

Final report: P10166.

**Exposure Therapy in the Treatment of
Sports Betting Addiction (SBET)**

College of Medicine and Public Health

CONTENTS

EXECUTIVE SUMMARY	4
ACKNOWLEDGEMENTS.....	6
LIST OF TABLES	7
LIST OF FIGURES	8
ABBREVIATIONS	9
1. BACKGROUND.....	10
2. METHODS	10
2.1. The intervention	10
2.2. Outcome measures	11
3. RESULTS	12
3.1 Project Milestones:	12
3.2. Recruitment:	12
3.3. CONSORT Flowchart.....	14
3.4. Clinical Outcomes.....	15
Baseline measures.....	15
Outcomes	16
3.4.1. Gambling Harm	16
3.4.2.. Gambling Cognitions	16
3.4..3. Gambling Craving/Urge.....	17
3.4.4. Functional impairment.....	17
3.4.5. Gambling activity.....	17
3.4.5. Psychological distress.....	20
3.4.6. Depression:.....	20
3.5. Semi-structured Interviews.....	20
Participant summary	21
3.5.1. Process	21
3.5.2. Commencement of Therapy	22
3.5.3. Questionnaires	23
3.5.4. Support from research staff	24
3.5.5. Therapy sessions	24
Therapist	25

3.5.7. Workbook.....	26
3.5.8. Therapy delivery.....	27
3.5.9. Program Recommendation	27
DISCUSSION.....	27
4.1. Recruitment:	27
4.1.1. Retention and completion rates:	28
4.1.2. SBET therapy:	28
4.2. Feasibility and acceptability:	28
5. RECOMMENDATIONS.....	29
5.1. Broaden to all forms of gambling.....	29
5.2. Target people in the early stages of risky gambling.....	29
5.3. Collect measures more frequently.....	29
5.4. A larger trial.....	29
5.5. Promotion of consumer protection tools	30
REFERENCES	31

EXECUTIVE SUMMARY

Sports betting has become one of the nation's rapidly increasing forms of gambling and gambling addiction with \$1.235 billion lost in 2017 - 18. It is particularly prevalent in young men i.e., adolescents and adults. Less than 10% of individuals with gambling problems seek help, so this proposal sought to pilot a social media strategy to recruit up to 40 sports bettors and provide them with evidence-based exposure therapy via phone and on-line i.e. video delivery as compared to standard face to face therapy. The proposal was based on a recent publication from the SA Statewide Gambling Therapy Service, Riley et al. (2021) of 6 case studies reporting the successful treatment of young men with sports betting addiction. This provided preliminary data on which to base a pilot study, a more rigorous design that would inform a larger and more definitive national efficacy trial.

The SA Department of Human Services contributed \$25,000 to a successful application by the investigators to Flinders University for an Innovation Partnership Seeding Grant (IPSG) with Flinders contributing \$25,000 – total \$50,000 for a pilot study of Exposure Therapy in the Treatment of Sports Betting Addiction.

The aim of the study was to test the feasibility and acceptability of recruiting sports bettors via social media and the practical and therapeutic outcomes of delivering up to 10 exposure therapy sessions (20-40 mins) delivered via phone and or telehealth provided over 3 months.

Results were that four media campaigns using Facebook, Instagram and Twitter costing a total of \$540, led to 832 clicks (on the advertisement) which produced 79 expressions of interest (EOIs) and a further 12 EOIs from posters and word of mouth resulting in 32 participants who completed a consent form for the study. Of the 32 who consented (30 males), 21 attended a first assessment session. Of these, 12 met DSMV criteria for a gambling disorder via clinical interview (6 severe, 2 moderate, 4 mild), 8 did not but all of these gambled above the recommended low-risk gambling. Of the 21 who commenced, 14 completed treatment, (average of 7.4 sessions) and 7 did not (average of 2.0 sessions).

In terms of clinical outcomes, 21 participants provided baseline scores and these were compared to 10 who provided end of treatment scores on standardised measures of gambling harm, distress, disability, gambling urge and cognitions. Caseness is the term used to describe a score on a psychometric measure that scores high enough to be classed as a clinical case.

For gambling harm (VGS) 43% met caseness at baseline reducing to 0% at post-treatment and for psychological distress (K10) 41% met caseness at baseline compared to 20% post treatment. For functional impairment (WSAS) 48% met caseness at baseline which reduced to 20% post-treatment. For depression (PHQ-9) 46% met caseness at baseline and this reduced to 30% post-treatment. All pre-post scores showed significantly different reductions (improvements) in scores with moderate to large effect sizes.

Of particular interest, several participants were pre-clinical problem gamblers, however through the flexible approach of the therapists, they were able to identify triggers that produced a gambling urge. This led to the realisation that they were becoming more preoccupied with gambling and in most cases they decided to reduce or cease their gambling. Semi-structured interviews with 5 participants and 2 therapists confirmed the feasibility and acceptability of both the recruitment methods and the delivery of the therapy sessions.

We conclude that the pilot study has confirmed the feasibility and acceptability of recruitment via social media advertising for people who are regular sports bettors and that the delivery of the exposure therapy via phone or internet was feasible and acceptable to both participants and therapists.

Our recommendations are that the intervention is suitable for a phase 2 randomised controlled trial to test the efficacy of exposure therapy for sports bettors. The investigators will pursue, in partnership with the Office for Problem Gambling, national funding and collaboration with interstate gambling authorities' opportunities to establish a nationwide randomised controlled trial. One of the key beneficiaries of this intervention is that being delivered by phone or internet people in rural and remote sites will have access to evidence-based therapies.

In addition, we recommend that the intervention be trialled for all forms of gambling, that we use social media advertising to engage with people in the early stages of their gambling trajectory, that outcome measures are collected more frequently to ensure that more data is collected to evaluate the intervention and that regulations are strengthened to mandate sports betting companies to provide synchronous and highly visible links to gambling awareness, education and help services.

ACKNOWLEDGEMENTS

We would like to acknowledge the funders of this research project, the South Australian Department of Human Services (DHS), Office of Problem Gambling (OPG) and Flinders University's contribution as part of an Innovation Partnership Seeding Grant. We would like to recognise the important contribution of Tanya Strub (DHS) who contributed to the design of the study and facilitated the advice from DHS media and communications. We gained valuable and critical support from the Flinders Health Data and Clinical Trials Unit (HDCTU) led by Erin Morton and trial manager Rupali Saikia. We thank Amanda Weragoda research officer of the HDCTU who managed the advertising, recruitment, data collection, interviews and analysis. Both therapists Ben Riley and Jayne Sessions provided expert therapy with flexibility for the participants. Most importantly we would like to acknowledge the many people who contacted the trial website and those participants who consented to be involved in the trial many of whom wanted to contribute to research into improving outcomes for people with gambling problems.

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LIST OF TABLES

1. Breakdown of social media recruitment campaign.....	13
2. Characteristics of participants.....	16
3. Baseline measures.....	17

LIST OF FIGURES

1. Consort Flowchart.....	15
2. Clinical outcomes (VGS-HS, GRCS, GACS, WSAS).....	19
3. Gambling activity (frequency, hours gambling, money lost gambling).....	20
4. Clinical outcomes (K10, PHQ-9).....	21

ABBREVIATIONS

CBT	cognitive behavioural therapy
OPG	Office for Problem Gambling
K10	Kessler 10 Scale for Non-specific Psychological Distress
PHQ-9	Patient Health Questionnaire Depression
GACS	Gambling Craving Scale
WSAS	Work and Social Adjustment Scale
VGS-HS	Victorian Gambling Screen Harm-to-Self Scale
SGTS	Statewide Gambling Therapy Service
FPTS	Flinders Psychological Therapy Service
GD	Gambling Disorder
DSMV	Diagnostic and Statistical Manual of Mental disorders 5 th Edition
CET	Cue exposure therapy
M	Mean
SD	Standard deviation

1. BACKGROUND

Australia has a serious problem with gambling having the highest annual per capita gambling losses in the world, gamblers losing over \$25 billion every year (Productivity Commission, 2010). Whilst over half of these losses are to electronic gaming machines (pokies), sports betting is increasing at the rate of 16% each year with \$1.235 billion lost in 2017-2018 (Queensland Government Statistician's Office, 2019). Gamblers who have problems with excessive gambling are difficult for help services to reach with only 5-10% help seeking (Loy et al., 2018; Productivity Commission, 2010). The aim of the pilot study was to test the feasibility of both recruiting sports bettors to a research project using social media advertising and conducting a non-randomised trial of exposure therapy an evidence based cognitive behaviour intervention usually delivered face-to-face. The aim was to recruit up to 40 people from across SA to enrol in the study to test the feasibility of conducting the intervention (therapy) by phone and video instead of face to face normally provided by the Statewide Gambling Therapy Service.

2. METHODS

2.1. The intervention:

In the six published cases treated by SGTS, exposure therapy (ET) was provided face to face by experienced SGTS staff using a standardised workbook adapted for sports betting. The graded exposure-based approach identifies triggers which elicit a gambling urge and the person then systematically using homework tasks, grades their approach to each trigger until habituation of the gambling urge occurs. Ultimately all urges to gamble are extinguished and the person gains control over their gambling either through abstinence or occasional gambling. Sessions of up to 60 mins duration will be provided by phone or videoconferencing once per week for up to 10 sessions.

Recruitment: 40 subjects to be recruited over a 3-month period in SA using social media, i.e., facebook and Instagram to recruit on-line sports betting gamblers and through the OPG Gambling Help Services throughout SA.

Inclusion: includes sports betting on any of the commercially advertised gambling sites e.g., Sportsbet, betting and losing amounts that the person believes is excessive or time spent is excessive, above the 21 cut off for problem gambling on the VGS, age greater than 16, access to a smart phone and or internet.

Exclusion: mental distress e.g., psychosis or suicidality so as not to be able to give informed consent. Concurrent other forms of gambling eg pokies, TAB or lotto are acceptable as are co-morbidities of depression, anxiety and other addictions e.g. alcohol or tobacco.

Design: A 12-month pilot study to test feasibility and acceptability of providing a manualised CBT intervention. The single arm each participant will be offered up to 10 sessions (20-60 mins) provided over 3 months and follow up for another 2 months. Each participant will be offered a \$30 gift

voucher as compensation for their time, at completion of baseline and follow up questionnaires (\$60 in total).

Timeline: 2 months set up, 3 months recruitment, 3 months intervention, 2 months follow up, 1 month data collation and write up.

2.2. Outcome measures

Victorian Gambling Screen Harm-to-Self Scale (VGS-HS; Tolchard & Battersby 2010). The VGS-HS is a 15-item simple and valid measure of PG. It is a sub-scale of the Victorian Gambling Screen (VGS). The VGS-HS scores range from 0 = no harm to self to 60 = high harm to self. The VGS-HS has demonstrated high internal consistency among a clinical population of individuals with gambling problems (Tolchard and Battersby 2010). A score of 21 or greater indicates a pathological gambling disorder.

The Gambling Related Cognitions Scale (GRCS; Raylu and Oei 2004a) is a 23-item 5 factor measure of gambling related cognitions. The five factors examined are Gambling Expectancies, Interpretive Bias, Predictive Control, Inability to Stop Gambling, and Illusion of Control. A high GRCS score reflects more gambling-related cognitions, and is a positive predictor for PG. The GRCS has high internal consistency and validity (e.g., Smith et al., 2016) and has been further validated internationally across different age groups (Donati et al., 2015; Raylu and Oei, 2004b; Taylor et al., 2014).

The Gambling Craving Scale (GACS; Young & Wohl, 2009) is a tool that measures a person's craving and urge to gamble. The tool has three factors: anticipation, desire, and relief. The GACS has demonstrated sound psychometric properties and scores have been shown to predict persistence at gambling in the face of repeated loss (Young & Wohl, 2009).

The Kessler Psychological Distress scale (K10; Kessler et al. 2002) is a 10-item self-report scale developed by Kessler and colleagues to measure clients' nonspecific psychological stress.¹⁴ The K10 has high internal consistency (Kessler et al. 2002).

PHQ nine-item module (PHQ-9). Items on the PHQ-9 correspond to Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM-IV) Diagnostic Criterion A symptoms for major depressive disorder (Diagnostic and Statistical Manual of Mental Disorders; 4th ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000). Total scores range from 0 to 27, with scores of ≥ 5 , ≥ 10 , and ≥ 15 , representing mild, moderate, and severe levels of depression severity. The tool has demonstrated sound psychometric properties (Kroenke et al., 2010).

The Work and Social Adjustment Scale (WSAS; Mundt et al. 2002) is a five-item self-report scale of social and work-related functional impairment attributable to an identified problem. It has strong psychometrical properties (Mundt et al. 2002).

Qualitative: Semi-structured interviews with 6 intervention participants and 2 therapists to determine acceptability and feasibility and any improvements to the intervention or delivery and recruitment.

3. RESULTS

3.1 Project Milestones:

The project commenced in April 2022 with the recruitment of SBET therapists Ben Riley and Jayne Sessions from the Statewide Gambling Therapy Service (SGTS) based at Flinders Medical Centre and Research Officer Amanda Weragoda from the Flinders Health Data and Clinical Trials (HDCT) unit.

Ethics approval and Site-Specific approval (Southern Adelaide local Health Network) were obtained by July 2022.

The HDCT led by Erin Morton provided the administration and project management for the trial managed by Rupali Saikia. This included establishing the data base for questionnaire entry in Qualtrix and coordinating this with MINDtick the patient software program used by the SGTS for outcome data collection. HDCT also provided the materials and coordinated the social media advertising with the Flinders University media department.

Extensive consultation occurred with trial investigators, research staff, Flinders Media and Communications, SA Department of Human Services Media and Communications and Office of Problem Gambling staff to design and target use of social media platforms to advertise and engage with potential risky gamblers for the trial. A wide range of apps and platforms including sports betting apps were approached or paid to provide advertising to recruit participants for the study (see below).

The SBET phone and/or on-line therapy, up to 10 sessions, were provided between September 1st 2022 and 31st March 2023. Qualitative semi-structured interviews occurred between 1st and 30th May 2023.

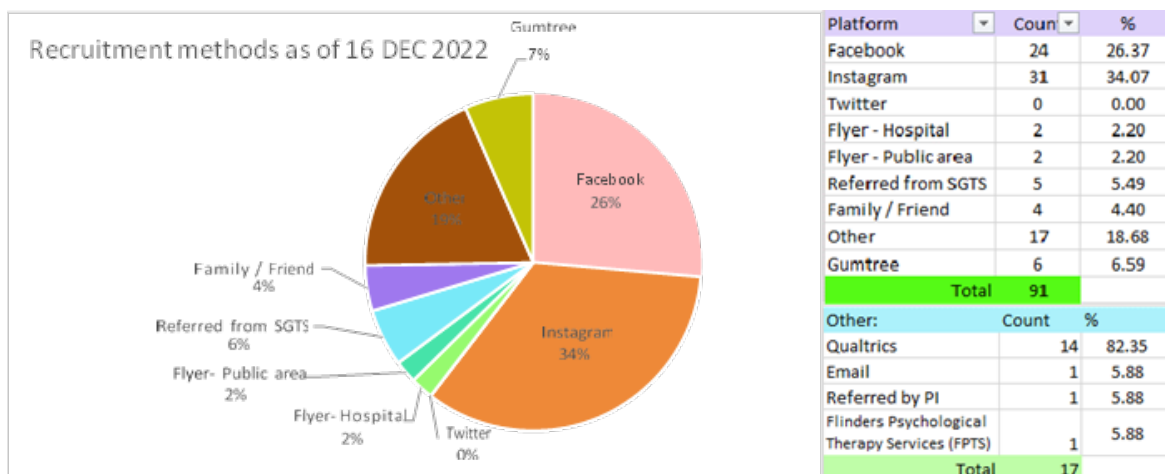
3.2. Recruitment:

Recruitment commenced on 31st August and ceased on December 15th, 2022 (just over 3 months). Various iterations of advertisements which appeared on social media were developed over the first 2 months timed to major sporting events including the AFL finals, Women's football/soccer world cup, Melbourne Cup horse race, Women's cricket, Men's cricket, basketball (see attached). Additionally, in November Sports Betting companies such as Ladbrokes, Sports Bet and Dabble were contacted via Direct Messages in an attempt to reach a wider audience utilizing online sports betting platforms. This resulted in advertising the study on a Facebook group called "Sportsbet Multis". This group was provided with the ethics approved advertisement material along with the REDCap link to

capture expressions of interests (EOIs), In total 91 enquiries or expressions of interest (EOIs) were received with 79 coming from social media and the remainder through friends, SGTS, and hard copy posters in the University, Flinders Medical Centre and local hotels. Shown in Table 1 are the dates of the 79 completed EOIs and the total number of clicks and impressions from the 4 paid social media campaigns.

Table 1: Breakdown of the four campaigns including duration and number of EOIs submitted during each campaign period. Social media results including number of clicks and impressions are also provided.

Campaign #	EOIs Generated	Social media Campaign Stats	
		Clicks	Impression
1 (31Aug-14Sep)	8	133	48,122
2 (23Sep-06Oct)	10	150	20,209
3 (31Oct-14Nov)	46	376	28,804
4 (29Nov-15Dec)	15	173	30,942



The cost of each campaign was \$140, with the 4 campaigns costing a total of \$560. The campaign gained a total of 832 clicks from 128,077 impressions.

As shown in Figure 1, the most engaging platform was Instagram with a total of 34% EOIs, 8% higher than the second largest method of recruitment, Facebook. The participants age ranged between 18-69 with mean of 36.13. Of the 33 who enrolled there were 30 males and 3 females. Out of the enrolled 33 participants, 13 saw the advertisement on Instagram, 10 on Facebook, 2 from a flyer displayed in a public area, 3 on Gumtree, 5 referred from SGTS/ FPTS. Furthermore, out of the 33 participants who were enrolled in the study, 3 participants, according to the postcode delivery classification, resides in rural areas, whilst 2 participants reside areas that are “split” or borderline rural. The remaining participants reside in metropolitan Adelaide.

To summarise we had a total of n=33 contacts that signed the consent form. Of the 33, 1 participant was excluded as screening so 32 were considered enrolled in the study. Seven contacts were unable to be contacted. Four were contacted by phone and after a conversation it was determined that three of them did not have a gambling issue at all and were just interested in volunteering for research, one did gamble heavily and felt he had a problem and initially wanted to be involved then changed his mind as his work commitments changed and he was too busy. One contact made it to a screening assessment then it was determined there was no gambling issue at all, barely any gambling and it was decided she was unsuitable for inclusion (67-year-old lady).

This process resulted in 21 participants who attended a screening session and began the trial: 19 males mean age of 33.63 years (range 19-66); 2 females with a mean age of 34.5 years. Of these, 12 met DSMV criteria for a GD (6 severe, 2 moderate, 4 mild), 8 did not but all these gambled above the Dowling et al. low-risk guidelines, 1 had a GD 12 months ago and was in remission.

Fourteen of the 21 participants completed treatment. The criteria for 'completed treatment' is the number of sessions agreed between therapist and client at which the client had achieved their goals. 8 of these met DSMV criteria for GD (4 severe, 2 moderate, 2 mild). Completers attended an average of 7.14 sessions (range 3-10). Seven did not complete i.e., after beginning therapy did not attend ongoing therapy sessions despite attempts to contact them. 4 of these met criteria for DSMV GD (2 severe, 2 mild). Non-completers attended an average of 2.0 sessions (range 1-3). The completion rate is 67% which compares closely to the face-to-face SGTS completion rate of between 67-70%.

3.3. CONSORT Flowchart

The following CONSORT flowchart displays the enrolment of participants and their progress through the trial.

Enrollment

Assessed for eligibility
(n=91, 81 males, 10 females)

Excluded (n= 58, 51 males, 7 females)

- Did not reside in South Australia (n=2)
- Did not meet the eligibility criteria (n=8)
- Declined to participate (n=29)
 - Considers gambling habits not to be problematic (n=8)
 - Seasonal bettor, not relevant at the time (n=1)
 - Too busy to participate (n=5)
 - Thought study required filling out a survey/ Therapy sessions require too much commitment (n=6)
 - Prefer not to say (n=9)
- Unable to contact (n=19)

Randomisation N/A
for pilot

Participants enrolled (n=33)

Did not receive intervention (n=12,
11 males, 1 female)

- Unable to contact after enrollment (n=7)
- Screen failed due to not meeting inclusion criteria (n=5)

ITT group (n=21, 19 males, 2 females)

- Attended a screening session (n=21)
- Met DSMV criteria for GD (n=12)
 - Severe (n=6) • Moderate (n=2) • Mild (n=4)
- Did not meet DSMV criteria for GD (n=8)
- In remission (n=1)

Did not complete treatment (n=7)
- Met DSMV criteria for GD (n=4)

- Severe (n=2) • Mild (n=2)

Completed treatment (n=14, 12 males, 2 females)
- Met DSMV criteria for GD (n=8)

- Severe (n=6) • Moderate (n=2) • Mild (n=2)

Follow up

No questionnaires (n=4)

Questionnaires (n=10)

3.4. Clinical Outcomes

Table 2. Characteristics of participants

Characteristics of N= 32 participants (This is excluding the 67 year old lady who was a screen fail)		
	Mean	SD
Age	36.13	14.50
	Number	Percentage
Gender		
Male	30	94
Female	2	6
Ethnicity		
Caucasian	23	72
Asian	5	16
Unknown/other	4	12
Employment status		
Full-time employed	12	38
Part-time employed	2	6
Income support benefits	1	3
Student	5	16
Retired	1	3
Unemployed	2	6
Self-employed	1	3
Unknown	7	22
Marital status		
Married	15	47
Divorced/separated	4	12
Single/never married	13	41
Number of dependants		
0	23	72
1	2	6
2	7	22

Baseline measures

Table 3. Baseline measures

Pre-treatment measures	Mean	SD
GRCS	66.76	23.43
GACS	26.18	9.55
WSAS	8.38	5.10
PHQ-9	4.64	2.94
VGS	20.62	12.54
K10	19.73	5.58
Gambling activity		
Days gambled past month	10	8.68
Hours spent gambling past month	23.44	37.61
Money lost gambling past month (\$AUS)	957	1817

Outcomes

Caseness is the term used to describe a score on a psychometric measure that scores high enough to be classed as a clinical case. The following paragraph describes the caseness for each clinical measure before and after treatment. For psychological distress (K10) 41% met caseness at baseline. At post-treatment 20% met caseness. For functional impairment (WSAS) 48% met caseness at baseline and this reduced to 20% post-treatment. For gambling harm (VGS) 43% met caseness at baseline reducing to none at post-treatment. For depression (PHQ-9) 46% met caseness at baseline and this reduced to 30% post-treatment.

Statistical analysis described below is based on comparisons of baseline data for $n=21$ and follow up data at end of therapy for $n=10$ participants. Data were initially checked for normality by observing histograms. Two variables, the K10 and PHQ-9, were right skewed, and therefore transformed using square root transformation to improve their distributions. A series of paired-samples t-tests were then performed to compare pre and post treatment scores for all psychometric variables. These results showed significant reductions from pre to post treatment for the VGS, GRCS, GACS, and WSAS. There were reductions in mean K10 and PHQ-9 scores though the differences did not reach statistical significance. Pre-treatment K10 scores were in the mild range of psychological distress and pre-treatment depression scores were below the cut off for depression. Gambling activity variables did not meet the necessary assumptions for inferential testing. The descriptive details of these variables are presented in Table 3 and Figure 3. Substantial reductions are observed from pre to post treatment.

For effect sizes, the interpretation of Hedge's g may be guided by the conventional standard of 0.2 - 0.49 as small, 0.5 to 0.79 as medium and 0.8 or above as large.

3.4.1. Gambling Harm

There was a reduction in gambling harm-to-self scores (Victorian Gambling Screen – VGS) from pre-treatment ($M=20.62$, $SD=12.54$) to post-treatment ($M=6.90$, $SD=7.13$), with large effect size ($g = 1.25$) i.e., the value of harm-to-self scores for the average person at post-treatment was 1.25 standard deviations (95% CI: 0.51 -1.97) below (improvement) than the average person at pre-treatment. However, the width of the confidence interval suggests the estimated reduction in scores is subject to a reasonable degree of variability (Fig. 2).

3.4.2. Gambling Cognitions

There was a reduction in gambling related cognition scale (GRCS) scores from pre-treatment ($M=66.67$, $SD=23.43$) to post-treatment ($M=45.40$, $SD=14.18$) with large effect size ($g = 1.02$) i.e., the value of GRCS scores for the average person at post-treatment was 1.02 standard deviations (95% CI: 0.31 - 1.72) below (improvement) than the average person at pre-treatment. However, the width of the confidence interval suggests the estimated reduction in scores is subject to a reasonable degree of variability (Fig. 2).

3.4.3. Gambling Craving/Urge

Results suggested a reduction in gambling urge/craving scores from pre-treatment (M=26.18, SD=9.55) to post-treatment (M=19.64, SD=9.70). The effect size of $g = 0.66$, indicated a moderate improvement although the lower bound of the confidence interval was close to zero (95% CI: -.02 - 1.34). This is most likely due to the small sample size used for this pilot study (Fig. 2).

3.4.4. Functional impairment

There was a significant reduction in functional impairment (Work and Social Adjustment- WSAS) scores from pre-treatment (M=8.38, SD=4.10) to post-treatment (M=3.40, SD=4.20), with large effect size ($g = 1.12$) i.e., the value of WSAS scores for the average person at post-treatment was 1.12 standard deviations (95% CI: 0.45 - 1.89) below (improvement) than the average person at pre-treatment. However, the width of the confidence interval suggests the estimated reduction in scores is subject to a reasonable degree of variability (Fig. 2).

3.4.5. Gambling activity

A substantial reduction was observed for the number of reported days gambled and hours spent gambling during the past month. Correspondingly, the amount of money lost gambling also reduced considerably (Fig. 4.).

Figure 2. Clinical outcomes: VGS, GRCS, CAGS, WSAS

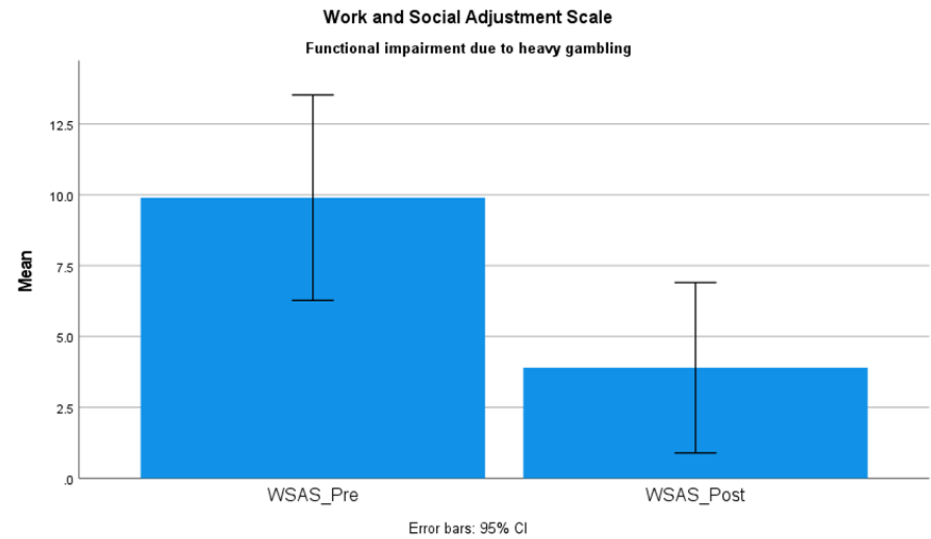
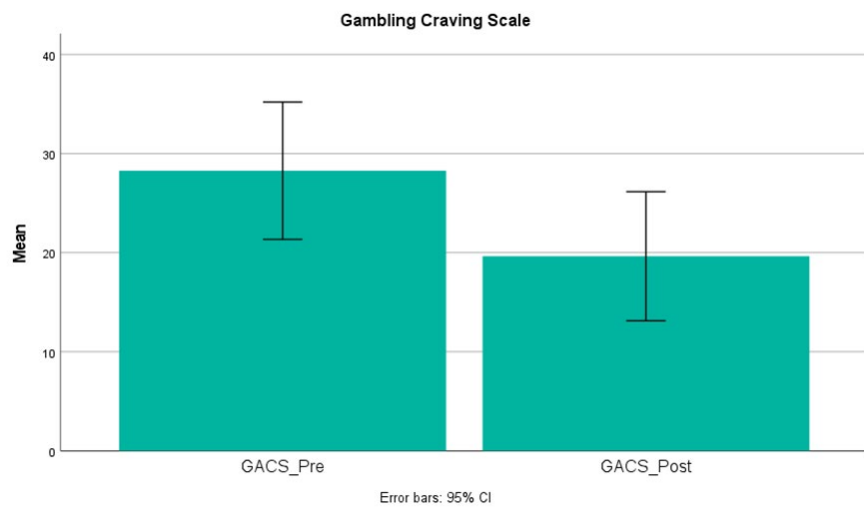
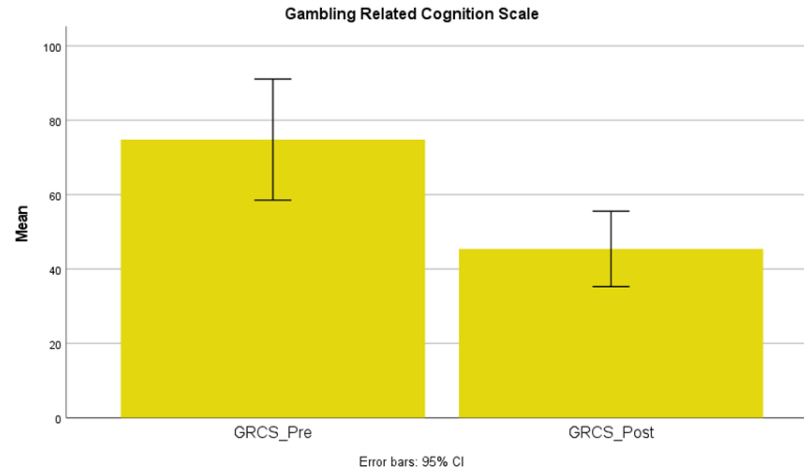
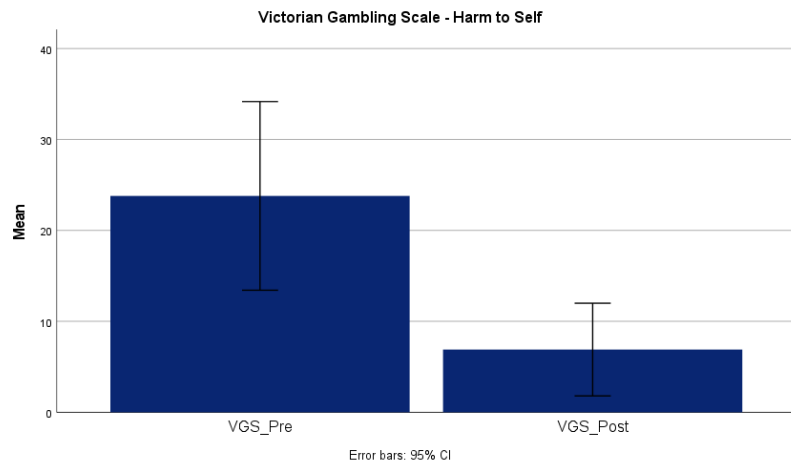
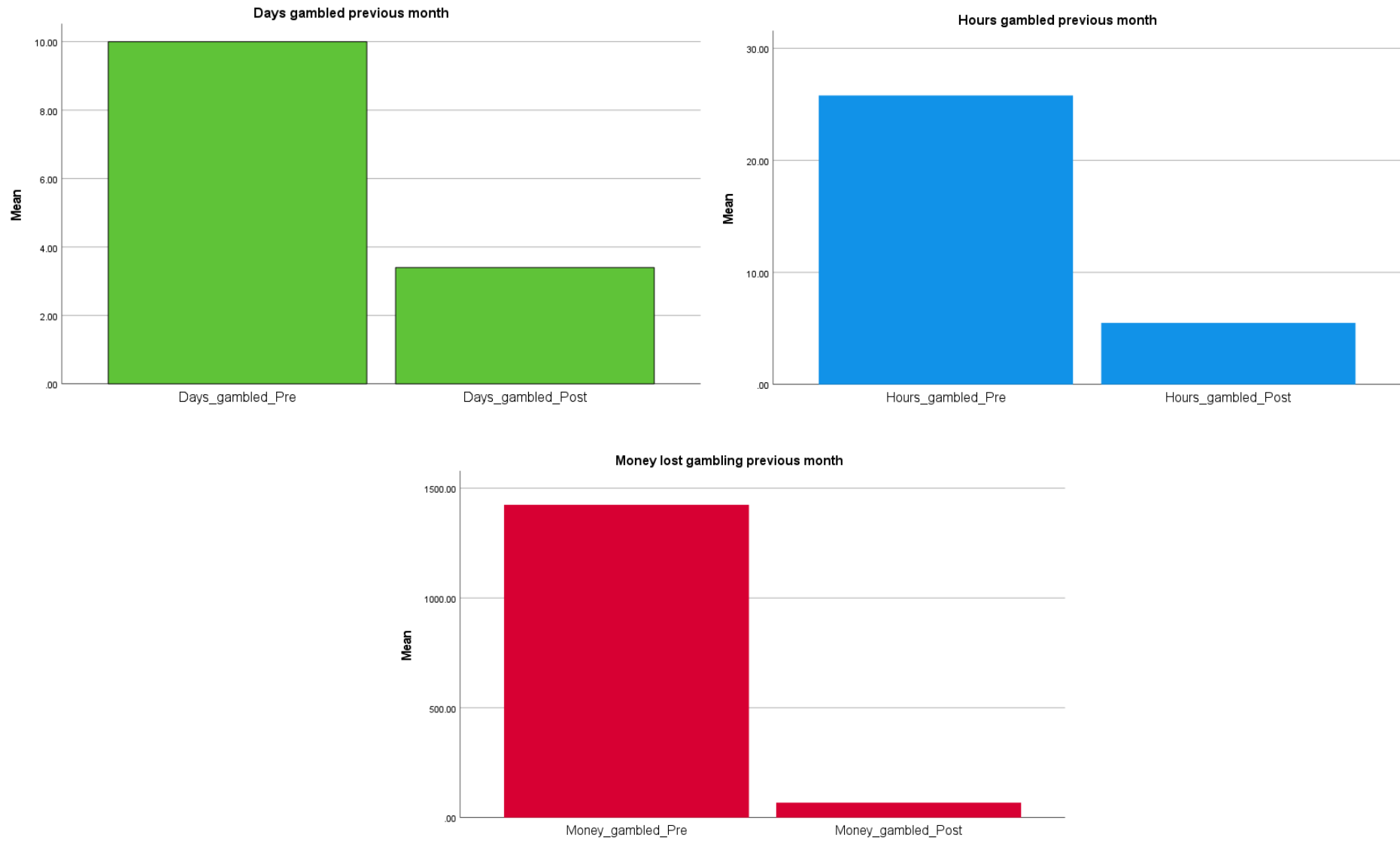


Figure 3. Gambling activity (days gambled, hours gambled, money lost gambling during the past month).



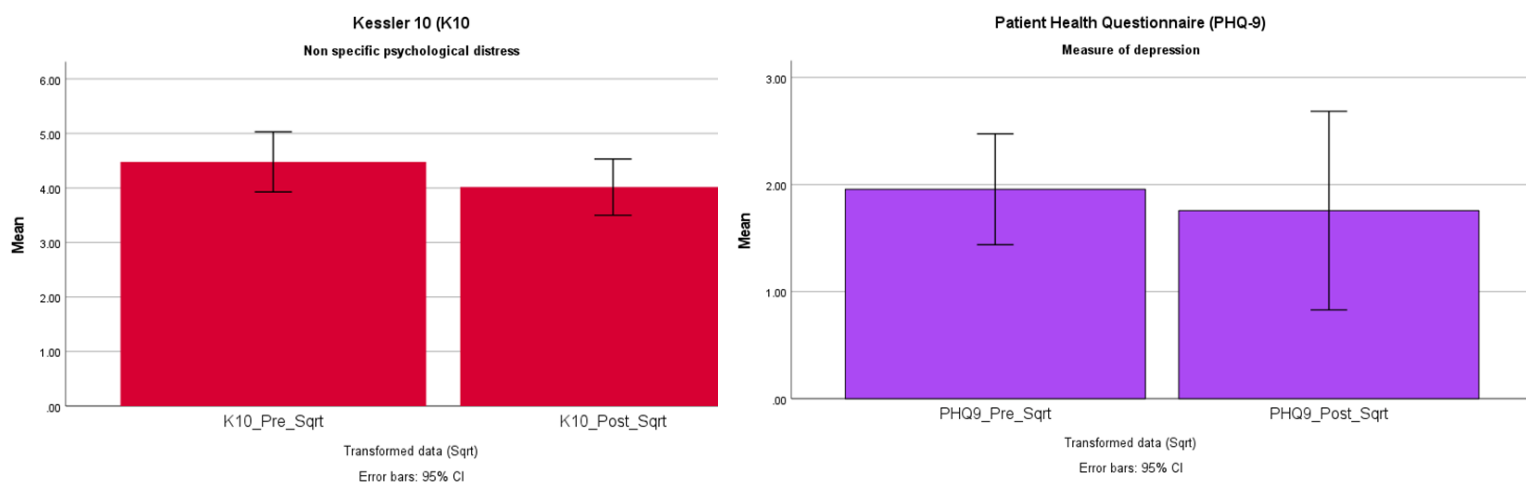
3.4.5. Psychological distress

There was reduction in psychological distress (Kessler-10) scores from pre-treatment (M=4.40, SD=0.61) to post-treatment (M=4.02, SD=0.72), The effect size of $g = 0.57$, indicated a moderate improvement although the lower bound of the confidence interval was close to zero (95% CI: -0.11 - 1.24). This is most likely due to the small sample size used for this pilot study (Fig. 3).

3.4.6. Depression:

There was a small reduction in depression scores (Patient Health Questionnaire- 9 – PHQ-9) from pre-treatment (M=1.96, SD=0.73) to post-treatment (M=1.76, SD=1.30) with effect size of $g = 0.20$ including zero (95% CI: -0.48 - 0.88) (Fig. 2).

Figure 4. Clinical outcomes: K10, PHQ-9



3.5. Semi-structured Interviews

To conclude the pilot phase of the SBET program, 7 out of the scheduled 8 semi-structured interviews were completed at the time of this report submission. Five of these interviews were focused on participant experience, whilst the remaining 2 were from therapist's point of view. Each interview was 15 – 20 minutes in length and were recorded with participant's permission and auto transcribed via Microsoft Teams. The primary aim of these qualitative interviews was to explore feasibility and acceptability of the SBET program. This was achieved by using an iterative approach to questions and analysing common themes.)

Participant summary

- 5 out of the scheduled 6 participant interviews were completed.
- 3 participants from each therapist were chosen to conduct interviews with permission.
- 3 females (Caucasian), 2 aged between 30-35 years, 1 aged 67 participated.
- 2 males (Caucasian) aged 32 and 46 participated.
- 1 male participant, yet to be interviewed, aged 38.

3.5.1. Process

Recruitment and project information

Out of the six participants interviewed, 2 saw advertisements on Facebook, 1 on Instagram, 1 on Gumtree, one found SGTS through a Google search for gambling help and the other a SGTS client who wanted to participate in research. It is important to note that the last participant did not engage in any social media campaigns. The participant recruited via Instagram pointed out that the Flinders University logo on the advertisements gave them credibility and helped with her decision in wanting to participate in the study.

”
“I think having the Flinders logo on there helped with credibility. This seems like it’s something that Flinders is evaluating, learning about...so obviously the university logo was a bit of a draw card.” – SBET024

All the interview participants agreed that the method of recruitment and the basic information prompted to be entered upon scanning the QR code or by clicking the link within the advertisement, were appropriate and was delivered seamlessly. Five out of the six participants stated that where the recruitment was taking place was also appropriate.

Three out of the six participants stated that the social media advertisements did not specify whether they were supposed to be actively participating in therapy sessions or required to provide their opinion/ experience on gambling habits. However, these 3 out of the six participants also said that, on the other hand including information regarding therapy session participation up front can potentially be off-putting to many.

”
“...and more probably that it was a study as opposed to you’d be in active sessions, that was probably something I didn’t understand initially, but again it wasn’t a turn away for me. It sort of seemed like it would be answering a few questions and things like that rather than receiving treatment by sessions.”

”
“But then they were looking for people to go into therapy rather than just more of research around sort of gambling stuff that perhaps wasn’t clear. But then again if they put that there people wouldn’t answer at all.” – SBET003 (recruited via Facebook)
”

”
“What I can remember fair while ago now, I think it was the fact that it didn’t actually describe help as such. So, I was sort of intrigued and I thought I just wanted to find out more about it.” – SBET009 (recruited via Facebook)
”

The two therapist interviews revealed that, the phrasing could have been better to truly capture the interest of those who met the main aspects of eligibility criteria.

”
“Some of the early participants I got wouldn’t meet criteria for gambling disorder, and would gamble very very rarely, but had answered just because they wanted to contribute to research...The questions [in adverts] could’ve been slightly different to make it clear that it was around some level of harm from gambling.” – Therapist 02
”

3.5.2. Commencement of Therapy

All participants found the commencement of therapy clear, delivered appropriately and agreed that the transition from recruitment to commencement of sessions progressed smoothly.

”
“Everything was pretty seamless. The meeting process was easy enough. I think having the same link that worked each time meant that you didn’t have to go through a new Teams meeting each time. The whole thing was sort of user friendly.”
”

– SBET026

”
“Pretty straight forwards, fairly clear.” – SBET003
”

3.5.3. Questionnaires

All participants found questionnaires easy to understand and complete. Therapist interviews showed that having participants complete questionnaires via their mobile phones was effective.

”

“All the participants were very familiar with mobile phones, accessing apps and things on their phones. They were doing the measures on their phones, so there were no problems at all.”

– Therapist 01

”

Four of the participants found these questions to be helpful and allowed them to reflect on their gambling behaviours, and potentially identify some links between mood and wellbeing in relation to gambling.

”

“They weren’t all just about gambling behaviours. There was, you know, the K10 and some of the others in there as well about general wellbeing...allows for a deeper reflection on some cues or triggers for me to have those urges to gamble.”

– SBET024

”

”

“Questions were all fairly clear and relevant, it was just that for me, some of them weren’t as potentially relevant as others, but that’s sort of part of the process.” – SBET026

”

One of the participants found the questions to be quite confronting, despite not being affected by harmful gambling behaviours (determined by therapist). They pointed out that perhaps, some people may find these questions too probing and will not consider participation in the therapy sessions.

”
“If you had a problem, it would be very confronting, whereas it wasn’t that confronting for me.” – SBET003
”

One suggestion for improvement was made regarding the delivery of questionnaires. This came from a participant who prefers to and is more likely to action emails more often rather than text messages. This was largely due to their work routine and said they would’ve actioned questionnaires more frequently and promptly were they emailed instead.

3.5.4. Support from research staff

All participants agreed that there was sufficient support from the research staff. The responses from the research team including the therapists were prompt and clear.

”
“I explained from the start, there’s going to be time where might have to cancel [due to personal circumstances]...You know she understood exactly where I was coming from, what’s involved in my life...I felt supported.” – SBET009
”

”
“It was a very friendly, quick process, which I think is great because then you know potential participants don’t sort of forget about it and then go, Oh No!, I’m not interested in that anymore.”
– SBET024
”

There were no other suggestions for improvement to the research process from participants or the therapists.

3.5.5. Therapy sessions

Number of sessions attended (not including the follow up session)

Amongst the six interviewed participants, three completed 8 sessions, followed by one participant who completed 7 sessions, one who completed 6 sessions and the remaining one who only completed 1 session. The participant who only completed 1 session was determined not eligible (screen fail) to continue in the study by the therapist.

3.5.6. Therapy

All participants found the therapy sessions valuable, educational, and made it easier for them to communicate and reflect on their gambling behaviours. The one-on-one personalised approach was greatly appreciated by all.

”
“You are connecting with an individual that was really useful and you know just feeling like you’ve got someone to check in and someone is paying attention to your exact needs is really good.” – SBET026
”

”
“Not only did I learn about habits of sports gambling, but also to understand maybe some of my own behaviours as well and sort of trying to figure out if I am experiencing some risk-based behaviours or you know whether there is such thing as safe gambling.” – SBET024
”

Many found that the use of the questionnaires and the workbook often prompted them to delve deep into their gambling habits and reflect on themselves. One participant found that they could have used less sessions that were perhaps scheduled on a fortnightly basis, or longer. Others found the sessions to be the right amount of balance.

Another notable feedback from a participant was that the therapy sessions have the potential to be even more impactful and useful, were they to be conducted during certain sporting seasons to complement them. SBET007 pointed out that some participants may only be seasonal bettors.

”
“I have one sport that is my Achilles heel. That is AFL...so I guess some of the sessions ran outside that timeframe. It wasn’t as beneficial during the offseason as it was during AFL season.” – SBET007
”

Therapist

The two therapists were a good fit for the SBET program as they developed rapport with each participant which led to a sense of fondness towards the therapists as was apparent during the interviews.

”
“[Therapist 01] was very casual with meeting times...you know,
if I was running a bit late.” – SBET026
”

”
“[Therapist 02] provided a really safe space for me.” – SBET024
”

”
“[Therapist 02] is a ripper. I’ve got nothing but respect for
[therapist 02]. Really guided me the right way.” – SBET009
”

”
“[Therapist 01] was very flexible, and it was a good experience.”
– SBET007
”

3.5.7. Workbook

The use of the workbook to support the therapy was well received by participants, although many did not actively find themselves completing most of the sections. Two of the participants agreed that the content was well written, and one who found the stories within the workbook to be quite helpful in understanding the full impact of their gambling habits.

”
“I thought the content was really good and you know, fairly
elaborate for something that I wasn’t paying for. Another thing
that struck me was that it was pretty comprehensive. I must
admit, I didn’t use it too much, but that wasn’t through lack of
the content in it or it not being useful.” – SBET026
”

”
“To be honest with you I didn’t read much of the workbook. We
went through some of the stories during the sessions, which
was really good.” – SBET009
”

One participant found that not strictly complying by the workbook during sessions as if it were homework, and referencing relevant elements was more helpful.

”
“I think I probably came away from that [workbook] a little bit and I would give credit to the therapist for meeting me where I was at as well instead of just going, oh, look we’ve got to do page 1 today and then page 5, but referencing back to that and having that reflective practice was a really great element of the work that were doing.” – SBET024
”

3.5.8. Therapy delivery

All participants found the online delivery of sessions to be extremely convenient and allowed them to manage work and other commitments alongside attending sessions. All participants found that the sessions were easy to reschedule, and the communication around how the therapy sessions worked were straight forward and logical. Whilst the duration of the sessions for everyone was well received, one participant wished for the sessions to be paced further apart, rather than attending one each week. Most participants agreed that the flexibility of appointment times was suitable, with one participant suggesting that having some out of hours appointment options could improve the program for those who work full time hours.

3.5.9. Program Recommendation

When it came to recommending the program to a friend or a family member struggling with gambling addiction, all participants were unanimous in declaring their support. It was agreed that the SBET program offered a unique chance to learn more about their gambling habits and triggers that urge them to gamble, and how these habits affect their wellbeing.

DISCUSSION

4.1. Recruitment:

The project aimed to recruit 40 people into the study over a 3-month period using social media advertising as the primary route of engagement based on the use of on-line apps and websites by people who sports bet. We were successful in engaging sports bettors with over 100,000 impressions and over 660 clicks from 4 targeted media campaigns. This resulted in 91 people who made an expression of interest (EOI) by providing their phone number and email to the research website to be contacted by the Research Officer who would provide project information and, if agreed, would facilitate gaining informed consent. All were offered a \$30 gift voucher for their participation in completing baseline measures and a second voucher at the completion of the final questionnaires. Of the 91 who made an EOI, 33 enrolled i.e., signed a consent form electronically and 1 provided verbal consent. Of these, 5 were from remote areas. Of the 33 enrolled, 21 attended at least one session with a therapist for screening. Of the 12 who did not attend, 7 could not be contacted and 4 of the 5 gambled infrequently and were merely curious and wanted to participate in the research.

4.1.1. Retention and completion rates:

Of note, less than a third of the group who commenced therapy met criteria for a severe GD. From their files, only one seems to have presented in crisis. It seems our recruitment campaign attracted a lot of gamblers who were gambling at risky levels, but did not meet DSMV criteria for a GD, and gamblers who did meet GD criteria but were mild to moderate. Our standard SGTS presentations are mostly severe gambling disorders and typically they present in some sort of crisis. The current trial seems to have engaged a different cohort to our normal referrals. During the trial, the 2 therapists began to adapt the treatment to suit the non-GD participants, in that they moved towards more of an education approach about cue-reactivity, low-risk guidelines, and cue exposure therapy (CET), which was very well received. While the same workbooks were used, it was explained as preventative/harm minimisation rather than treatment of a disorder.

A conditioning model of addiction has been applied widely to substance use disorders (Carter & Tiffany, 1999). A growing body of research suggests the cue-reactivity paradigm may be useful in understanding behavioural addictions such as problem gambling (Riley et al., 2018; Sodano & Wulfert, 2010; Limbrick-Oldfield et al., 2017). For individuals with gambling problems, neutral cues such as money and images of gambling, become conditioned to elicit an irresistible compulsive drive or urge to gamble (Riley et al., 2018). Of note, most if not all the gamblers in the current trial, whether they met GD criteria or not, displayed gambling cue-reactivity to gambling triggers. They measured this using their own HR monitors (apple watch, Garmin etc) or oximeters. It seems that offering online videocall treatment is particularly suited for risky gamblers who have not reached crisis point and are not seeking intense or hi-intensity treatment.

4.1.2. SBET therapy:

Of the 21 who commenced treatment, 14 completed treatment (67%) with an average of 7 of 10 possible therapy sessions. This compares with similar completion rates (67-70%) for face-to-face therapy provided by SGTS. We can conclude that exposure therapy delivered by phone or videoconferencing (telehealth) is a feasible and effective method of delivery of an evidence-based intervention at least equal to standard face to face therapy. The clinical outcomes were similarly impressive with large clinically and statistical gains made again equivalent to standard care. We are not aware of other trials internationally specifically targeted at sports betting and not in a mobile or on-line format. We will aim to publish this pilot study to receive peer feedback before expanding our research into a full clinical trial.

4.2. Feasibility and acceptability:

Five participants and two therapists were interviewed by the research officer. All steps in the advertising, recruitment and therapy delivery were well received by participants including use of the social media advertising, the process of recruitment, and use of questionnaires. The ease of engagement with the therapists and in particular the flexibility of the therapists in providing mutually convenient times for sessions was noted. In contrast to many SGTS clients, these participants were mostly working and had to fit the sessions into their daily schedule. Whilst participation in sessions was catered for the time demands meant that half did not complete follow up questionnaires. It seemed that the \$30 voucher was not enough to compensate for their time. The content of the therapy and workbooks was well received and in particular, positive feedback was given on the therapists' competency, and their ability to engage with the participants. SBET is feasible and acceptable to both participants and therapists.

5. RECOMMENDATIONS

5.1. Broaden to all forms of gambling

Use paid social media advertising to recruit people *using all forms of gambling* to seek help i.e., we targeted sports bettors in this trial, the next step to engagement of people with risky gambling behaviours is to adapt the marketing campaign for all forms of gambling. The potential to reach and engage participants is larger than this trial because it was presented as a research program. While the University link was viewed as attractive to some participants due to the credibility associated, the formal consenting process may have deterred others. Having to complete consent forms and the process of research is time consuming for some people. In addition, although confidentiality is ensured in the ethics approval process, many people with gambling problems will be anxious about being known and identified in a research project despite information to the contrary. Using gift vouchers may not be appropriate for a standard service offering but we could think about alternative benefits for people to engage rather than financial compensation. It may turn out that a financial compensation has minimal advantage in recruitment. Overall, the results of the recruitment strategy used for this pilot trial suggest that it may be beneficial to consider developing distinct communication strategies. One for individuals with existing gambling problems, and another for those who may not be experiencing significant harms but are gambling at a risky level.

5.2. Target people in the early stages of risky gambling

Use paid social media to *engage and support people in the early stages of gambling disorder*. This becomes an early intervention and prevention approach. We have found in this study that social media advertising targets a different cohort than those who seek help with gambling help and therapy services like SGTS. We see almost exclusively those with severe gambling disorders. In this study over half of those who engaged in the study were early or at-risk heavy gamblers. We adapted our approach with these participants to focus on education, particularly about gambling cues and urges. Using heart rate monitors, a number of people were surprised to find that they had arousal in the form of raised heart rate and a feeling of excitement that they were unaware of. Just based on this alone, several participants reduced their gambling. The messaging to recruit at-risk heavy gamblers as opposed to those with an existing gambling disorder, will be important. As reported, some participants indicated they would not have engaged with the advert if it informed them, they would be receiving therapy for a gambling problem. Despite this, these participants reported the intervention was helpful to them. Involving lived-experience experts to assist in the development of effective communications for people in the early stages of a gambling disorder is recommended. We would also recommend for future studies and engagement in clinical trials specifically targeting people from rural and remote areas in the advertising campaigns.

5.3. Collect measures more frequently

Take outcome measures at each session so that there is at least one outcome follow up measure for each participant. We have experience of taking outcome measures at each session with our partner service IAPT for people with anxiety and depression. We will explore the opportunity to include this with our therapists so that there is at least one outcome follow up measure for each client.

5.4. A larger trial

Use this pilot study data to apply for national or international grants to conduct a large randomised controlled trial to determine the efficacy of the delivery of exposure for sports betting. Sports betting has become a multinational business worth billions of dollars and the harm arising, increases directly in proportion to gambling expenditure i.e., losses. There is an urgency in being able to provide evidence-based therapies for sports betting.

5.5. Promotion of consumer protection tools

We believe there is an increasing public awareness and advocacy for more regulation of sports betting. One option is that all sports betting companies have mandatory links to risky gambling limits and to gambling education and therapy for those at risk.

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