Social support. Perceived social support was measured using the Brief Social Support Scale (BS6)²⁷ which comprises six items: three assessing tangible support (e.g., help with practical needs) and three assessing emotional-informational support (e.g., someone to talk to or give advice). Items are rated on a 4-point scale from 1 (never) to 4 (always), with higher subscale scores indicating greater perceived support. The BS6 has demonstrated good internal consistency ($\alpha = .86$) and construct validity.²⁷

Family violence. Family violence victimisation/survival and perpetration in the past month were assessed using a modified version of the Hurt-Insult-Threaten-Scream (HITS) scale,²⁸ comprising of two single yes/no items. Participants were asked whether they had used or experienced any form of emotional or physical violence in the past month by a family member.

Treatment-related measures

Help-seeking behaviours. A series of single yes/no items assessed the use of nine different support options for gambling in the past month.²⁹ These included (1) mental health professional or residential facility for gambling, (2) mental health professional or residential facility for other mental health issues, (3)

another gambling support service such as email counselling or helpline, (4) land-based exclusion (5) online exclusion (6) blocking software, family members or friends (8) peer support, and (9) psychotropic medication.

Treatment expectations. Expectations about treatment were assessed using six top-loading items from the Treatment Expectancy Questionnaire (TEX-Q)³⁰ covering anticipated treatment benefit, positive and negative impacts, risk of adverse events, ease of the treatment process, and perceived personal influence over treatment success. Items are rated on sliding scales ranging from 0 to 10, with higher scores reflecting stronger expectations. The TEX-Q has demonstrated good internal consistency ($\alpha = .71-.92$) and construct validity.³⁰

Treatment motivation. Motivation for treatment was measured using six top-loading items from the Client Motivation for Therapy Scale (CMTS),³¹ each representing a distinct motivational type: intrinsic motivation (attending because it is enjoyable), integrated regulation (attending because it aligns with personal values), identified regulation (attending because it is seen as important), introjected regulation (attending due to internal pressure, such as guilt), external regulation (attending due to external demands or rewards), and amotivation (lack of motivation to attend). Items are rated on a 7-point scale from 1 (does not relate to me) to 7 (completely relates), with higher scores indicating stronger endorsement of each motivation type. The scale has demonstrated good factorial validity and internal consistency across all subscales ($\alpha = .70-.92$).³¹

Intention to attend treatment. Clients' intention to attend treatment was assessed using two items adapted from the Therapy Attitudes and Process Questionnaire (TAP)³² measuring subjective norms ("*People important to me*

would approve of me attending treatment”) and intention to attend the next session. Items are rated on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree), with higher scores reflecting stronger endorsement and intention to attend.

Barriers to attendance. Perceived barriers to attending sessions were assessed using top-loading items from three subscales of the Barriers to Retention Scale (BRS)³³ low perceived need for treatment, social concerns, and concerns about missing gambling. All six items from a fourth subscale were also included to assess personal limitations (e.g., forgetfulness or disorganisation; 3 items), and logistical issues (e.g., difficulty finding transport to treatment; 3 items). Items are rated on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating greater perceived barriers. In addition, an open-ended item invited clients to report any other factors that might prevent them from attending treatment sessions. The scale has demonstrated good internal consistency ($\alpha = .88$).³³

Solutions: What would help to improve attendance. An open-ended item invited clients to suggest ways the service or practitioner could encourage them (or someone like them) to attend more sessions, if desired.

D.3.2. 1-month follow-up survey

The follow-up survey reassessed the following constructs measured at pre-treatment using identical instruments: (1) gambling-related measures: symptom severity and urges, gambling behaviour, gambling cognitions, and gambling urge self-efficacy, importance, and priority; (2) all psychological and social measures, with the exception

of social support; and (3) treatment-related measures: help-seeking behaviours and perceived solutions for improving attendance (what would help). The following were also administered to capture more information about the treatment episode.

Treatment status. A series of branching survey items were used to categorise clients into one of three groups:

(1) **Pulled out of treatment:** Clients who had no upcoming sessions and had not completed their allocated sessions or met personal goals, or clients who reported upcoming sessions but did not plan to attend them.

(2) **Completed treatment:** Clients who had no upcoming sessions due to completing their allocated sessions or meeting personal goals. An open-ended item was used to explore early goal attainment for relevant clients.

(3) **Still in treatment:** Clients who reported upcoming sessions and intended to attend them.

Session attendance. Clients reported the total number of sessions that they attended in their current treatment episode at the service.

Reasons for pulling out of treatment. Clients classified as having pulled out of treatment were administered the 28-item Reasons for Leaving Treatment Questionnaire (RLTQ)⁸ to assess seven reasons relating to: motivational inconsistencies, staff conflicts, boundary concerns, program expectations, problem severity, and logistical problems. Each reason was assessed by four yes/no items. The RLTQ has demonstrated good internal consistency scale ($\alpha = .84$ overall; $\alpha = .70-.88$ across subscales).⁸ A subsequent open-ended item invited clients to describe any other factors that contributed to their decision to stop attending. In addition, clients classified as pulling out of treatment because they

had upcoming sessions but no intention to attend them were administered a separate open-ended item to explore this decision.

Treatment satisfaction. Clients completed the 4-item Client Satisfaction Questionnaire (CSQ-4)³⁴ to assess the extent to which treatment met their needs, was helpful in addressing gambling harm, was satisfactory overall, and whether they would return to the service if needed. Items are rated on a variable 4-point scale, with higher scores indicating greater satisfaction. The scale has demonstrated strong internal consistency ($\alpha=.92$).³⁴

Treatment experience. Clients completed the 4-item Session Rating Scale (SRS)³⁵ to assess key aspects of the therapeutic experience, including the therapeutic alliance, agreement on goals and topics, fit of the approach, and overall session quality. Each aspect was rated on a sliding scale from 0-10, with higher scores reflecting a more positive treatment experience. The SRS has demonstrated good internal consistency ($\alpha= .88$).³⁵

Therapeutic alliance. The therapeutic alliance was further assessed using the Service to Clients Relationship Scale – Patient version (STAR-P),³⁶ a 12-item measure comprising three subscales: positive collaboration (6 items), positive practitioner input (3 items), and non-supportive practitioner input (3 items, reverse scored). Items are rated on a 5-point scale from 0 (never) to 4 (always), with higher subscale scores indicating a stronger therapeutic alliance. The STAR-P has demonstrated good internal consistency ($\alpha= .90$).

Solutions: What helped. Clients classified as either having completed treatment or being still in treatment were administered an open-ended item to explore the factors that helped them attend sessions.

D.4. Statistical Analysis

All statistical analyses were conducted using Stata v18.0.⁹ There was only two instances of missing data related to the reasons for pulling out of treatment due to an administration error, where clients who were classified as pulling out because they had upcoming sessions but no intention to attend them were not administered the corresponding questionnaire. Gambling symptom severity (G-SAS), anxiety symptoms (GAD-2), and depressive symptoms (PHQ-2) were treated as categorical variables for descriptive purposes using established cut-off scores (see *Measures*), and as continuous variables for inferential analyses.

Given the small sample size at the time of reporting and non-normal distribution of the data, quantitative analyses were limited to descriptive statistics and Spearman correlations (significance set at $p < .05$). The primary outcomes was treatment status (ref: completed treatment vs. pulled out of treatment). Estimates of, and reasons for, pulling out of treatment were described. 'Predictors' of pulling out of treatment were examined through correlations between pre-treatment measures (background, gambling-related, psychological, social, and treatment-related measures), as well as follow-up measures of treatment experience, satisfaction, and therapeutic alliance, and the primary outcome. Consequences of pulling out of treatment were examined through correlations between percent changes from pre-treatment to follow-up across all repeated measures, with the primary outcome. Correlation strength was interpreted as negligible ($r_s = 0$ to ± 0.20), weak ($r_s = \pm 0.21$ to ± 0.40), moderate ($r_s = \pm 0.41$ to ± 0.60), strong ($r_s = \pm 0.61$ to 0.80), and very strong ($r_s = \pm 0.81$ to ± 1.00).³⁷

Qualitative responses relating to reasons for, and solutions to, pulling out of treatment were analysed thematically, with responses grouped into major themes using thematic analysis techniques.¹⁰

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