NSW Ministry Health

Early Intervention & Innovation Fund

Summary of key findings and implications for policy and practice

Project title Feasibility and efficacy of the S-Check App, a mobile health (mHealth) early-intervention tool to change help seeking behaviour of people who use methamphetamine: A randomised wait-list controlled trial

Lead investigator and organisations Conjoint Prof Nadine Ezard, St Vincent's Hospital Sydney and The National Centre for Clinical Research on Emerging Drugs

Other investigators and organisations Florence Bascombe[1,2,3]; Dr Krista J Siefried[1,2,3], Peter Middleton[1]; Brendan Clifford[1]; Jessica Wilson[4]; Dr Zhixin Liu[5]; Prof Frances Kay-Lambkin[4].
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Background and Rationale – what problem were you solving?

Please summarise context and rational for this project in 1 or 2 paragraphs – what problem were you trying to solve
There is an urgent need to find new ways to expand interventions to address methamphetamine (MA) related harm, long treatment delays, low treatment coverage, and to intervene early. Mobile health technologies offer new opportunities for education, risk prevention, and treatment of substance use disorders. This study sought to determine whether a self-administered smartphone-based intervention, the S-Check Application ("App"), can motivate behavioural change and help seeking amongst people who use methamphetamine; and determine factors associated with app engagement.

Summary of Key Research Findings

Please summarise findings from the research below in abstract format (maximum 300 words)

Introduction

Aims	The primary aim of the study was to assess the 28-day effectiveness of the S-Check App, compared to a waitlist control group, to motivate behavioural change and help seeking among people who use methamphetamine regularly, and to assess predictors of App engagement over the study period. Secondary aims included assessing the relationship between readiness to change, help seeking, and methamphetamine use and duration in App, and the most commonly used features of the App
Research Question/s	Is the S-Check App an effective resource to motivate help seeking behaviour among people who use methamphetamine?
Research design	An online randomised 1:1 28-day wait-list control trial, with follow-up to 56 days. Consenting adults residing in Australia who reported using methamphetamine at least once in the last month were eligible to download the App free of charge from Google® and Apple® App stores. Eligibility screening, consent and randomisation were automated within the App. Those randomised to the intervention arm were able to use the S-Check App immediately whilst those in the control arm were wait-listed for 28 days before gaining access to the App.

Methodology

The intervention group had access to the App which provided information and resources about methamphetamine use, structured self-assessment tools on a range of health issues and a tool to track use and health impacts of methamphetamine over time. Baseline, Day 28 and Day 56 outcomes were measured by the Readiness Ruler, the modified General Help Seeking Questionnaire, and the Actual Help Seeking Questionnaire, and the number of days of methamphetamine use in the past 28 days. Qualitative feedback was collected through one-on-one semi-structured telephone interviews collected after 28 days App usage.

Results

Two-hundred and fifty-nine participants were recruited to the study, 84 to Day 28 (33 intervention, 51 control) 43 to Day 56 (21 intervention, 22 control). 47% of those recruited were based in NSW. Compared to waitlist controls, almost twice the proportion of participants in the intervention group sought professional help by Day 28 (46% vs 24%, p=0.04). The majority of participants had not sought professional treatment previously (61%). For those not seeking help at Baseline each minute using the App increased the likelihood of seeking professional help by Day 28 by 8% (ratio=1.08, p=0.04). There was a signal that people who used MA more frequently were also more likely to engage with the app and, there was an association between increased app use and decreased MA use over the 28 days (coeff. -0.04, p=0.02 [intervention group,

n=33]). The most used resources were on methamphetamine use (31%) and psychological wellbeing (23%), the journaling function was popular. Qualitative feedback indicated a mixed response to the functionality, interactivity, content and overall impression of the App, with respondents citing functionality as the biggest barrier to engagement but suggesting that they had or would recommend the App to others.

Implications for policy and practice

List any changes that have been made the service/program as a result of this study (list)
Whilst the analysis has only recently been completed, the opportunity to disseminate these findings is underway with an application for a NSW Health Translational Research Grant (TRGS) in consultation with alcohol and other drug, sexual health and mental health clinicians to implement the S-Check App within a clinical model of care.

Wider implications for policy (list)
This is the first mHealth intervention to be studied in this population group, and these results demonstrate efficacy of the primary aims. This could have implications for future research that impact policy on mobile health interventions as well as Alcohol and other Drug interventions, in line with NSW Health Alcohol and Other Drug Strategic Priority to strengthen digital communication channels and continue towards integration; and St Vincent's Integrated Healthcare Campus Darlinghurst Clinical Services Strategy to introduce new ambulatory models of integrated care, and use virtual care delivery to provide services to patients and support to clinicians in remote and rural areas.

Wider implications for practice i.e. services and programs(list)
There is the potential for the App to be offered to people who use methamphetamine through:
- Alcohol and other Drug Information Services
- Alcohol and other Drug specialist services
- Primary Care through Primary Health Networks
- Sexual health services
- Mental health services
- Consultation and emergency liaison
- Non-government organisations (NGO's)

Thereby effectively removing a barrier to treatment and engaging clients in treatment through this early intervention. This will be explored in future research.

Please comment on the particular significance of this project to NSW including customer focus
The NSW Government special commission of Inquiry into the drug 'Ice' specifically identified challenges to access and providing AOD services in NSW, due in part to the size of the state and distribution of its population, recommending an urgent increase in investment for specialist AOD health services to meet the significant unmet demand for services across the state (Recommendation 31). The S-Check App offers an anonymous, confidential intervention, available at anytime, anywhere and to any person with access to a smartphone. As an early intervention, the S-Check App has the potential to facilitate the first step in a stepped care approach to treatment, reducing treatment delays and avoiding more serious adverse health outcomes.

Research Impact

Has this research study led to further investigations or collaborations that led to other funding applications?

YES ☒   NO ☐

If yes, please detail what further investigations or collaborations this research study has led to.

As a result of this study, we are collaborating with mental health, sexual health, and alcohol and other drug services across 4 NSW Local health districts (LHD's) to progress an application for TRGS funding. We seek to determine whether there is utility in introducing an S-Check App intervention as a first step in a stepped care model and whether the S-Check App as a clinical intervention impacts on stimulant-specific treatment access and uptake.

Add an appendix of a list of all dissemination activities of research findings (e.g. conference, publications, media and presentations to key stakeholders).

- *Appendix A – S-Check App dissemination plan*
- *Appendix B – APSAD Conference poster, 2019*

Please send completed reports to:

Dr Joanne Ross, Senior Research & Evaluation Officer, Centre for Alcohol and Other Drugs, NSW Ministry of Health

Email: Joanne.Ross@health.nsw.gov.au

Appendix A – S-Check Dissemination plan

S-Check App Dissemination plan

Product	Target Date	Audience	Lead Contributors	Status	Notes
Conferences / Posters					
Poster presentation: "What's in an app? Incorporating an automated consent procedure to recruit those who use methamphetamine to a harm reduction and early intervention smartphone-based application clinical trial'."	November 2019	Australasian Professional Society on Alcohol and other Drugs (APSAD) Scientific 2019 Conference	Nguyen QA, Middleton P, Herman D, Li K, Grundy E, Li E, Siefried KJ, Malone V, Kay Lambkin F, Ezard N	Completed / Presented	Paper 180, In: Drug and Alcohol Review (November 2019), 38(Suppl 1): S4-S109. Proceedings of the Australasian Professional Society on Alcohol and other Drugs (APSAD) Scientific Conference; 2019 Nov 10-13; Hobart, AU *(Appendix B)*
Poster/Oral	June 2022	The College on Problems of Drug Dependence (CPDD) 85th Annual Scientific Meeting, 2022.	To be determined	Planning	
Presentations					
Preliminary results webinar	June 2021	Evaluation and Innovation Series: NADA, 2021.	Ezard N, Bascombe F, Middleton P, Siefried K.J, Clifford B, Wilson J, Kay-Lambkin F.	Completed/ Presented	*https://www.youtube.com/watch?v=HagHvrJUoPA*
Meeting of the S-Check Advisory Group: Findings and next steps	July 2021	S-Check App Advisory group (researchers and clinicians)	Bascombe F, Liu Z, Wilson J, Ezard N.	Completed/ Presented	
Written products					
Published article: "Feasibility and efficacy of the S-Check App, a mobile Health (mHealth) early-intervention tool to change help seeking behaviour of people who use methamphetamine: A randomised wait-list controlled trial"	December 2021	The Lancet Psychiatry	Bascombe F, Siefried K.J, Clifford B, Middleton P, Liu Z, Kay-Lambkin F, Ezard N.	Planning	Manuscript in preparation for submission
Published article "Feasibility and efficacy of the S-Check App, a mobile (mHealth) early-intervention tool to change help seeking behaviour or people who use methamphetamine: Qualitative findings"	December 2021	The Journal of Substance Abuse Treatment (JSAT)	Wilson J, Bascombe F, Siefried K.J, Clifford B, Middleton P, Ezard N, Kay-Lambkin F.	Planning	Manuscript in preparation for submission
Published article: "Development of an App for mHealth research, reflection paper"	January 2022	To be determined	Bascombe F, Siefried K.J, Clifford B, Middleton P, Liu Z, Kay-Lambkin F, Ezard N.	Planning	Manuscript in planning/discussion phase
Published article: "The place of self-administered mhealth apps in help seeking amongst people who use methamphetamine regularly"	March 2022	To be determined	Kay-Lambkin F, Wilson J, Bascombe F, Siefried K.J, Clifford B, Middleton P, Ezard N.	Planning	Manuscript in planning/discussion phase
Other translational outputs					
Video Abstract (Aims, Method, Findings, Impact) – Basic animation with voiceover	October 2021	Healthcare providers, researchers, peer-workers, consumers, funders through the NCCRED and other partner organisation websites	Bascombe F, Siefried K.J, Clifford B, Middleton P, Liu Z, Wilson J, Kay-Lambkin F, Ezard N.	Planning	In collaboration with Insight: Centre for AOD Workforce training and development
Video explainer ("What is the S-Check App? Inside the App") – Basic animation with voiceover	October 2021	Consumers, Healthcare providers, peer-workers, researchers, funders through NCCRED and other partner organisation websites	Bascombe F, Siefried K.J, Clifford B, Middleton P, Liu Z, Wilson J, Kay-Lambkin F, Ezard N.	Planning	In collaboration with Insight: Centre for AOD Workforce training and development

What's in an App?

Incorporating an automated consent procedure to recruit those who use methamphetamine to a harm reduction and early intervention smartphone-based application clinical trial

NCCRED +

ST VINCENT'S HOSPITAL SYDNEY

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

UNSW SYDNEY

WAY TO BLUE — the Project Factory

QUOC A NGUYEN[1], PETER MIDDLETON[2], DANIEL HERMAN[3], KRIS LI[4], EMMA GRUNDY[4], EMILY LI[2], KRISTA SIEFRIED[1], BRENDAN CLIFFORD[2], FRANCES KAY-LAMBKIN[5], NADINE EZARD[1,2]

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Introduction

The use of mobile health (mHealth) applications for providing health information and care has increased over the past decade[1]. The number of mHealth applications related to the use of alcohol and other drugs is expanding, including those for methamphetamine use[2].

Technological features have contributed to increasing popularity of mHealth applications for a range of conditions[3] including:

- Confidentiality,
- Timely access to information, and
- Flexibility.

However, the evidence base for quality, acceptability, and effectiveness in behaviour change is limited[4].

An important challenge for testing smart phone applications is the need to gain informed consent to participate in a research study.

Approach

We hypothesised that it would be feasible to embed an **automated anonymous consent process** into a trial of a new smartphone application, the Scheck App, to recruit an anonymous online sample of people who use methamphetamine.

- The S-Check App, developed in 2017, is a harm reduction information and early intervention application.
- Acceptability, ease of use and navigation was piloted among people who use methamphetamine (n=10)[5] using the uMARs questionnaire[6].
- To test effectiveness in motivating help seeking and behaviour change, a research version of the App has been developed including:
    - Automated consent (eConsent),
    - Randomisation to immediate access or a 28-day waitlist control period (ACTRN12619000534189),
    - Free-of-charge downloading (from Google® or Apple® store),
    - In-built Participant Sheet/Informed Consent Form (PISCF), study details and an eligibility assessment
    - Randomisation, reimbursement and reminders (eliminating need to collect personal information), and
    - Optional link to telephone feedback or support.

Key findings

An automated system to recruit participants embedded in the App:
- Incorporates participant information and consent processes,
- Fulfils ethics approval obligations,
- Maintains participant anonymity,
- Eliminates need for direct contact, and
- Automates tasks associated with the recruitment process.

Visit the S-Check App Trial:
www.scheckapp.org.au

Management of recruitment issues

Issues	Conventional Recruitment Procedure	App Based Recruitment
Maintain anonymity	The participant needs to identify themselves in order for the PISCF to be sent to them (e.g. by mail, email, etc.)	The PISCF is provided electronically and the consent procedure is conducted anonymously via the App
Recruitment time	Takes considerable time for the PISCF to be sent and returned before the participant can be enrolled	The selection criteria and the consent procedure are conducted within the App, avoids recruitment delays
Face-to-Face recruitment	S-Check App trial is an Australian wide study, therefore not feasible to conduct face-to-face recruitment	There are checks built into the App to ensure that only those meeting the selection criteria who are able to give consent can participate
Reimbursement for participating	The participant needs to provide contact details in order receive reimbursements	Reimbursements are provided through the App via an e-gift card for the purchase of groceries

Discussion

- This study provides valuable insight into mHealth application-based self-administered remote informed consent processes with no researcher-participant in-person contact.
- eConsent provides new opportunities for accelerated and scaled-up research involvement, engaging hard to reach or marginalised people[7].
- Emerging privacy and validation concerns require further investigation[3].

Conclusion

The study will document experience of remote in-app consent among a planned sample of 1050 Australians. If successful, intervention and survey-based studies may adopt this approach to improve the efficacy and timeliness of recruitment and participation.

SV S-CHECK

PLEASE OPEN AND READ THE FOLLOWING PARTICIPANT SHEET AND CONSENT FORM (PISCF)

VIEW PISCF

DO YOU AGREE WITH THE CONSENT FORM?

I DO NOT WISH TO PARTICIPATE

I AGREE TO PARTICIPATE

An electronic version of this Participant Information Sheet and Consent form will be available on the S-Check App for you to download

DASHBOARD

YOUR PIE

SEXUAL HEALTH

Let's drill right into the nuts and bolts of your Sexual Health

Your sexual behaviour is regarded as high risk. It's important to get a sexual health check asap!

START SELF ASSESSMENT

JOURNAL | RESOURCES | CHECK IN | ACHIEVEMENTS | HELP NOW

SV S-CHECK

I accept the terms & conditions

I acknowledge that this app is not a substitute for professional medical advice.

LET'S BEGIN

References:
[1]Berg, J. (2014). *Indiana Heal Law Rev* 11(2), 590-608. [2]. Tofighi, B. (2019). *JMIR Mhealth Uhealth*, 7(4):e11831. [3] Moore, S. (2017). *JMIR mHealth uHealth*, 5(8),e126. [4] Chapman, C. (2018). *JMIR Mhealth*