

Evaluation of the Here4U Scotland application



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Report to

Digital Lifelines Scotland

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List of Abbreviations

ADA	Alcohol & Drugs Action
ADP	Alcohol and Drugs Partnership
DDTF	Drug Deaths Taskforce
DHI	Digital Health and Care Innovation Centre Scotland
DLS	Digital Lifelines Scotland
DORS	Digital Overdose Response System
DRD	Drug-Related Deaths
FG	Focus Group
ODART	Overdose Detection and Response Technologies
PWUD	People Who Use Drugs
SAS	Scottish Ambulance Service
SCS	Supervised Consumption Sites

Contents

1	Introduction	5
1.1	Background	5
1.2	Digital Lifelines Scotland	6
1.3	Overdose detection and response technology project	7
1.4	Virtual supervised consumption	7
1.5	Responder apps	8
1.6	Brave app	8
1.7	Here4U Scotland	9
1.8	Aim and objectives	10
2	Methodology	10
2.1	Study design	10
2.1.1	Evaluation framework	10
2.1.2	Ethical approvals	11
2.1.3	Participants	11
2.2	Quantitative data	12
2.3	Topic guides	12
2.4	Interview and focus groups data collection	12
2.5	Data analysis	13
3	Results	13
3.1	Project phases	13
3.1.1	Initiating the project	13
3.1.2	Contracts and regulations	14
3.1.3	Adoption	14
3.1.4	Go-live	15
3.1.5	Challenges	15
3.2	Frequency of use	16
3.3	Technology aspects	18
3.3.1	Adoptability and flexibility	18
3.3.2	Usability	22
3.3.3	Data security and privacy	24
3.3.4	Education for supporters	25
3.4	People and human aspects	26
3.4.1	Relationship building	26
3.4.2	Mental health and structural wellbeing	27
3.4.3	Tackling challenges of the audio service	27

3.4.4	How digital has changed communication	28
3.4.5	Satisfied with usability	28
3.5	Organisation.....	29
3.5.1	Balancing communication and responsibility	29
3.5.2	Absorbing the co-design process	30
3.5.3	Embracing the harm reduction evolution.....	31
3.5.4	Seeding behaviour change	32
3.5.5	Reviewing recruitment and training	32
3.6	Macro-environment.....	33
4	Discussion.....	36
4.1	Summary of key findings.....	36
4.1.1	Phases of project and challenges.....	36
4.1.2	Technological aspects	36
4.1.3	People and human aspects	36
4.1.4	Organisational aspects.....	37
4.1.5	Macro-environmental aspects	37
4.2	Methodological considerations	37
4.2.1	Evaluation framework.....	37
4.2.2	Sampling, participation and scope of the evaluation	37
4.3	The impact of the Here4U Scotland app.....	38
4.4	Has Here4U Scotland met its aims?.....	38
4.4.1	Assessing and impact on app users and supporters	38
4.4.2	Expanding digital solutions to reduce DRDs	39
4.4.3	Enhancing co-design and digital interaction.....	39
4.4.4	Recommendations	39
4.5	Conclusion.....	40
5	References	41

1 Introduction

1.1 Background

Scotland's drug death statistics for 2022 were recently published showing a 21% reduction in the number of drug deaths since 2021 (National_Records_Scotland, 2023). The number reduced from 1330 to 1051 which appears a positive reflection of the work completed by agencies (third sector, charities, and NHS) to reduce drug-related fatalities (National_Records_Scotland, 2023).

Despite the reduction in 2022, Scotland remains the drug death capital of Europe. It presents with 3.7 times as many related deaths in 2022 as in 2000, and those in the most deprived areas are 16 times more likely to perish from drug-related causes (National_Records_Scotland, 2023). Men are twice as likely to die from drug deaths as women and although the number of drug deaths has reduced by 21% in 2022 to 659, men are still almost 3 times more likely to die from drug use in 2022 than in 2000 (National_Records_Scotland, 2023). Women are almost 7 times as likely to die from drug use than in 2000 and although a modest reduction from 2021 of 10%, to 359 in 2022 and when compared against male drug deaths, female fatalities have risen by circa 233% over 22 years.

Although differing substances are often consumed concurrently (79% of cases in 2022); the one contributory group of substances implicated in 82% of all fatalities are opioids such as heroin, methadone and morphine (National_Records_Scotland, 2023). Currently, Scotland has avoided the influx of synthetic opioids such as fentanyl that has become prominent in the street supply of Canada and the USA, however, should this materialise then Scotland will have a much larger problem requiring a more substantial, harm reduction response (McAuley et al., 2023, Irvine et al., 2022).

Administering opioids in unsanitary environmental conditions with a paucity of accessible information regarding quality, purity and reliability, harvests conditions that are consistently conducive to negative consequences (McAuley et al., 2022, Atkinson et al., 2019). Combinations of opioids, benzodiazepines and gabapentinoids; all of which are taken without supervision or knowledge of quality, and are frequently connected to respiratory depression and overdose, are a major factor in those negative outcomes. (McAuley et al., 2022). In 2022 benzodiazepines were implicated in 57% (n=601) and gabapentinoids in 35% (n=367) and when associated with opioids in 82% of cases there is the potential for a fatal cocktail of respiratory depressants (National_Records_Scotland, 2022, McAuley et al., 2022). Furthermore, deaths involving cocaine/crack have been observed in 35% of cases in 2022 (n=371) which indicates a potential insidious mixture of opioids, depressants, gabapentinoids and stimulants when consuming multiple substances. Many people blend drugs such as cocaine/crack and heroin together to create a speedball effect and others may use both substances consecutively to counteract or take the edge off the other, such as using benzodiazepines or opioids to ease the tweaking or anxiety from crack or cocaine (Leri et al., 2003, Hughto et al., 2022).

Data from 2018, indicates that over half of deaths, 58%, occurred when people lived alone but this increased to 79%, when it was their own home, indicating that they may have been alone at the time of death (Scottish_Affairs_Committee, 2019). Internationally people who are using drugs are advised to seek assistance or request that someone supervise them while they are administering substances to assist with safety and access harm reduction advice and support (Harm_Reduction_International). This is further emphasised through fatalities related to those who are homeless and potentially living alone in hostels, hotels, shelters or on the street and taking drugs without supervision which leads to immediate or longer-term negative consequences and fatalities (Gjersing and Helle, 2021; Sumnall et al., 2020; Simon_Community_Scotland).

To combat this, one of the ongoing Scottish initiatives to tackle Drug-Related Deaths (DRD) was the provision of “take home naloxone”. Naloxone provision has been successful in providing those who are using drugs, leaving prison, leaving hospital, their friends, family, supporters, third sector workers and volunteers with the agency to administer an opioid antagonist immediately after witnessing an overdose while they wait for the arrival of emergency services (Bird and McAuley, 2019). The effects of naloxone are observed between 2-5 mins after administration intravenously and 15-30 mins intranasally and provide 30-40 mins of recovery time for emergency services to arrive before wearing off but can be re-administered if required (Britch and Walsh, 2022, THN).

However, despite the availability of naloxone, politically, there is pressure from third sector agencies and supporters of a more progressive and liberal approach preferred by countries such as Canada and many of our European neighbours; to implement more sanitary and supervised consumption sites (SCS) that enable accessible on-site healthcare and harm reduction information to be provided (McAuley et al., 2022; Atkinson et al., 2019). These countries demonstrate a successful and life-saving history of working with those who use SCS to administer unregulated substances (McAuley et al., 2022; Gjersing and Helle, 2021). However, concomitant with the rudimentary political ambiguity and prevarication, there has been a promising conviviality towards SCS and a recommendation from the House of Commons Scottish Affairs Committee and the Drug Deaths Taskforce (DDTF) for Scotland to consider a modernisation of drug laws; currently, the UK and Holyrood administrations cannot agree on legislation, that would facilitate the introduction of SCS due to historical drug legislation and a refusal from the Westminster administration to devolve drug laws to Holyrood (McAuley et al., 2023; National_Records_Scotland, 2022; Simon_Community_Scotland). Therefore, in the absence of SCS within Scotland, new and novel initiatives were sought, and digital solutions have been embraced (Daneshvar et al., 2022).

The Scottish government appointed a DDTF in 2019, which brought together stakeholders such as clinicians, academics, social works, criminal justice, public health, pharmacy, prisons and peers with lived experience (DDTF, 2019). Their findings highlighted a number of avenues for further exploration (in addition to those discussed above) which included assertive outreach, addressing multiple complex needs, a ubiquitous public health approach, person centred, low threshold treatment and the targeting of new and distinctive digital innovation which could empower and provide positive bespoke outcomes for those in challenging situations. This was a precursor to initiatives such as Digital Lifelines Scotland and the National Drugs Mission plan. These were both implemented in 2021 with the aim of finding new and diverse methods to reduce drug deaths and the connected harms that people face. Once again collaborations between government, justice, social, and third sector agencies were focused on tackling challenges and innovative and ground-breaking digital solutions (DLS, 2023).

1.2 Digital Lifelines Scotland

The Digital Lifelines Scotland (DLS) programme was implemented through the Scottish Government's Digital Health and Care Directorate and intended to provide digital devices to marginalised and vulnerable communities. It intended to improve confidence using devices, develop new services and approaches promoting a progressive harm reduction ethic, understand the digital needs of those most at risk of losing their lives through drug use, and collaborate with service providers and users to collate and exchange knowledge to improve individual and collective outcomes (DLS, 2023; Matheson et al., 2023).

1.3 Overdose detection and response technology project

Evolving projects from this include the Overdose Detection and Response Technology (ODART) project which proposes to investigate burgeoning new and novel digital avenues to provide technological solutions to mitigate the current drug crisis. The ODART project would employ four major initiatives that would provide a consolidating structure. They were 1. Detect the onset of overdose and alert a responsible person 2. Overdose first responder 3. Community provision of naloxone 4. Remote addiction consultations (Daneshvar et al., 2022). Initiatives one and two are the main tenants of this evaluation focusing on the early onset of overdose and delegation of first responders.

During focus group research exploring technological options with lived experience participants and service providers; participants were mostly encouraged by the prospect of interaction with sensory devices to identify overdose (Oteo et al., 2023; Dumbrell et al., 2023). Wearable devices, so long as they were discreet and privacy concerns were addressed were broadly welcomed (Dumbrell et al., 2023). However, the use of digital smartphones, and the integrated apps, may be somewhat of a compromise considering any privacy and agency concerns using wearables, were also broadly welcomed (Oteo et al., 2023).

For the overdose first responder initiative, 22 different applications were identified, categorised into: 1) Information apps (10) provided overdose-related information. 2) Responder apps (10) monitored drug users and initiated support in case of overdoses which will be discussed more below. 3) Naloxone responder apps (2) connected naloxone carriers with those in need. These apps encouraged community involvement in addressing drug-related emergencies Categories 2 and 3 involved volunteers and offered co-services, emphasising community support and involvement in addressing drug-related emergencies.

1.4 Virtual supervised consumption

International evidence highlights the success, appetite, and propensity for virtual consumption in a similar format (Schwartz et al., 2020; Perri et al., 2021). During the COVID-19 lockdown and subsequent easing of restrictions, a voluntary spotting method, which involved users calling a friend or relative while using drugs, was trialled with positive results (Perri et al., 2021). In the study, 20 participants successfully used informal spotting as a means to provide remote supervision, support, and advice to each other during drug use. This informal spotting process created a supportive and reassuring virtual environment where participants could share information related to their drug use without fear of repercussions (Perri et al., 2021). Participants made emergency plans, including who to contact and whether to call for professional services. This approach was particularly preferred in Canada, given the proximity of safe consumption sites, as it allowed users to retain their agency and avoid potential judgment by medical personnel (Perri et al., 2021). Importantly, this method reduces the risk of serious harm, criminalisation, and stigma often encountered when attending or travelling to supervised consumption sites. Notably, this method also provides overdose prevention for individuals who do not inject drugs, which would otherwise not be available (Perri et al., 2020).

Other programmes, such as "Never Use Alone," are based in Massachusetts and serve as harm reduction supervision hotlines for individuals using drugs across New England, USA (Never_Use_Alone). These programmes prioritise privacy and respect, and they may request some routine details and substance characteristics to enable supervision and ensure the safest administration possible (Never_Use_Alone).

In Scotland, a similar programme was operated under the name "Never Use Alone." This anonymous drug consumption helpline was run by the charity "We Are With You" and provided phone-based assistance and supervision for individuals using drugs in Glasgow and Ayrshire communities (Wearewithyou.org.uk).

1.5 Responder apps

Responder apps used in the context of overdose prevention are designed to be interactive, with users actively participating in the system. The common logic behind these apps involves users checking in using various methods, such as AI-based communication or manual check-ins, to activate the app while using drugs. These apps monitor users' responses, and if they detect a need for help, they initiate communication with a supporter or an emergency centre.

Brave app formerly known as "Be Safe Community," focuses on overdose prevention. It is designed to address drug overdoses by providing remote supervision and support for PWUD alone. It offers virtual access to assistance wherever and whenever people use drugs, aiming to prevent overdose-related fatalities. Users at risk of overdose can connect with anonymous peer support through the app, creating a non-judgmental and supportive environment. The app operates similarly to a virtual supervised consumption space, and its design is rooted in a holistic and values-driven approach to empower those at risk of overdose. It also collaborates with emergency services and Naloxone intervention, ensuring real-time responses to overdose situations. In essence, the Brave App acts as a safety net for individuals using drugs alone, offering them the opportunity to connect with support and potentially save lives by preventing overdose incidents. This app operates 24/7 and allows supporters to volunteer.

Lifeguard is another Vancouver-based app that automatically contacts emergency responders if a user becomes unconscious due to an overdose. It also connects users with health and wellness services and provides resources for emergency intervention and mental health support.

OD Buster aims to connect overdose victims with nearby naloxone-carrying volunteers in real-time, using GPS and data technology. While it's still in development, the app's core function is to alert volunteers when an overdose occurs nearby.

UnityPhily is a collaborative research project in Philadelphia, focusing on overdose response. Users can signal an overdose, and others with the app can respond with naloxone. The project shows promising results and is funded by The National Institutes of Health (NIH).

The Digital Overdose Response System (DORS) app allows users to summon emergency response if they become unconscious due to substance use. It also provides information on addiction recovery services and ensures user privacy.

In summary, these responder apps play a crucial role in overdose prevention by leveraging technology and community support to save lives during critical situations.

1.6 Brave app

The Brave App, formerly known as "Be Safe Community," was developed by the Brave Technology Coop Company, registered as an NGO based in Vancouver, British Columbia, Canada. The Be Safe Community app, a leader in this field, is designed for individuals who use drugs alone. It operates on smartphones with an internet connection. Users are required to introduce a supporter, who must

install the support version on their smartphone for emergency situations. The app initiates communication with the user and then assesses the user's condition after a few minutes. If the user does not respond within a specific timeframe, the app contacts the supporter and shares the user's information to facilitate a rescue. One notable advantage of this service is its availability 24/7. Moreover, individuals can volunteer to become part of the rescue community. The app is compatible with both iOS and Android platforms.

The company's website provides the following specifications for the app (more details at <https://www.brave.coop/>):

- Users can press a button in the app to connect with a supporter via voice.
- The caller and supporter collaborate to establish a rescue plan and remain on the call until the caller is no longer at risk of overdose.
- In case the supporter ends the call or gets disconnected, the caller is connected to a backup supporter.
- If the caller becomes unresponsive, the supporter notifies them through the app, giving them an opportunity to respond.
- If the caller still does not respond, their location and additional information, such as preferred contacts, are disclosed to the supporter, who can then connect with emergency and community responders to seek help.
- Anyone can volunteer to be a supporter, and the training process is comprehensive yet straightforward, with a focus on the shared goal of saving lives.

Notably, this app followed a co-design methodology in its development, involving all stakeholders such as drug users, family members, and volunteers in the design process. The company has also developed other products in this field.

1.7 Here4U Scotland

After comparing all apps, considering their implementation approaches, cost-effectiveness, and the readiness of the company to pilot their app, Brave was selected to pilot their app in Aberdeen City. The Here4U Scotland app, whose name was chosen by users in a co-design process, is a collaborative effort involving the University of Stirling (UoS), Alcohol & Drugs Action (ADA), and the Digital Health and Care Innovation Centre (DHI), with the support of the Aberdeen Alcohol and Drugs Partnership (ADP). This initiative was funded by the Digital Lifelines Scotland (DSL) programme, supported by the Scottish Government.

Here4U Scotland provides tailored one-to-one support and guidance to individuals using drugs, with the aim of reducing drug-related fatalities. The app encourages service users to contact supporters both by phone and through the app for supervision during drug use. While the primary focus is on addressing all drug-related deaths, special attention is given to those who use drugs alone or consume poor-quality or multiple substances.

The app grants remote access to trained supporters who can provide harm reduction advice while overseeing drug administration via telephone. Users of Here4U Scotland services can expect non-judgmental and anonymous support from volunteers experienced in the field of drug use. The app facilitates the creation of a rescue plan with available user details in case the user encounters distress while using the app. Similar to the Brave app's conceptual structure, Here4U Scotland

collects minimal user information, and data is not retained by ADA or Brave. The app aims to achieve several objectives:

1. Provide free, anonymous, and non-judgmental remote advice and supervision for users during drug use.
2. Enhance the psychological well-being of marginalised users, fostering increased interaction and engagement with harm reduction services and peers.
3. Reduce unsafe, unsanitary, and dangerous drug use in solitary or precarious environments, ensuring access to communication, advice, and support from trained volunteers.
4. Establish an immediate point of harm reduction interaction between service users and supporters, cultivating credibility and trust within this project and future initiatives.

Overall, the Here4U Scotland app has the potential to be a valuable resource for harm reduction and support in the context of drug use.

1.8 Aim and objectives

The aim of the study was to adapt and introduce the Brave app to a Scottish site and assess the uptake, implementation and acceptability.

The specific objectives of the evaluation were to:

1. Examine the impact of virtual access to remote supervision on those using drugs and on those providing support.
2. Evaluate the possibilities for evolving and adapting the app and service to further expand digital solutions to reduce DRDs through remote supervision.
3. Investigate avenues to ensure greater co-design engagement and increase the appetite for service users to interact digitally with services and each other.
4. As a consequence of the three objectives above, assess how we can transition digital supervision to a model that encourages service user adoption through positive interaction and engagement, thereby fostering individual and collective agency, ownership, and responsibility for the quality-of-service provision.

2 Methodology

2.1 Study design

We used a mixed methods approach, combining semi-structured interviews and focus groups (FG) to collect qualitative data alongside secondary programme data. Our evaluation followed the TPOM framework, as outlined below. Brave provided qualitative data related to technical acceptability, which guided adjustments made during the pilot phase. Additionally, we utilised quantitative service usage data to elucidate app usage patterns.

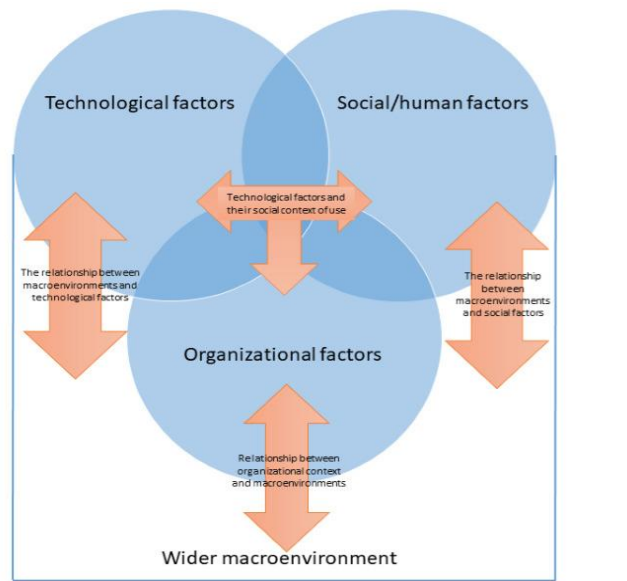
2.1.1 Evaluation framework

The study selected the Technology, People, Organisations, and Macro-environmental (TPOM) evaluation framework due to its suitability for addressing the complex implementation landscape. This framework considers various factors, including technology, social and human aspects, organisational dynamics, and broader macro-environmental influences (Cresswell et al., 2020). It is especially relevant when analysing technology in complex healthcare and social care settings,

requiring the app of appropriate socio-technical theories to comprehensively address these dimensions. By adopting this framework, we ensured comprehensive coverage of the four evaluation dimensions inherent in TPOM factors in both data collection and analysis. Figure 1 presents the dimensions of TPOM which was used as the framework for interview data analysis.

Furthermore, the formative approach provided by TPOM supports the discovery, definition, development, and delivery stages. It continually evaluates various stages and outcomes, providing input for the development and delivery of subsequent stages.

Figure 1. Diagram of the TPOM evaluation framework



2.1.2 Ethical approvals

Ethical approval was secured from the University of Stirling's General University Ethical Approval Panel (GUEP; 7800).

2.1.3 Participants

Three groups were included in qualitative data collection: I) callers (Service Users), II) supporters (Service providers) and III) stakeholders.

The inclusion criteria for each participant group were:

Callers: Currently using illicit drugs (or used in the last 12 months) and currently using the app or had been offered the app, age over 18 years and currently living in the Aberdeen area.

Supporters: are community members trained to provide quality harm reduction assistance with the app. Eligibility to participate in the study required being aged 18 years or older, and serving as designated supporters for individuals using the app.

Community stakeholders: managers, frontline staff, responders, volunteers in third-sector organisations offering harm reduction, homeless services, community outreach, recovery support, local policymakers, the Scottish Ambulance Service (SAS) harm reduction lead, and Police Scotland.

The exclusion criteria were:

People aged under 18 years; unable to provide informed consent; unable to speak/understand English; unable to take part due to severe mental health, behavioural problems or under the influence of substances; not currently living in the Aberdeen area and not involved in the Here4U Scotland app.

Table 1 below displays the participation of target groups across the TPOM domains and data collection methods.

Table 1. Participation across target groups

Participants	Main TPOM Domains	Method	Number of Participants
Callers	Technological Social/human factors	Interviews	6
Supporters	Technological, Social/human and Organisational factors	Focus Group	3
		Interviews	6
Stakeholders	Organisational and wider macro-environment	Focus group	5

2.2 Quantitative data

Quantitative data was provided by Brave related to technical acceptability, specifically regarding the number of app downloads and calls made each month.

2.3 Topic guides

Topic guides were developed by the research team, covering the domains of the TPOM. The topic guide for Callers focused more on the usability of the app and the social/human (people) domains. It explored how the new service was used, its impact on callers and usability and problems using it. The topic guides for the supporters covered the infrastructure of the new app services, usability, training, and support needs for supporters, as well as the impact of relationships with service users.

The topics covered in the community stakeholders' focus groups centred on the impact of the app pilot program, identifying gaps, barriers, and enablers at the organisational and macro-environmental levels, and considerations for sustainability. Topic guides are included in Appendices 4, 5, and 6.

2.4 Interview and focus groups data collection

All caller participants were recruited through ADA staff who had access to these individuals. Details of the interviews and participant information sheets were either distributed via email or provided in person, and interviews were arranged either by phone or in person. Written or verbal consent was obtained from all interviewees before each interview. The interviews were conducted by GS. Caller participants were offered a £10 shopping voucher as an honorarium. Due to caller privacy concerns, a focus group with callers did not take place.

Supporters were also recruited through ADA, and interviews and focus groups were conducted using MS Teams and in person. Focus groups with community stakeholders were invited to participate by email (CM) and were conducted in person by CM, GS, and HD. Similarly, focus groups with supporters were arranged by ADA staff and conducted by GS and HD.

The interviews with supporter participants typically lasted an average of 23 minutes, while the two focus groups with community stakeholders lasted an average of 67 minutes (range 55 – 80). Interviews with callers were generally shorter in duration, averaging 17 minutes.

All interviews were audio-recorded with permission. Researchers (GS, HD) made reflective notes after each interview to cover contextual information of relevance including how they felt the interview had gone. All participants were provided with debriefing sheets at the end of the interviews.

The research team also made efforts to interview individuals who had been offered the opportunity to use the app through ADA but had declined. Unfortunately, no such individuals could be identified by the service providers.

2.5 Data analysis

Quantitative data was used to generate frequency tables and cross-tabulations using Microsoft Excel. Simple descriptive statistics were employed to describe the uptake and the level and nature of use.

All interviews were transcribed in full by an external transcriber under a confidentiality agreement with the UoS. Any identifiable information was redacted by GS. The transcripts were subsequently uploaded to NVivo (version 12). Deductive thematic analysis was carried out using the domains and sub-domains of the TPOM), with inductive coding allowing for the identification and description of additional themes. Three separate datasets were created and coded for callers, supporters, and community stakeholders.

An initial coding framework was developed by GS and HD after coding 2-3 transcripts from caller and supporter interviews, and this framework was applied to the remaining transcripts. Data were then consolidated under the TPOM domains for interpretation and findings description by GS, HD, and CM.

In the findings section of the report, quotes are utilised to illustrate specific points or themes and encompass the range of views and experiences evident in the data. Quotes are pseudonymised and attributed to each participant group using initials and participant numbers: Callers, CS (community stakeholders), and Supporters. Great care has been taken to ensure that no identifiable names, places, or individuals are included.

3 Results

3.1 Project phases

In this section, we describe the stages of the broader project including the adoption and licensing of a new technology and implementing it in the Scottish setting. This covers the timeline of the project from May 2022 to Aug 2023 that includes 'kick off' to 'go live'. In this section, we provide an overview of the project and the challenges we encountered.

3.1.1 Initiating the project

The project commenced in May 2022, featuring a consortium of diverse partners. To establish a strong foundation, all partners agreed to conduct weekly stand-up meetings, a practice that continued until the project's official launch. These meetings proved invaluable, facilitating effective project monitoring and collaboration across partners.

During this initial phase, collaborative efforts and communication played a pivotal role in laying the groundwork for the project's success. The commitment to regular meetings ensured that every partner was aligned with project goals, timelines, and milestones, fostering a cohesive and productive working environment.

A weekly short stand-up meeting was established for all participants, and it continued on a weekly basis until the end of June 2023. After this period, it transitioned to a bi-weekly schedule, which continued until the completion of Phase I of the project.

3.1.2 Contracts and regulations

Different contracts were required to be setup at the start of the project. Collaboration agreements, Data process garments (DPA) and Service Agreements.

Service agreements: At the start of the project, DHI's role was to manage the contracts with Brave. They agreed to sign a "service contract" that outlines Brave's role, the app's licensing, and the services provided by Brave during the contract. The payment method was also agreed upon in this contract. Since DHI is based at the University of Strathclyde (UoSC), the contract was officially signed between UoSC and Brave.

Collaboration agreement: At the start of the project, DHI's role was to oversee the contract with Brave, while UoS led the project and acted as the evaluator of this app. ADA was accepted as a participant in this project to provide hosting services without receiving any funds. UoS and DHI had separate contracts with the government, and as mentioned, another contract was arranged between DHI and Brave. To establish clear responsibilities and promote collaboration among all project parties, a collaboration agreement between ADA, UoS, and DHI was signed. Since Brave was not based in the UK and had a separate agreement, we decided to exclude Brave from the collaboration agreement. This agreement was created by the UoS contract team, considering all legal aspects of the project, including responsibilities and timelines. However, Brave needed to appoint local project management, and they agreed to utilise ADA staff for this purpose and agreed to cover part of ADA's staff time costs during the project.

3.1.3 Adoption

Co-design workshops: To localise the app, a series of co-design workshops were conducted. The initial step involved selecting a name for the app, where several candidates were considered. Ultimately, in a subsequent workshop, the name 'Here4U Scotland' was chosen by the users.

The first set of workshops involved all stakeholders who formed a Community Advisory Board, including people who use drugs (PWUD) or had lived experience of drug use, service providers from various drug organisations, and the police. During these sessions, the app was introduced to the participants, who were engaged in discussions about the potential opportunities and possible challenges of adoption of the app. The second set of workshops, led by Brave, delved into more detailed aspects of the app. A live call was tested in these workshops, with all participants using the app in a real-time scenario. It was during this workshop that stakeholders considered the availability of services and resources within Aberdeen City. This workshop enabled the identification of areas for improvement within the app, such as access to services, A&E, or police, among others. The outline of the co-design workshop is shown in the Figure 2.

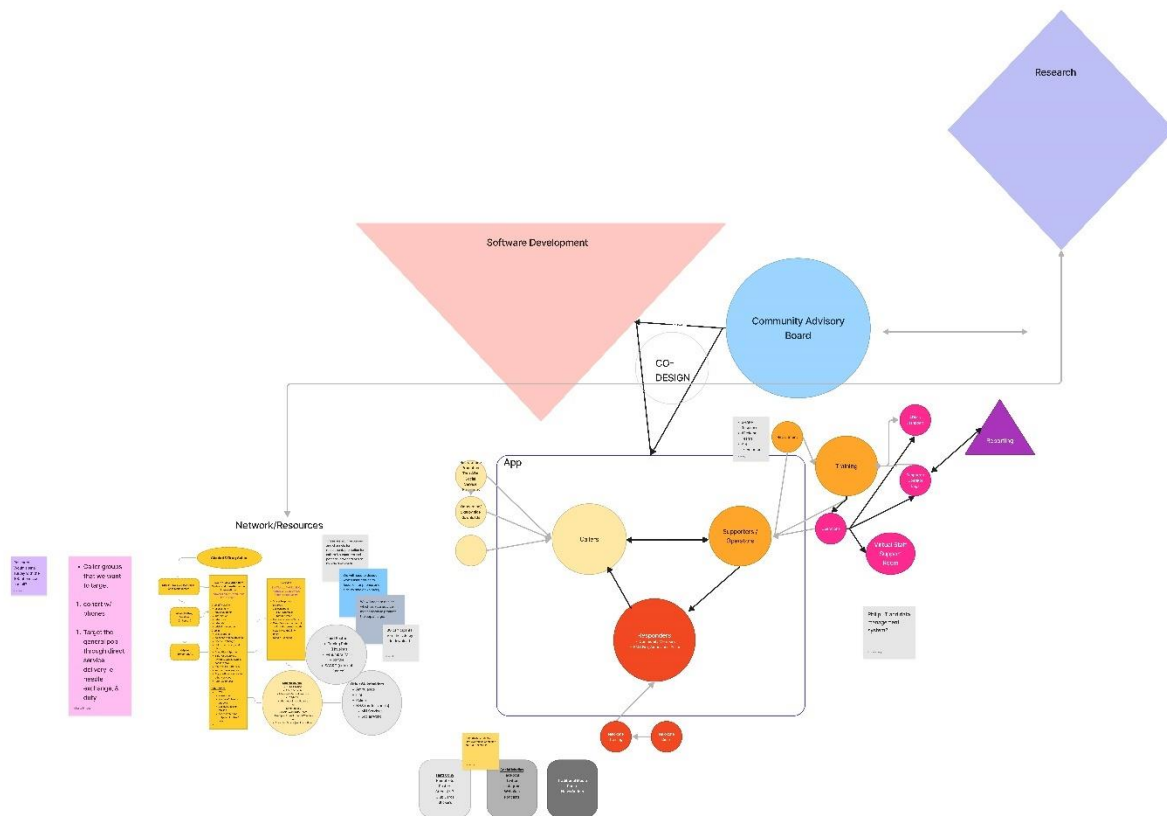


Figure 2- Outline of the co-design workshop

Localisation: All aspects of the app needed to be localised to the Scottish setting, including the name, logo, manuals, and brochures which had originated in Canada/US. Furthermore, a short promotional interview film on the topic of harm reduction for the app was produced and uploaded to the [Here4U Scotland YouTube](#) channel.

3.1.4 Go-live

The initial announcement of the app was made on 31st August 2022 (International Overdose Awareness Day) through promotions on various social media platforms. The app was scheduled to undergo a test call with the Scottish Ambulance Service (SAS), but due to various factors such as high demand during that period and the sensitivity of overdose-related issues (which had various underlying reasons), the launch was delayed. It was eventually launched on 19th January 2023, with limited access to SAS through the app. All supporters were trained to access a second phone or provided with one for emergency situations during this time. Finally, on 17th April 2023, a successful test call with SAS was conducted, and the app officially commenced providing a full service.

3.1.5 Challenges

The challenges encountered during the project initiation, adoption and go-live phases included:

Contracts: The project required the signing of various contracts among different organisations, especially between two universities, which consumed a significant amount of time. Additionally, the identification of the necessary contracts and the process of getting all parties on board took time, especially as some organisations were not familiar with certain contract types, such as the Data Processing Agreement. DHI provided essential guidance through this process.

SAS protocol and test call: The app required thorough testing before its launch. One essential test involved making a trial call to SAS. However, this was identified as a considerable challenge because SAS did not have established protocols for dealing with similar apps or this particular solution. Adding complexity to this situation, was the fact that overdose incidents are categorised as high priority calls for SAS. ADA expressed concerns about these circumstances and aimed to ensure a comprehensive test. The high demand for SAS services during certain times delayed the test call, extending its duration to approximately six months.

Local resources: At the outset of the project, Brave initially expressed its intention to establish local management for the project. However, as the project progressed, Brave and the project team decided to utilise ADA to provide local management of delivery. While they agreed to compensate ADA for this, the budget allocated did not fully cover the costs of staff time. As the project progressed it became clear that a dedicated local service manager to oversee various tasks was required.

Access to smartphones: ADA recognised that the majority of their service users did not have access to smartphones or data plans on their phones. DLS provided 40 phones for this project as part of the Early Adoption 2 programme, which aims to supply digital technologies to service providers in Scotland for the purpose of digitally including PWUD. These devices were instrumental in making the transition to digital services more accessible for callers. However, the phones required some preparation, which consumed more time for ADA staff.

Lack of digital knowledge of service users: Lack of digital knowledge among callers was evident; most needed training, and some had no access to or understanding of fundamental digital technology principles, such as having an email address or knowing how to work with the Internet. This training and support were provided by ADA staff.

3.2 Frequency of use

Nineteen ADA service users were provided with smartphones and the associated apps by the end of August 2023. However, the following data, provided by Brave, regarding the number of downloads of the Here4U Scotland app on Android and Apple platforms over a span of ten months, reveals several noteworthy trends. The project was launched on 19th January 2023, without SAS support. Starting from 18th April 2023 operated as fully functional. The number of users before this date should be considered as part of a testing phase.

First, there is evident variation in download numbers from month to month, indicating fluctuating user engagement. May stands out as a standout month with the highest total downloads, particularly on Apple devices, suggesting a surge in user engagement during that period. Conversely, July and August witnessed a dip in downloads on both platforms, potentially due to holiday-related factors or decreased user interest and uncertainty about the future of the app within ADA. Apple consistently outperformed Android in terms of downloads in May, July, and August, which may imply a preference for the app among Apple users during these months. Figure 3 shows the download numbers from November 2022 to August 2023.

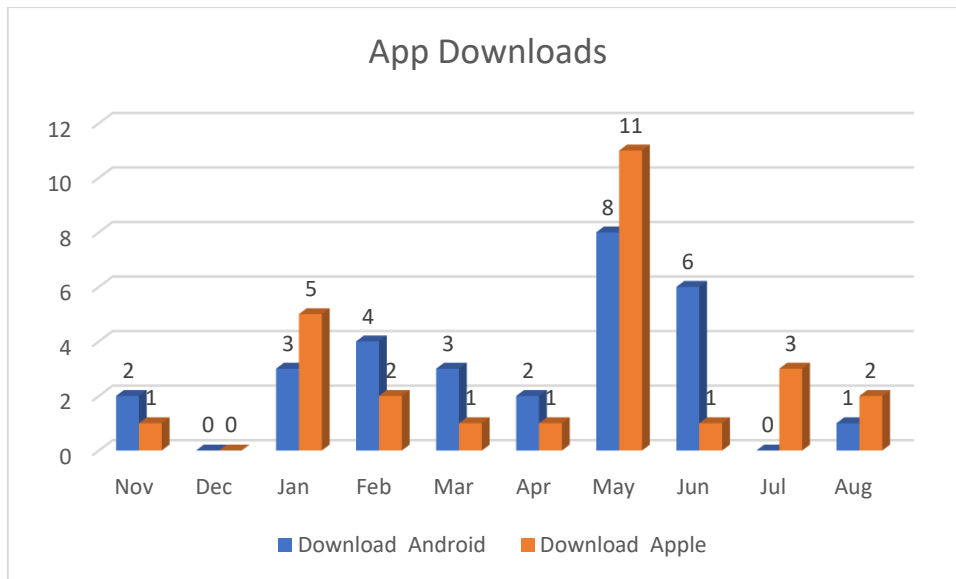


Figure 3 - The Here4U Scotland app downloaded during the pilot

Furthermore, the analysis of incoming calls for the Here4U Scotland app during this specific timeframe provides valuable insights into user engagement. In January, there were a total of 4 incoming calls, evenly split between calls lasting less than and more than 60 minutes.

February and March showed an increase in call activity, with 13 calls each, indicating growing user engagement. In both months, there was a notable proportion of calls exceeding 60 minutes, suggesting that users were actively seeking support and assistance through the app.

April witnessed the highest call activity, with a total of 20 calls, and a substantial number of them lasting over 60 minutes, indicating a peak in user engagement.

May marked a decline in total calls to 4, with the majority being shorter in duration. June and August showed relatively balanced call patterns (9 and 8), with a higher proportion of calls exceeding 60 minutes in June. July had a minor decrease in total calls.

The number of calls before January was not considered in our analysis, because there were many test calls from the project team. In total, 74 calls were logged from January to the end of August, including test calls and real calls. The detail of the call is shown in the Figure 4.

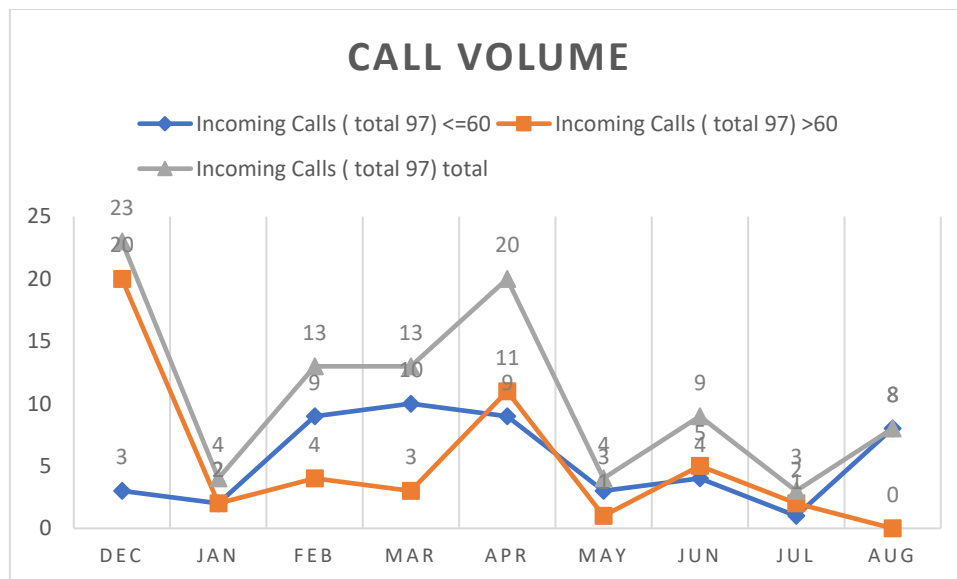


Figure 4- Call volume

Overall, this analysis highlights varying levels of user engagement and activity, underscoring the importance of consistently monitoring and adapting the app's services to meet user needs.

3.3 Technology aspects

In this section the qualitative findings are presented with regard to adoption, adoptability and flexibility, usability of the app, data security and privacy, and education for support.

3.3.1 Adoptability and flexibility

Several technical adaptations have been introduced to enhance user experience for both callers and supporters. One notable adaptation is the introduction of video call functionality.

Video call: One notable adaptation discussed by users and supporters was the introduction of video call functionality. As this had been raised by some supporters, the researcher sought views from other interviewees. A range of perspectives on the potential inclusion of a video call feature in the app were identified. Video calls may have a greater impact on individuals without family support or couples who use drugs together, potentially offering a valuable form of connection and support. This option was considered to potentially provide a sense of comfort, potentially increasing engagement among users. Callers express a desire for a safer consumption room-like experience, indicating that video calls could help users feel safer during drug use.

A video call? Yes, I think that would be - I think it would. Like I'm saying, I think it would affect people that have got no families or whatever or maybe couples as well you know maybe you've got two people that are using, maybe a male and a female, a boyfriend and girlfriend are both users, I think it would affect them more than people that are using alone I would say. Because why would they want a face to face. Like the Here for You app is like you're saying it's specifically for people that are overdosing, isn't it? (Callers 5)

Video calls are considered user-friendly and familiar, potentially making them an accessible option for many app users. Some supporters prefer video calls as they believe it would enhance their ability

to monitor and support users effectively, highlighting potential benefits for the supporter-user relationship. This option could provide valuable visual information about users' conditions, allowing supporters to assess their well-being beyond verbal communication. It could create a more personal and reassuring interaction, contributing to users' comfort and peace of mind. Recruiting supporters comfortable with video calls may pose challenges, potentially requiring additional recruitment efforts. There is potential for users to share visual information, such as pictures or attachments, during video calls to convey specific details about their situations.

I would say I think to try and embed this app or a variation of the app into services, into a client group and into a new culture of how do you use digital technology to keep yourself safe, I certainly think having the choice and the option to have video calling would give us much more scope for discussions about wounds, about needles, about infections and again a bit about what does somebody look like, what is their colouring like after they use. There's lots of things that you'll pick up on actually with face to face. (Supporter3)

And

Yes. I think yes, I think I was one of the ones that was a bit unsure about the video call just partly from what I've just said in terms of that whole, the confidentiality side of things but also just for the benefits of the supporter as well. You know, not everybody is going to feel comfortable seeing somebody injecting drugs into themselves and, you know, as much as I'm well versed in that world I've never seen somebody actually do it in front of me. So, in terms of how people react to that I'm not so sure. (Supporter3)

In summary, video calls are viewed positively for their potential to enhance user support, safety, and engagement. However, challenges related to supporter recruitment and user preferences must be carefully considered.

Chat function: The possibility of a chat function was put to interviewees. There was some apprehension expressed about its effectiveness due to the lack of face-to-face interaction. However, participants acknowledged its potential value for providing general advice and information. Participants emphasised the need to strike a balance between communication through chat and the ability to assess users' well-being accurately.

Maybe like a chat function would be useful but I suppose it's just if you're not speaking to somebody and you're not seeing somebody, again, I would probably feel a bit apprehensive about what they're telling me and not being able to have a sense of how they're doing. But maybe for just general advice and information, if there was a chat function they could go, "I'm using Naloxone, how can I get that?" maybe it would be quite useful. (Stakeholders FG)

Overall, the chat function was seen as having both potential benefits and challenges with more use for information provision.

Environmental factors: Supporters revealed that external factors, such as internet connectivity and location, can influence the app's usability. A buffering issue was reported, attributed to potential internet problems rather than the app itself. The supporter interviewee also emphasised the impact of location on Wi-Fi availability, noting challenges in areas with thick walls and weak signals. However, there were indications of efforts to address these challenges and ensure better app accessibility. This data underscores the importance of considering external environmental factors when evaluating app performance.

One time, I think one of my colleagues was trying to do it and it just kept buffering and wouldn't land properly, if you will, on the handset, but that was very possibly and internet issue, not the actual tech, not the actual App, you know what I mean? (Supporter 5)

And

I think that they've got Wi-Fi everywhere, in all public areas and things like that, which we don't have. And depending on where you are in (Location), it can be really tricky to get a decent signal. So even though the phones are supplied- It depend where you are and where you're visiting people, because a lot of the granite buildings are really thick walls, so the signal's quite rubbish. So, if someone's not got Wi-Fi- I think we had one down here and we couldn't download it, because at that time the Wi-Fi was really weak in here, but we've got it sorted now, so it is easier, but it does depend on where you are. (Supporter 6)

Efforts are being made to improve app accessibility in such environments. This underscores the need to consider external environmental factors when evaluating app performance. Moreover, the importance of having information on external key lock systems and keycode access for emergency situations was highlighted. This feature can be crucial for ensuring quick and efficient access to a residence, especially when medical assistance is needed. It reflects the app's potential to provide valuable information beyond its core features.

I just also suddenly thought as well, and I don't know if it's on the app but quite a few of my clients said that the external key lock thing, even information on that so that if we need to get the ambulance, there's a key safe thing at the front door, this is the code to get in so you don't have to get the police to knock the door in or whatever or something that's going to take longer for the ambulance to get into the building or the house. (Supporter FG)

Additionally, the value of **loudspeaker** functionality in the discussed app was emphasised. Stakeholders note its practical use during calls, enabling hands-free preparation for injections, and emphasising its utility in critical moments. They also recognise the anxiety often associated with audio calls, underscoring the importance of clear and reassuring communication.

We ask you to put the phone on loudspeaker or we can put the phone on speaker because what we found is when someone's ready to inject and they're ready to inject, it is like I will put my phone down and get all my stuff ready, so we're saying do you mind if we put it on loudspeaker, so then they can put that down. And I have had to do calls a few times and I'll maybe say things like, because again it's quite nerve wracking when you're on the telephone, audio call, you can't see them. (Stakeholders FG)

Supporters echo the significance of loudspeakers, highlighting their value in multitasking, such as checking rescue plans during conversations. Overall, this emphasises the importance of effective communication tools, especially loudspeakers, within the app, particularly in sensitive and critical situations requiring multitasking and clear communication.

I would just agree with the loudspeakers. Even for our perspective as well, being able to go in and check the rescue plan and things like that while still chatting away to them was really useful. Yes, I found that probably one of the better features. (Supporters FG)

Furthermore, participants discuss the desire for **24-hour availability** of the app. Callers appreciate the app's ease of use and the value of having a set plan. However, a key concern is the app's lack of 24-hour availability, particularly during night-time when feelings of loneliness and overthinking are

most prominent. Despite this concern, the caller acknowledges the app's early stage of development, underscoring the need for continuous support and potential improvements in the app's functionality.

Accessibility. Pressing a couple of buttons and you're straight through. The plan of having a plan - aye - a set plan that you've got, ken, people, all that sorts of stuff, I think that's amazing. I've not really - the only problem - I don't even want to say a problem because it's kind of like an angel thing that's came in - is that it's not 24 hours. Ken, because the most loneliest times, is at night. Well, the loneliest times I've been is at night, sitting in my bed lonely, ken, overthinking. And if it was a 24-hour thing you could speak to somebody in the middle of the night and it carries onto the next day where you've spoke to somebody at night and then you could just move on. So, 24 hours I recon would be amazing. That would send it over the edge, ken? [...] Because you can't really predict in an 8-hour period how you're going to feel. But I understand that the app has only got - ken it's only just started, is it? (Caller 6)

Lastly, there is an exploration of the app's potential to deliver drug alerts. Participants discuss the idea of sending alerts to app users about dangerous or potent drug batches, which could serve as a means of harm reduction by providing users with information about potentially harmful substances, enabling them to make more informed decisions."

Alert and notice: Participants were concerned about the concept of customising a mobile app to cater to individual users, with a particular focus on those grappling with substance addiction and harm reduction. Multiple viewpoints are presented, each offering unique insights. One interviewee advocated for tailoring the app to the specific needs of each user, proposing the delivery of notifications regarding potential threats, such as contaminated substances, as a valuable feature for individuals dealing with addiction.

Or if there's been an outbreak of hep C, just to make you aware of that. Have you completed your hep C mediation or whatever because some clients are good at starting it but not finishing it, things like that. (Supporters FG)

Conversely, another interviewee raises concerns that such notifications could act as triggers for substance use, suggesting a more nuanced approach, like providing informative messages or updates related to substance-related issues in the area. These interviews illuminated the intricate considerations and potential benefits of app customisation within the context of addiction and harm reduction. The varying perspectives underscore the importance of striking a balance between delivering essential information and safeguarding the well-being of individuals in recovery.

But like you know if there was advice for like you know heroin or whatever, or meth, whatever, if there's a bad batch around then, yes, I would tailor it to all the apps for each individual, and then let them know so they can stay clear, kind of thing. (Caller 1)

and

Cause you wouldn't want to be, you know, sat on your couch getting notification from your apps seeing, 'HEROIN,' like you know. What? 'BAD HEROIN.' No. Like [high pitched] excuse me?! (Caller 1)

The focus group with stakeholder participants emphasised the core objective of the Here4U Scotland app, which was to provide companionship and support to individuals who might otherwise use substances alone. While acknowledging this fundamental goal, the conversation also introduced the possibility of integrating drug alerts into the app's functionality. They discussed the potential benefits

of harm reduction add-ons and the practicality of using the app to disseminate alerts about dangerous or potent drug batches. Anecdotal accounts suggested that some individuals actively sought out substances mentioned in drug alerts. The group reflected on the evaluation of such alerts, considering the distinction between public-facing messages and those for professionals. Participants also discussed strategies for targeting notifications during peak substance use times and proposed technological solutions to address data loss and streamline app setup on new devices. Overall, the focus group provided valuable insights into enhancing the app while considering user safety and engagement.

3.3.2 Usability

Ease of use: Callers and supporters of the app expressed their views on user-friendliness and ease of installation and use by both service users and supporters. Users highlighted the app's quick setup process, straightforward operation, and minimal challenges.

(SM) was with me when I got the phone, and I installed it straight away. And within five minutes of me having the phone, turning it on, connecting to my Wi-Fi, the app was installed. (Caller 1)

A caller suggested that the app enhances efficiency and convenience, allowing for quick access when needed, reducing call times, and streamlining the process of sharing information about their needs or supplies. This indicates the app effectively meets user needs.

To begin with, I suppose with it being a new phone and that, maybe the first couple of times I've phoned, I never actually even thought about, Oh, I'd better actually get that onto loudspeaker or whatever, you know. But again, that was fairly easy to - you know fairly easy to do. And I tend to just - I'll make up what I'm going to be using, and then I'll phone, you know, so I'm not having to take up too much time on the call, you know, just when I'm ready for it then I'll phone, and I'll tell them what I'm taking. You know they'll ask, if it's like a regular supply, that I've had this stuff before, or if there's anything different, you know, I suppose in case it's stuff that I've not had before. (Caller 2)

Although some users initially faced minor adoption issues, such as forgetting to use certain features, these did not pose significant barriers. The data overall portrays a positive user experience, with most individuals finding the app simple and effective.

It was fairly straightforward. The people who have requested it are usually okay with mobiles and Apps and it sounded a good selling point, the fact they were getting an unlimited phone as well. But no, it was fairly easy to do, they had to log onto a Gmail account, I think. Some people had it, some people didn't, but, you know, mostly it went okay. Three times I think I've seen it done. (Supporter 4)

Callers acknowledged that using the app might divert their attention, although the exact nature of this **distraction** remains unspecified. They do not view the app as a nuisance or annoyance in their life or recovery journey. The data highlights the app's potential to support individuals in recovery, especially those who tended to use drugs alone. This individual shared a history of solitary drug use, offering insight into their personal experience and indicating the app's potential role in alleviating this isolation.

I wouldn't say it's a nuisance thing you know because you never know. It could come in - say I want to start using drugs again and you know I'm needing something like that. Because when I was using drugs, I would always use alone. It would be rarely that I would use with any other people. (Caller 5)

Overall, this data provides a glimpse into the intricate connection between the individual, their history of substance use, and the app. It suggests that the app could serve as a valuable resource for those in recovery, rather than being a hindrance. However, the specific nature of the app and the context require further exploration for a comprehensive understanding.

Expansion: Interviews illuminated critical perspectives on the promotion and potential expansion of an app and considered outreach services targeting vulnerable populations, including individuals experiencing homelessness and those engaged in sex work. Interviewees suggested the following:

- i) Advocates for exploring innovative channels to promote the app, recognising the imperative of reaching out to individuals in precarious circumstances;
- ii) the customisation of app content to cater to the specific requirements of clients involved in the sex industry, encompassing aspects like sexual health and crisis support; and
- iii) the possibility of bridging gaps for underserved minority communities, particularly within the LGBTQ+ and Black communities.

so, you know you think they could use the app. I know there is an outreach service that you've both been involved in and maybe you see through homeless service as well, people who are at, you know, vulnerable, at risk, there must be other ways that it can be promoted through other routes, I just want to explore that a wee bit? (Stakeholders FG)

These interviews collectively emphasise the significance of inclusivity and the need to tailor services to cater to the diverse needs of marginalised populations, while also extending the app's outreach to address a broader array of concerns and communities.

Provision of free phones: Participants offered valuable insights into their perspective on app motivation and the impact of providing a free phone. Notably, the supporters emphasised the powerful allure of receiving a free phone, which often overshadowed other app features and served as a significant motivator for downloading the app. To promote genuine interest in the app itself, they proposed an alternative approach, advocating for the app to be presented independently from the free phone offer. This approach sought to attract users who valued the app's intrinsic benefits, thereby fostering greater commitment among users. Furthermore, the data underscored the practical utility of free phones, particularly disposable ones, in maintaining effective communication, especially with individuals prone to losing their phones. This highlighted the dual role of free phones, serving both as communication facilitators and as incentives for app adoption within the supporters' work context.

I think the bad selling point is like, oh, I get a free phone, that just overrides everything else, you know what I mean? I think if they sort of said, "Do you want to download the App on your phone?" and if you got that interest and took away the carrot side of getting a free phone, because as I said, that's something that's like- We give out phones as well, we tend to give out very cheap burner phones, because people lose them so often, but it's very good for us to keep in touch with people. (Supporter 4)

In summary, the app's usability is a positive aspect, with most users finding it simple and effective.

3.3.3 Data security and privacy

Privacy and trust: The interviewee's responses provided valuable insights into their complex relationship with technology, privacy, and trust. They mention a lack of security issues, suggesting a level of comfort with technology, but also alluded to refraining from using an app following a specific call, possibly indicating security concerns. Notably, the interviewees admitted to ignorance regarding online cookie acceptance prompts, a common digital literacy challenge, yet maintained a high level of trust in the organisation, believing their data would not be misused. This trust appears essential for maintaining positive relationships.

To be honest, you know when you click on most things on the web now, and it says you know, 'Do you accept or not accept,' you know cookies. I don't even know what that means, I just click on 'accept,' so I've got no idea what's coming for me in the next few years with that. But I can't imagine that you guys are going to use it for anything derogatory at all ... (Caller 2)

Additionally, the interviewee perceived constant digital surveillance, reflecting broader societal privacy concerns that impact individual behaviours and trust in technology. Finally, they highlighted clients' trust in the third sector due to the organisation's commitment to confidentiality.

Sharing location: The interviews also highlighted the multifaceted topic of sharing location data and its implications in supporting vulnerable populations. Interviewees contemplated the potential benefits, including the ability to track rough sleepers and individuals with substance-related issues for better assistance. However, practical implementation remained uncertain. Location data was also seen as valuable in understanding where individuals are picked up, particularly in overdose situations.

I am just thinking if there was a way to tie in with location tracking and people were happy to share location, it might help for folk that were maybe rough sleeping or were dropping off, if they were happy to share their location knowing it was only with their substance workers and it wasn't sort of like going way down field and then if they did sort of, I am not sure how you'd use it but I am just thinking potentially people that we're losing track of, there might be something in that, I haven't articulated that too well. (Stakeholder FG)

The choice and encouragement to share location data are highlighted. Privacy concerns surfaced, with one interviewee expressing apprehension about the potential consequences of disclosing their location. In contrast, another interviewee underscored that the perception of sharing location data as positive or negative depends on individual intentions. Trust plays a crucial role, with trust in certain parties, like service providers, contrasted with anxiety regarding law enforcement involvement. The interviews revealed the intricate dynamics of location data sharing within the context of assisting vulnerable individuals, emphasising the need for careful consideration of privacy, trust, and practicality.

I would say it would be with some users - I can't give you definitions of specific reasons you know I could only speculate as to why you know maybe some people wouldn't want some people coming round to their flat, maybe they're ashamed because of the state their flat is in, maybe they've got mental health problems where they just can't speak to people. It could be a number of reasons, couldn't it? (Caller 5)

Furthermore, some participants presented a series of responses that collectively underscored the willingness of individuals to share their location and the perceived benefits of having location information readily available. This interviewee noted that people have been surprisingly open to sharing their location, suggesting that this willingness may have exceeded initial expectations. They expressed a positive attitude towards granting access to their own location, highlighting the utility of location information as a potential "lifesaver." This sentiment was further emphasised as they discussed the significance of having trusted individuals or "parent figures" in one's life who can access location data when someone may be at risk due to drug use or other dangerous behaviours.

If you want help to change your life then kind of you need parent figures in your life so for somebody to have control of your location for when you are not, ken, equipped to deal with life in itself without using drugs or putting yourself in danger, i.e., overdosing or even wanting to commit suicide. I think it's a horrible thing to do, ken. (Caller 6)

And

Because a lot of people do - I'm not sure if it is - because I've had it personally myself where a worker or somebody has been worried about your safety, so they've sent the police to your house. See if you had a location tracker on you, ken, that would be an amazing thing, I think. (Caller 6)

The interviewees also mentioned the potential for location data to aid in situations where immediate intervention, such as police involvement, was required for the person's safety. Importantly, they mentioned that no concerns have been raised by participants regarding location sharing, as they have clarified that access to this information is limited to live calls, addressing potential privacy apprehensions.

3.3.4 Education for supporters

Supporters expressed their willingness to engage in both face-to-face and online training, highlighting their flexibility and openness to different modes of learning. Also, the supporters shed light on the importance of training and its impact on promoting the programme. The reference to training received from a team in a specific location underscored its effectiveness in imparting knowledge and building confidence among participants. Additionally, the mention of success stories and statistics related to the programme's outcomes, such as lives saved and increased user engagement, served as a persuasive tool for promoting the programme to others.

It was good to get a good understanding on how they've applied it in (Location) and what they learnt over the time that they've been having it and how many lives it's saved, really, how many people are interacting with it, which has kind of helped us sell it to people, I guess. (Supporter 6)

The willingness expressed by supporters for continuous learning and additional training indicated a proactive approach to skill development and programme implementation. Overall, these interviews underscored the significance of comprehensive training and support in successfully implementing and promoting the program, as well as the participants' receptiveness to ongoing training opportunities.

3.4 People and human aspects

The people factor focused on how individuals interacted with the Here4U Scotland programme and the services, connections, and relationships it provides. This has been illustrated through the emerging themes of: 1. Building relationships, 2. Mental health and wellbeing, 3. Tackling challenges of the audio service, 4. How digital has changed communication, 5. Satisfied with usability.

3.4.1 Relationship building

Relationship building and creating trust are foundational to the integrity of service user/provider relationships and by extension the success and credibility of the Here4 Scotland project. This relationship building and maintenance is discussed below in two subthemes: 1. Digital services improving relationships, 2. Cultivating broader relationships.

Digital services improving relationships: Participants highlights the positives of relationship building and the interaction between supporter on calls and callers using the service. More generally the potential for service providers to engage with service users digitally and build relationships was viewed positively. These relationships have allowed information to be shared and the provision of more tailored harm reduction care.

So, I think because they'd maybe had conversations with other supporters previously, you know, they were obviously used to how it worked and they were really open and honest with me about, you know, what they were using and how much they were using and the fact that they hadn't, you know, had missed their script for three days. So, I think that shows the relationships that have built up between supporters and callers, even if it's not the same supporter that they're speaking to. (Supporter 3).

Cultivating broader relationships: However, cultivating relationships was not restricted to service user/service provider interaction and there was discussion over the potential to use low-level dealers as conduits or back channels for information on street supply through promotion of the Here4U Service and broader harm reduction tools. This was discussed in the focus group:

RES2: A slight tangent question for (SM) as well, sort of different colleagues in the police have asked about your sort of be interested to see if what your thoughts are about, do you think there would ever be any chance that we could get some dealers to promote lock zone?"

RES2: You'll know who some of the dealers are and you know, is there a route in there?

RES1: I suppose it's kind of, also speaking as a negotiator as well, it's like right okay you give out this when you're giving you the drugs, and then what are we doing in term for you? It's like we'll turn a blind eye to various things, or I think it's –

RES1: It's difficult because if I was, if my team was going to go and speak to Liverpoolian X and said that we know that you're dealing as well, it's really, I would imagine what would the public perception be of that and I don't know, I have never even thought about it, so I'd have to have a wee think and speak to my colleagues about it. (Stakeholder FG)

This procedure is not unfamiliar in Canada as a credible harm reduction measure as it is potentially the quickest and most reliable avenue to ascertain the quality and potential dangers of the current street supply (Bardwell et al., 2023). Relationships can be cultivated in a myriad of forms, both overt and more covertly, to engage with those in the drug using chain to gain knowledge and promote harm reduction to improve public health.

3.4.2 Mental health and structural wellbeing

Mental health reasons and providing structure for the day were seen as important factors that could potentially facilitate using the Here4U Scotland app. Many PWUDs have comorbid psychological aetiology that could be helped by instant access to this harm reduction service. These two subthemes describe this: 1. Mental health and support, 2. Benefits of structured use.

Mental health and support: This participant highlights the opportunity to speak to someone while they are using drugs may also be an opportunity for both parties to explore mental health issues and how support could be offered and received.

I mean if it can help my mental health the way it's going to, then - cause almost all people that are using drugs have got mental problems, and if it can help me then surely it can help other people (Caller 4)

Benefits of structural use: This participant highlights the disparity between those who use structurally, or have the propensity to use structurally, and improve wellbeing versus those who are using various substances in a more chaotic and oblivious manner. The structural attachment to the app, people, connection, and services may provide the bridge that connects people to more nuanced and positive solutions and structural life improvements.

Yes, I find that people who are a bit older, that have maybe got a lot of years of experience and they're kind of a bit more manageable, i.e. they may be in receipt of PIP and housing benefit, and they've got a stable flat, and they've had that for ten years, they might have an adult son or daughter they have a bit of contact with and they pay their few bills and they pick up a little bit of methadone and might smoke a little bit of weed here and there, and they might use a couple of times a month when they get their money as a little treat if you will. They're probably a little bit more on top of their game than a lot of the younger ones that are just living in the moment, blasting snowballs, getting arrested and all that, you know what I mean? So, I find those ones would be, in my opinion, more structured in their use, more have a bit of a daily routine, possibly more likely to use something like that than the 19-year-old who's running about with his mates, booting a hundred quid's worth of gear a day, banging up snowballs, you know, and whatever he's doing. (Supporter 5)

3.4.3 Tackling challenges of the audio service

Challenges were discussed within the supporter focus group as they discussed the concerns of taking calls in this audio only format. Nerves and anxiety were prominent due to the challenges of taking such potentially precarious calls by audio only.

These manifest in the two sub-themes below: 1. Nerves and anxiety, 2. Visual service

Nerves and anxiety: This participant experienced anxiety when people were getting in touch and using the service. They explain that ensuring correct rescue plan details are accurate makes them nervous in this critical situation.

Well for me, how I learn, how my brain learns new stuff is by practice. So I think I was always a wee bit nervous. I was chuffed when somebody did get in touch but I was always a wee bit nervous. It was like, "Oh crap, I need to get this right and check that they are where they're address is and their rescue plan. (Stakeholders FG)

Visual service: This next participant suggests the reason for their anxiety is due to the lack of visual cues when dealing with the caller. The absence of this information made it difficult for them to judge how the caller reacting to the situation.

I think not being able to see somebody was again the big thing for me because having worked with people and you can see when they've used drugs and you can see how they've reacted to it, I think you get a much better sense of how somebody is doing when you can see them. Whereas that's really difficult when it's just speaking on the phone. (Stakeholder FG)

3.4.4 How digital has changed communication

When talking about the Here4U Scotland app and the broader benefits of the digital revolution, some participants highlighted the new digital world and the instant access to services and people that were previously not possible. The two subthemes below explore this: 1. The digital revolution, 2. Phones have changed communication.

The digital revolution: The access to and knowledge of mobile phones was further highlighted as pivotal to the digital revolution and access to staff, messaging or apps such as Here4U Scotland. These participants describe how technology has changed access to service users, staff and clients. Connections and communication are more accessible between service users and providers now than ever before.

Yes, I would say it's easier now because- Like there's a lot of stuff you can do, maybe online, like on, what do they call it- Like the Zoom platform, or maybe service using means you can attend or whatever, that's online, so maybe someone who's not well might not leave their house as long as they've got a Zoom App or access to a handset or something, from a client's perspective. Like most people have got a phone now. I mean some of our client group don't seem to hold onto them for too long, but generally people are contactable and there's ways, if you have got a handset, from a client's perspective, of maybe being able to make a call and contact people, if you haven't got any credit, you can do it, as long as you can plug into the internet somewhere. So, I suppose, in that sense, it's better. (Supporter 5)

Phones have changed communication: Mobile phones are omnipresent in everyday life and integral to human communication and connection. The use of smartphones, Apps and QR codes have become omnipresent in everyday life, especially with younger people. Having a phone provided with the Here4U Scotland app was seen as a positive.

I think everybody's embraced mobile phones, everybody likes their mobile phone, I think that's a selling point to people getting the mobile phones that they get a mobile phone. And obviously you have to emphasise the App and what it's used for and things like that, but we get a lot- I can remember before, very basic mobile phones and things, but Apps and QR codes are taking over the world, aren't they. So younger people, especially are very used to using them. (Supporter 4)

3.4.5 Satisfied with usability

The usability of technology, how it is viewed by the service users and the ease by which users can engage with it is crucial for its success. These participants were happy with the usability and found it easy and comfortable to use especially when they were alone. Benefits and ease of the phone while on your own or isolated and being able to connect and communicate with another person so easily are also highlighted.

The three subthemes below elaborate on this: 1. Benefits of the phone, 2. Using when on your own and 3. It is a great new idea.

Benefits of the phone: This participant alludes to the potential for the service to provide more than just a supervision service. Being able to easily connect with someone who understands their situation when they may be craving a substance was felt to be a comforting feature.

I can't say specifically that the app was - aye obviously it was - but it definitely had a lot to do with being able to lift my phone out my pocket and touch and instantly speak to somebody straight away, ken? Which is, ken, I think it's a massive benefit because definitely for me and for a lot of people I ken addition ken, the craving comes when - you never ken when it comes or problems come, ken, in your life. Sometimes you just need ken somebody on the phone to you. (Caller 6)

Using when on your own: This same feeling of comfort and reassurance comes from this caller when describing how they feel when using alone. In contrast to spending time with people they feel are a negative influence, being able to use the service and easily connect with someone who is a positive influence to offer support is helpful.

I spend a lot more time on my own now than I did when I was a wee bit younger, just the people – because a lot of the people that are using or whatever, you know I don't particularly want to be you know in touch with or speaking to. So sometimes even just, yeah, that voice on the end of the line or whatever. God, it sounds a bit like the Samaritans there, doesn't it. (Caller 2)

It's a great new idea: It was perceived as an auspicious new initiative that could support and then signpost to broader harm reduction services. This caller perceived the service as something they would be happy to use overall especially as they were single.

So, I think the idea itself is fantastic. And any new ideas like this, then it's - they've got to be trialled, and you know all the nooks and things that you know that - you know the interview, I understand, can be used to tweak things a little bit and iron out any problems. But that's so that would have been an example there, would be - you know it could easily be something very helpful for someone like me (single). (Caller 2)

In summary, the people factor of the Here4U Scotland programme is centred on individual interactions with the program and its services. The emerging themes underscore the vital role of relationships, mental health support, and technology in the Here4U Scotland programme's success.

3.5 Organisation

The organisational domain focused on how organisations interacted with the Here4U Scotland programme, callers, supporters and each other. Five major themes emerged within this factor: 1. Balancing good communication, 2. Absorbing the co-design process, 3. Embracing the harm reduction revolution, 4. Seeding behaviour change, 5. Reviewing recruitment and training.

3.5.1 Balancing communication and responsibility

Having good communication skills is hugely important in this role and the responsibility involved with emergency care was acknowledged by participants. They conveyed some psychological conflict over their ability to adequately make informed judgments. These two sub-themes explain more: 1. Worries over communication and emergency care, 2. The burden of responsibility.

Worries over communication and emergency care: participants conveyed their anxiousness and unease at effectively balancing good communication during phone calls with the burden of responsibility and decision making connected to taking such a potentially precarious call, hanging over them.

I think we're pushing that much - I think we're putting an awful lot on people, side by side, not seeing people, to instigate an emergency, and feel okay about saying goodbye to somebody, after five, 10 minutes, when actually the overdose might still kick in. (Supporter 2)

The burden of responsibility: the burden of providing this life saving care through a remote service that is not currently consolidated could leave supporters anxious and fearful that any mistake may cost a life. This participant is conflicted between providing a good call and communicating effectively with the service users and the potential negative outcomes connected to an aberrant call and the responsibility placed upon them, that they have no control over at the other end of the phone.

You go off that phone thinking, oh, that was okay, that went really well. I feel quite content. Imagine you came back in the next day, and someone says, "Oh, Joe Bloggs actually had another overdose," or he died. "What time at?" "1:25." I'd be like, what time was my call? Oh. You know what I mean. 12:45. But they've used again in that time. So, I think we're putting a massive lot of responsibility onto supporters here. I do. I personally do. And I think it's great, but I think it really needs something a bit more robust, to be honest. (Supporter 2)

3.5.2 Absorbing the co-design process

Building on Brave's co-design approach, one of the main founding principles of Here4U Scotland was to ensure stakeholders, supporters, and those service users at the heart of the project were included and consulted on how the app should be introduced and in the continual review for further evolution and improvements. The co-design approach has involved multiple service providers and service users who have engaged positively with the process to engage with each other to ensure that service users who call using the Here4U Scotland supervision app are acknowledged and consulted with conviviality and respect. These three sub-themes provide valuable input and explain when they would use the Here4U Scotland app: 1. Service user input on using alone, 2. Stakeholders working together, 3. Emergency services dialogue.

Service user input on using alone: The co-design process was and is integral to the continued evolution of the Here4U Scotland app with the promotion of inter-agency and service user/provider collaboration, interaction and communication. Service users indicated that they would use the service regularly when they were alone. Having the app could work as a psychological connection to someone while using drugs.

"I'm not sure at the minute. I think I'd try and use it when I'm alone, maybe in a depressed state, I don't know. Lifesaving benefits." (It has). Overdose. Suicidal. I'm on the spot here, I don't know. Yeah. Yeah, yeah, it might be like an intervention type of thing as well." (Caller 3)

Stakeholders working together: to mirror this positive engagement from service users, other supporters and stakeholders were enthusiastic over the Here4U Scotland app potential. They were happy with the training provided, the inter-agency collaboration and their interaction with service users while using the app.

In terms of obviously the call I took I didn't have to log into that person's safety plan but when we'd done the training previously with (SP) and we did that roleplay we were able to

kind of do all that and it seemed really simple enough in terms of if you were going in on the other side of a phone call to fill out somebody's emergency contact details, it wasn't a difficult task. So, no I thought it worked really well in terms of, well the first kind of pilot of something, I think it was really good. (Supporter 3)

Emergency services dialogue: These focus group participants further expand on their perspective on rescue plans and their potentially challenging engagement with emergency services. This participant is conveying their apprehension over service users being provided agency to state non-attendance from emergency services at an overdose site. It has since been decided upon consultation with stakeholders to use the co-design process to ensure attendance from an ambulance at the scene.

"From a police point of view, it was interesting you were talking about how you'll get the ambulance folk if needed for emergency phones because I remember when we were at the first meeting, there was talk about people would have their own individual care plan and people might say they didn't want call out services and me and (SM) were thinking, well how, what does that place the worker? What responsibility do they have? It didn't kind of sit right with me". (Stakeholders FG)

This emergency services dialogue was in relation to the Brave Canada protocol which allows callers to indicate that they do not wish an ambulance in the event of an emergency. They can insist that a friend or neighbour be contacted to assist them (Brave.coop, 2023).

3.5.3 Embracing the harm reduction evolution

Harm reduction and virtual safe consumption are still in their infancy in Scotland but those who took part in the Here4U Scotland project were enthusiastic about its potential and had engaged positively with service users when they were using the app. These two sub-themes explore it: 1. Positive experiences using the harm reduction service, 2. Evolving the Here4U Scotland app.

Positive experiences using the harm reduction service: This participant describes how they have built relationships and provided supervised consumption advice while taking calls. They appear positive about taking part in this harm reduction Here4U Scotland pilot and also offer advice on services such as methadone and naloxone provision and research on safer drug use.

I think there's been a bit of harm reduction, definitely a bit of harm reduction. There's been people who have called more than once so there's that kind of relationship building with the agency, with the service, what kind of support they get when they call. The person has, when I've took the calls, they have actually consumed, injected drugs when I've been on the phone with them. So, we've had a conversation around about what drugs you've taken that day, when you've had maybe a Methadone prescription, are you on your own, do you have Naloxone. Do you have clear injecting equipment? So, all that really good safer injection harm reduction messages and overdose awareness, we definitely had the conversation. (Stakeholder FG)

Evolving the Here4U Scotland app: the potential for burgeoning harm reception initiatives and improvements within the Here4U Scotland app were viewed with enthusiasm. Advanced messaging such as harm reduction alerts was discussed positively by this participant:

... we would want to cover what else can we do with the app, what other uses might it have in terms of communication? I mean there is information harm reduction side of it, which would be added on. Maybe like an alert, if you ever want to speak about harm reduction, you

can do it through us as well, just sort of wee nudge that people can, remind them it's on the phone, but also, we do this as well, as a service. (Stakeholders FG)

3.5.4 Seeding behaviour change

The potential for advertising and incentives to seed behaviour was discussed by participants in the three sub-themes below: 1. Advertising the Here4U Scotland service, 2. Engagement through incentives.

Advertising the Here4U Scotland service: Visibility in health care settings such as GP's, A&E, pharmacies, and social work would assist in getting critical health information and information on the Here4U Scotland app to service users. It would also help normalise the use of the app and these participants believe it would help seed the required change in behaviour through service visibility.

Just wherever really. Yes, even A&E I would say because it's a public place. Yes, places like that (Chemists, GPs, Social work). Even just wherever people would accept the flyers or whatever you would call them. (Caller 5)

Engagement through incentives: this comment from the focus group in Aberdeen suggested incentivisation would be beneficial. Providing vouchers as some form of financial reinforcement of behaviour was suggested to be useful as a reinforcer going forward.

Was just an idea but it wouldn't have to be, we wouldn't have to use them, there's lots of other, we can get stuff from, you know, food and things or it could be an Asda voucher, or you know, whatever. What was it you do, that you get a text to your phone, maybe that is the thing we were doing you get a text to your phone for the voucher to go to Morrisons. (Stakeholder FG)

3.5.5 Reviewing recruitment and training

Recruitment and training were topics that were viewed as hugely important but had not been as straightforward as hoped. It was highlighted that recruiting volunteers had been challenging and therefore searching for more professional solutions in a remunerated role may be more suitable in this unique role. This is explored in the two sub-themes below: 1. The value of volunteers, 2. The need for specialist supporters. 3. Paid staff as supporters.

The value of volunteers: volunteering was regarded as an alluring recruiting avenue to employ people who were both invested in and knowledgeable of the topic area. Using people with lived experience as volunteers was discussed as a potentially useful enrolling stream:

I am setting up about volunteers at (SP) and people that come along from recovery services to get them much more involved and the work with (SP) and maybe that's a natural progression though and that will be through time, that would be a really nice opportunity for people to come through a volunteer position, you know, they're in recovery, they're volunteering, them being involved in (SP) and I can see, absolutely, that being a really great project for them to be working in. But with the support of the staff, that is going to take time. (Stakeholder FG)

The need for specialist supporters: however, this enthusiasm was not ubiquitous, and some participants felt that volunteering or being a supporter required specialist training. The gravity of the task involved, and the responsibility endowed upon those taking calls required diligent preparation, guidance and adequate knowledge.

I think probably there would need to be a little bit more training if we were looking for further volunteers, maybe out with that kind of specialist role. Especially around, you know, the signs and symptoms of an overdose because I think when you can see somebody overdosing it's quite evident but if it's on the other side of a phone there maybe needs to be a little bit more training around kind of listening out for the signs. So, I think for the level of the pilot it was sufficient but if we were to go further it would probably need to be a bit more in-depth. (Supporter 3).

Paid staff: further emphasis was paid to developing the service out with the pilot and the need for paid and professional staff to be employed to provide adequate levels of supervision.

I think we need; I think you need to build up the numbers of people using it and probably the easiest way to do that is by having paid staff on it. I suppose if we can get to a certain threshold, I've got a meeting next week with (SP) about something else, but I mean you know, that could be almost the start of a conversation with them, planting the seed of would they provide some out of hours support and whether we fund them or something like that, you know, as a way of doing that. So, if you're thinking about services that already operate out of hours and have staff available then there may be ways of sustaining that. (Stakeholders FG).

3.6 Macro-environment

The macro-environment domain considers the broader context around the implementation of the Here4U Scotland app. The focus of this broader context was around the complex dynamics and challenges associated with the app's use in emergency scenarios. It sheds light on concerns regarding the potential impact of police presence on individuals seeking help during overdoses, emphasising the need for a delicate balance between law enforcement and harm reduction efforts. Additionally, the section examines the crucial coordination required between police and ambulance services, innovative outreach strategies, and the broader implications of framing the app as a "public protection alert system."

Police involvement: The participants provided insights into the complex issues surrounding the use of the app in situations involving drug overdoses and police response. Participants expressed concerns about the potential deterrent effect of police involvement on individuals seeking emergency assistance, particularly from ambulances. The conflicting roles of police in responding to overdoses, involving both ensuring safety and potential searches, highlight the delicate balance between law enforcement and harm reduction efforts.

but I've certainly heard stories about somebody that had an overdose and then the police administered a log, so the ambulance was on the way and then the police officer searched that person and to detained them under Section 20 and searched them and that is like really, it sticks in my throats because like you know the perception of a person's like what is happening here? I'm a criminal now. (Stakeholders FG)

Additionally, there is a recognised need for clear coordination between police and ambulance services to prevent misunderstandings or duplication of efforts when responding to overdose incidents.

Innovative outreach strategies like "pester messages" from the Police are considered for engaging individuals involved in drug-related activities, although there are concerns about potential negative reactions.

*Well certainly one of the things that we're looking at from a sort of mobile technology point of view is messages which suppose, I don't know if it's a stigma, what you call the, but pester messages, which we give, we've been doing after drug operations, where maybe a deal line has been shut down, and we'll send a message to everybody who was on that deal and is a contact, saying, "By the way this is the police we've taken this dealer off the market, however if you're looking for assistance, these support agencies are available to help you," and sometimes you'll get a text message back going, "*** off." but occasionally there will be one or two messages that we had back which said, "Thanks very much for letting us know," I wouldn't have expected that response. So, I don't know. (Stakeholders FG)*

The discussions emphasise the importance of maintaining trust while promoting the app to potential users and the need for collaboration among various agencies, including law enforcement and harm reduction services. Striking this balance and addressing these challenges are essential for the successful implementation of the Here4U Scotland app in harm reduction efforts related to drug overdoses.

So, we see regular clients getting carried away by the police and sort of things. So, it's just - Say you've gone to the police for the first time, do you want to score drugs, a local (SP) officer will call the needle exchange and you'll be all right. (Supporter 4)

Personnel resources: Participants had clear aspiration to enhance the app's impact through increased support and funding. The mention of dedicated personnel and additional resources demonstrated a recognition of the app's potential and the willingness to invest further in its success. Additionally, there was anticipation of forthcoming data on app downloads, indicating a commitment to monitoring and evaluating its performance and highlighting a proactive approach to improvement.

I think there is a hope to get a bit of extra kind of dedicated person, extra funding coming to support and (SM) is going to do that to maybe promote it more, so I think that is really useful to have these discussions now with the wider kind of stakeholder groups to see how that can be discussed and supported locally. But so, I suppose any, (P2) is going to give us some numbers just on downloads and things like that. (Stakeholders FG)

On the other hand, participants exposed the significant challenges and frustrations encountered during the app's implementation. Delays, heavy workloads, and the need for more time suggested that the project may have faced unforeseen obstacles, potentially hindering its initial success.

A huge amount [of time]. Nowhere near, ever, the amount that we put aside for this. So, I wonder if I had - if somebody had a bit more time. And I've allocated a lot of my week, and I've got loads of projects, as you know. We might have been able to do it differently, and might have been able to give it, you know what I mean, a little bit more. But - and it's been delayed by about six months as well. So, all the things that I had planned I've had to pause on being involved, etc., you know. (Supporter 2)

Safety planning and public protection: Participants acknowledged the importance of safety planning and highlighted the app's capacity to facilitate this crucial element of care. They discussed the possibility of scenario planning, which involved considering various situations and determining

appropriate responses, and how the app could have been instrumental in activating safety plans when needed. This aspect of the app was seen as valuable not only for users but also for professionals like police officers and hospital staff, enabling them to provide low-level interventions and support for individuals after overdoses. The participants also acknowledged the challenge of keeping overdose patients in the hospital long enough for these discussions, indicating that the app could have bridged this gap by fostering timely communication.

I was thinking about people who end up in (Location) who have overdosed and then sort of leaving, potentially at short notice or against medical advice or in a planned way, so I wonder if there, I think for me there is a bit, the technology and the app aside, I suppose for me the, one of the key bits is people working on a safety plan and I like the idea that people, you know, people who are in (Location), part of what happens is that safety planning and that the psychology folk can, public health for a while were producing the, if this, what next sort of framework, which is if you have this situation, what will you do? So it was around sexual health and pregnancy, so you know, if you forget condoms, you know, what will you do? If you forget to take your pill, what would you do? So, it's almost like scenario planning about what will you do? So, there is something probably, you know, so a police officer could do that low level intervention about if somebody's concerned about the safety and welfare of somebody after they've overdosed how would you sort of do a safety plan? And the same as somebody in hospital. So, there is something about that safety planning. And then I suppose the app allows that to be activated if someone were engaged. (Stakeholders FG)

Furthermore, the discussion touched upon branding and framing the app, or a variation of such a responder app as a broader "public protection alert system" rather than solely a substance-related resource. This strategy aimed to appeal to a wider audience and engage entities such as the council and local organisations like (SM). By broadening its scope beyond substance use, the app could have served as a versatile tool for addressing various public safety concerns, including contamination, traffic accidents, or other emergencies. Overall, these views underscored the app's potential as a comprehensive safety planning and alert system that could have benefited both substance users and the wider community while enhancing collaboration among various stakeholders.

I think that is where the Here4U [Scotland] app branding is quite useful, because it doesn't mention drugs. We've obviously got (SP), Public Protection sort of banners, so it could be a sort of (SP) sort of branded sort of thing and it's a safety alert, under that, that doesn't allow people to sort of inadvertently sort of associate it with drugs, it could be any sort of public protection issue, could be water is contaminated or traffic accident or whatever. (Stakeholders FG)

In summary of the macro-environment surrounding the Here4U Scotland app's implementation, focusing on its use in drug overdose situations and the involvement of law enforcement, particularly the police were a concern for participants. Participants' insights reveal concerns about the potential deterrent effect of police involvement on individuals seeking emergency assistance, as well as the delicate balance between law enforcement and harm reduction efforts. Coordination between police and ambulance services is emphasised, along with innovative outreach strategies like "pester messages." The section also explores framing the app as a broader "public protection alert system" to engage a wider audience. It highlights the need for trust-building and collaboration among various stakeholders while addressing the app's potential and practical challenges in the realm of harm reduction.

4 Discussion

4.1 Summary of key findings

4.1.1 Phases of project and challenges

The implementation journey of the Here4U Scotland project, from May 2022 to August 2023, comprised distinct phases, each marked by unique challenges and milestones. In the initiation phase, a consortium of diverse partners was recruited who were committed to project progress which facilitated ongoing discussion through fostering effective communication and regular stand-up meetings. The complexity of the project was apparent in the necessity of various legal agreements, such as collaboration agreements, Data Processing Agreements, and Service Agreements, vital for clarifying responsibilities and collaboration. However, navigating these contracts proved time-consuming, ultimately relying on DHI's expertise and guidance through the foundational administration process.

The adoption phase involved co-design workshops for localising the 'Here4U Scotland' app, providing valuable user input and insights into the app's potential. Localising the app encompassed adapting all its components to suit the Scottish context, including its name, logo, manuals, and brochures. The official app launch on January 19, 2023, marked a significant milestone, despite challenges, such as delays attributed to high demand for the SAS and sensitive overdose-related issues. The analysis revealed fluctuating levels of user engagement following the launch, emphasising the importance of continuous monitoring and adaptation to user needs, with a total of 74 calls logged from January to August.

4.1.2 Technological aspects

In the exploration of the app's technological aspects, discussions revolved around three pivotal technical adaptations. First and foremost, the introduction of video call functionality was recognised as a powerful tool for establishing connections and offering support, particularly beneficial for users lacking family support or couples navigating drug use together. Supporters saw this feature as a means to effectively monitor and assist users, though challenges pertaining to supporter recruitment and addressing diverse user preferences were acknowledged. The chat function, serving as a quick source of general advice and information, stirred mixed reviews due to concerns about its efficacy in the absence of face-to-face interaction. Addressing external factors like internet connectivity and location, participants emphasised the need for ongoing efforts to enhance the app's usability.

4.1.3 People and human aspects

The human interaction through the app was critical, with relationship building being fundamental to success. This enabled open communication and tailored person-centred harm reduction advice; supporters faced challenges providing audio-only support and some needed visual resources. Beyond client relationships, unconventional ideas like working with/via dealers were suggested to support harm reduction. Other suggestions of how the app could support people was in addressing users' mental health and supporting improved wellbeing; while some find structured life changes beneficial, the app itself was considered to offer stability and a bridge to positive change. Usability was considered very good, especially when alone, fostering satisfaction by providing support, connection and a gateway to broader services. Thus, the human connection, though challenging, is key and can be strengthened through this accessible digital innovation that meets users where they are to improve their situation.

4.1.4 Organisational aspects

The importance of co-design and multi-stakeholder involvement in the app's development and operation was evident. There was a need to increase visibility of the app in healthcare settings and use incentives to encourage utilisation and seed behaviour change. In addition, there are considerations around recruitment, training, and staffing models to ensure supporters are well-prepared and comfortable when providing critical harm reduction supervision. Some tension between communication skills and responsibility that supporters face during emergency calls were identified.

4.1.5 Macro-environmental aspects

Tensions between law enforcement and harm reduction efforts were evident, highlighting concerns that police involvement during overdoses may deter app use. This underscores the need for thoughtful coordination between agencies. While innovative outreach strategies show proactive user engagement, maintaining trust remains crucial. Participants expressed optimism about the app's potential and commitment to overcoming frustrations around workload and delays by securing more resources. The app was considered as a potential to provide timely channels for safety planning and communication after overdoses. Looking ahead, rebranding as a versatile public safety tool could broaden its audience. Overall, results highlight competing priorities between law enforcement and harm reduction, workload frustrations, and optimism about the app enabling improved safety planning and timely response. Success requires agency coordination, sustained resourcing, stakeholder buy-in, and consideration of rebranding to support implementation and expansion.

4.2 Methodological considerations

4.2.1 Evaluation framework

The TPOM (Cresswell et al., 2020) proved to be highly as a guiding framework, ensuring a thorough exploration of essential areas and the inclusion of critical participant groups within our sampling framework. Originally designed for broader apps in healthcare technology, the TPOM was adaptable to our specific target area and participant group. Looking ahead, we strongly recommend the integration of the additional themes used in this study when applied within this sector.

4.2.2 Sampling, participation and scope of the evaluation

This evaluation utilised a range of qualitative and quantitative methods to gather views and experiences from callers (service users), supporters and the stakeholders. The interview data and statistic data which provided by Brave should be considered as complementary rather than one being more explanatory than the other. However, given the transient nature of service users and staff in these services, and the time gap between baseline and evaluation, this was not considered feasible from the outset. Furthermore, the sample size is small, so we cannot consider it representative of the entire group that received or provided technology as part of the program.

This project should have recruited callers to use the app and then invited them for interviews. ADA provided smartphones to 19 service users, but not all of them used the app. Although we had a target of 15 interviews with supporters, we were only able to interview six as only six were able to be recruited by ADA to the supporter role. Additionally, due to privacy concerns and some callers not identifying with others or lacking confidence to speak in front of other callers, the planned focus group with callers did not take place.

4.3 The impact of the Here4U Scotland app

The adoption of video/chat aligns with research on enhancing connection and monitoring during drug use (Mohr et al., 2013, Molfenter et al., 2021). However, concerns around implementation reflect the need for careful rollout of new tools.

Findings on adoptability, flexibility, and accessibility reflect the importance of tailoring to user needs, as noted in studies on context and usability (Payne et al., 2015). Desires like 24/7 access and key lock info show the value of accommodating lifestyles.

Perspectives on privacy mirror user concerns found around digital security and surveillance (Klasnja et al., 2009). Nuances around location data sharing reflect how willingness depends on trust, intentions, and benefits. Support for sharing among trusted organisations highlights the importance of confidentiality.

Openness to training and promoting buy-in reflect best practices like comprehensive education and success stories to boost engagement (Ross et al., 2016, Ramsey et al., 2016).

Relationships and trust are critical, as connections promote engagement (Parkes et al., 2021). Contact with familiar staff strengthened bonds and reduced apprehension. However, audio-only caused supporter anxiety, pointing to the need for multidimensional digital contact.

Organisations welcomed digital evolution for sharing information and alerts. However, proper training and support for the crucial supporter role are vital (Claborn et al., 2022). Tailored debriefing and skills training can help staff manage high stress (Gould et al., 2013, Lemieux-Cumberlege and Taylor, 2019).

Concerns around police deterring help-seeking underscore needs to build community trust and separate public health and law enforcement (Koester et al., 2017, LaSalle, 2017). Careful outreach is key for engaging people who use drugs (Bonar et al., 2018). Adequate resources, staffing and planning enable successful implementation (Zajac et al., 2021, Alqahtani et al., 2022).

In summary, key themes reflect the importance of relationships, training, trust-building, strategic outreach, and implementation support in effective emergency harm reduction services. Further research could elucidate impacts of comprehensive communication systems.

4.4 Has Here4U Scotland met its aims?

In this section, we will provide an overview of the results. This will be built on further in the final road map in December 2023.

4.4.1 Assessing and impact on app users and supporters

The impact of virtual access to remote supervision, as observed in the Here4U Scotland project, has been extensive for both service users (callers) and those providing support (Supporters).

Service Users (Callers): The virtual access has brought about increased support availability, especially during critical moments. Users valued the privacy and trustworthiness of the app but also expressed concerns about potential data sharing with the police. The app was seen as a tool to enhance safety and well-being during drug use, particularly through harm reduction information and alerts. It provided security, confidentiality, and convenience for users. Virtual access facilitated relationship building and mental health support but also revealed challenges related to the digital knowledge gap and limited 24-hour availability.

Those Providing Support (Supporters): Virtual access improved communication and offered flexibility and adaptability for supporters. The app's efficient setup process reduced call times. However, challenges in remote support, including the absence of visual cues, prompted consideration of adding video call capabilities. Recruitment and training for supporters may require specialist training as the project expands. Aspirations for increased support, along with resource and funding concerns, were expressed. Innovative outreach strategies and the importance of balancing trust and promotion were emphasised.

4.4.2 Expanding digital solutions to reduce DRDs

The Here4U Scotland programme has shown promise in reducing drug related deaths through remote supervision. However, to expand its impact, continuous monitoring and adaptation of the app is needed. This includes localising content, enhancing technical features like video calling, and improving data collection to provide insights and timely drug alerts. Outreach efforts should also be increased to connect more at-risk individuals. Specialist training for staff and exploring 24-hour availability can further improve services. Ultimately, balancing building user trust with proactive promotion and collaboration will be critical as the app evolves into a broader public safety tool.

To further DRDs, the app needs to be frequently updated based on user feedback and data analysis. Wider outreach, increased staff training, around-the-clock access and an emphasis on building user trust should be prioritised. Framing the app as a public safety tool can allow broader scope. Overall, proactive enhancement and community engagement will enable the app to continue effectively adapting to meet evolving needs in reducing harm.

4.4.3 Enhancing co-design and digital interaction

To increase user engagement and co-design, ongoing collaboration through workshops and feedback channels is critical. This allows users to actively shape features and content. Additionally, initiatives like training, incentives, user generated content and peer support can make the app more rewarding and community oriented. Enhancing digital literacy, accessibility, collaborative creation and sense of ownership will also empower users.

In summary, frequently soliciting user input and transparently implementing suggestions will demonstrate commitment to co-design. Combining this with education, incentives, user content and forums can boost engagement. Accessibility, shared ownership and community building are also important. Ultimately, consistent collaboration and showcasing improvements will keep users invested and ensure the platform meets their evolving needs. The key is reciprocal communication that values user perspectives and participation.

4.4.4 Recommendations

To encourage user adoption and engagement, ongoing co-design through regular feedback and localisation is essential. Improving accessibility via 24/7 availability and enhanced features can also increase usage. Providing training, showcasing success, and addressing onboarding barriers will facilitate uptake. Fostering trust, community and data-driven improvements are also important.

In summary, user involvement through co-creation and open communication channels will enable a user-centric model. Coupled with expanded access, support, and community building, this can empower users to take ownership. Continuous enhancement based on data and user input will keep the platform effective and evolving. With a collaborative approach between stakeholders, digital

supervision can transition towards greater engagement, agency, and responsibility among service users. The key is an iterative, user-focused process that values participation.

4.5 Conclusion

This evaluation of the Here4U Scotland programme provides valuable insights into the implementation and impact of the first harm reduction focused mobile app to provide remote supervision and support to people using drugs alone. The project faced various challenges, including contractual processes, SAS protocols, contextual differences, resource allocation, and digital knowledge gaps among users.

Users, although few in number, reported good satisfaction with its usability and convenience, while relationships between callers and supporters were strengthened. Supporters gained more flexibility and efficiency, although some faced anxiety due to limited visual contact. Stakeholders were receptive to digital harm reduction innovations more generally.

The app was relatively easy to adopt and use, with quick setup times reported by both callers and supporters. However, challenges related to technical aspects like connectivity and location-based issues were noted, underscoring the need to consider environmental factors influencing app performance.

A key limitation of the app identified included lack of 24/7 availability and services in some locales. Ongoing funding and resources to support its expansion were needed. Areas for improvement centred on enhancing features like video calling, expanding availability, implementing drug alerts judiciously, formalising training, utilising data insights, and boosting user engagement through incentives and promotion.

This app holds valuable potential in advancing harm reduction efforts, but its impact relies on building relationships of trust, addressing implementation challenges collaboratively, and keeping the needs of users at the centre of its evolution. As Scotland progresses towards establishing safer consumption sites, innovations like Here4U Scotland can provide life-saving interim support or support in areas where physical services are not feasible. Moreover, it provides a layer of anonymity for those who prefer a more private digital approach, whether through video or voice call, should they wish to do so. The study highlights the complexity of implementing a novel app-based overdose response system and the need for thoughtful strategies to foster adoption and utilisation, provide robust training and support for staff, and continually adapting the technology and messaging as part of an evolving harm reduction approach.

In summary, a collaborative, multi-tiered approach considering users, technology, organisations, providers will be critical for successful implementation of this and other similar apps in Scotland. There is sufficient evidence through this evaluation to demonstrate an encouraging foundation of the app's feasibility and potential value in providing remote supervised consumption and harm reduction.

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