JOURNAL OF PSYCHOSOCIAL RESEARCH ON CYBERSPACE
CYBERPSYCHOLOGY

Dugdale, S., Elison, S., Davies, G., Ward, J., & Jones, M. (2016). The use of digital technology in substance misuse recovery. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 10*(4), article 5. doi: 10.5817/CP2016-4-5

# The use of digital technology in substance misuse recovery

Stephanie Dugdale[1], Sarah Elison[2], Glyn Davies[3], Jonathan Ward[4], Michaela Jones[5]

[1,2,3,4] Breaking Free Group, Manchester, UK
[5] in2recovery, Manchester, UK

## Abstract

*Alongside recent trends in the purchasing of illicit substances online, there has been a growth in the availability of online resources dedicated to treatment and recovery from substance misuse, including online interventions, mutual-aid groups and forums. Currently however, there is a lack of research on the utilisation of these online resources. Therefore, the aim of this study was to examine the use of these online resources by employing online data collection techniques. A quantitative online survey was used to investigate the range of online recovery resources used, and to compare the types of resources used at different stages of the substance misuse recovery journey. Qualitative online interviews were also conducted to investigate how individuals use these online resources alongside traditional offline recovery resources. Analyses revealed that forums were the most widely accessed online resource, however participants who were currently working towards abstinence were more likely to use therapeutic resources that explore the underlying causes behind substance misuse and help to manage these difficulties. Qualitative findings suggested an interaction between online and offline recovery resources. For example, participants reported that online resources may provide initial contact information for offline recovery meetings, or that offline support with developing digital skills may facilitate access to online resources. Despite these apparent benefits, there is limited signposting advice to direct people to appropriate online treatment and recovery resources for their substance misuse, so it is hoped that the findings from this study will help to inform future research around the production of such signposting advice.*

Keywords: Substance misuse; online resources; mixed-methods

## Introduction

Increasingly, reports in both the mainstream media and the academic substance misuse literature are demonstrating that digital internet technologies may be changing the landscape of substance use. Despite some worrying trends in the growing utilisation of internet technology to obtain substances for illicit recreational and prescription use (Orsolini, Francesconi, Papanti, Giorgetti, & Schifano, 2015), there would also appear to have occurred alongside this an increasing prominence of online resources related to treatment and recovery from substance misuse, here also referred to as technology-enhanced treatment and recovery resources (TETRR). There is now a large number of online resources designed to prevent substance misuse and help people overcome it. As part of this growth, computer-assisted therapy (CAT) as an approach has become a mainstream treatment modality, with intervention programmes emerging around the world, such as Breaking Free Online in the UK (Elison, Davies, & Ward, 2015a, 2015b; Elison, Humphreys, Ward, & Davies, 2013; Elison et al., 2014),

CBT4CBT in the US (Carroll et al., 2008; Carroll et al., 2009; Carroll et al., 2014) and SHADE in Australia (Kay-Lambkin, Baker, Kelly, & Lewin, 2012; Kay-Lambkin, Baker, Lewin, & Carr, 2009, 2011).

For those individuals who have already engaged with the recovery process, there are also a wealth of resources available to support them in achieving and maintaining their recovery goals, including online mutual aid groups and those facilitated by 12-step fellowship organisations such as Alcoholics Anonymous and Narcotics Anonymous (Yarosh, 2013), non-secular mutual-aid groups such as SMART Recovery (Hester, Lenberg, Campbell, & Delaney, 2013), alongside other online recovery forums and communities such as 'in2recovery' (in2recoverynews.uk) and 'Soberistas' (www.soberistas.com), and social networks such as Facebook and Twitter groups.

Aside from the growing use of online technologies for accessing support for substance use treatment and recovery, research has suggested that there may still be a preference in some substance misuse treatment services for the use of more traditional offline approaches to recovery resources (Dugdale, Elison, Davies, Ward, & Dalton, 2016), perhaps due to a general perception of digital technologies as being 'disruptive' (Edmondson, Bohmer, & Pisano, 2001; Hwang & Christensen, 2008). This may be the reason why, to date, there has been very little empirical research into how treatment and recovery services may best utilise digital or online resources to support individuals, and how these resources might best be used in conjunction with more traditional offline resources.

In the absence of such empirical research, the behavioural science literature may provide some insight as to how such digital resources might be utilised most effectively at different stages of the recovery journey. The Transtheoretical Model (TTM) (Prochaska & DiClemente, 1982) theorises that there are six key stages of behaviour change (DiClemente, Nidecker, & Bellack, 2008; DiClemente, Schlundt, & Gemmell, 2004). These six stages include: 'precontemplation' (no intention to take action), 'contemplation' (intend to take action within the next 6 months), 'preparation' (intend to take action within the next 30 days), 'action' (changed behaviour for less than 6 months), 'maintenance' (changed behaviour for more than 6 months), and 'termination' (no desire to relapse). Please see Figure 1 for more information. These stages may be relevant to the processes of behaviour change related to substance misuse recovery, and may also necessitate specific forms of support for the individual depending on where they are in their substance misuse recovery journey. For example, those in the earlier stages of precontemplation and contemplation may lack the motivation to change their behaviour, and therefore support is needed to increase motivation (Migneault et al., 2005). In contrast, those who are in the maintenance stage are more likely to score low on assessments measuring the perceived difficulty of changing their behaviour (indicating that they do not consider maintaining behaviour change difficult), and are more likely to seek helping relationships to sustain this change (Carbonari & DiClemente, 2000; Connors, DiClemente, Velasquez, & Donovan, 2012). In this way, the TTM may also translate to different online resources that are used to support different stages of recovery (MacLean, Gupta, Lembke, Manning, & Heer, 2015).

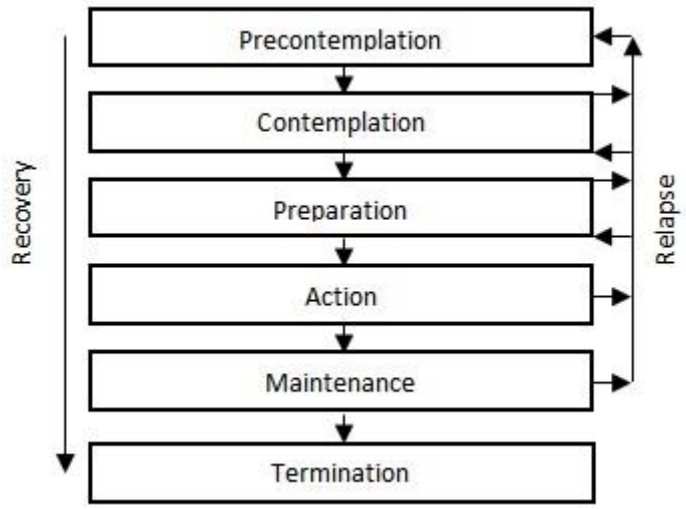


*Figure 1.* The Transtheoretical Model.

An innovative method of researching the question of how online treatment and recovery resources might be most practically used across the recovery journey may lie in the use of online technologies themselves, with these technologies now being increasingly used to research both substance use, treatment and recovery. Studies are taking advantage of the benefits of online technologies to facilitate internet-mediated research into substance use, including mass collections of global survey data around substance use and the digital collection of data related to treatment outcomes (Morley, Lynskey, Moran, Borschmann, & Winstock, 2015) and recovery measures (Kaskutas et al., 2014). However, these internet-mediated approaches to the collection of data for substance misuse research have so far focused on the collection of quantitative data, with previously few attempts having been made to facilitate qualitative research via online technologies in substance misuse research.

There are a number of ways in which online technologies can facilitate internet-mediated qualitative research, including the thematic analyses of publicly available qualitative data from forum posts and blogs (e.g. Månsson & Ekendahl, 2013; Williams & Merten, 2008). Additionally, chat rooms and other instant messenger applications have been used to conduct synchronous (real time) online interviews (e.g. Barratt & Lenton, 2010; Barratt, 2012; Gruber, Szmigin, Reppel, & Voss, 2008), with this approach having been demonstrated to provide high validity of findings (Joinson, 2001). The benefits of using such technologies to collect qualitative data are that they allow access to a wide range of individuals and unique populations, including hidden and hard-to-reach populations (Neale, Allen, & Coombes, 2005), in a relatively short amount of time and with minimal financial resources compared to organising face-to-face interviews (Wright, 2005). Furthermore, some research indicates that such internet-mediated qualitative interviews may lead to a more balanced power relationship between the researcher and participant as the participant has greater control over their involvement, for example when to respond to a question, and anonymity is also increased (Hewson, 2007). These internet-mediated approaches to qualitative research are now stimulating the development of new ethical considerations, with the British Psychological Society having published new information concerning the ethics surrounding online research methods, including issues relating to whether publicly available data should still conform to guidelines around informed consent (British Psychological Society, 2013). However, these guidelines largely focus on online collection of quantitative data, and also the analyses of publicly available data from forums and other websites, with far less being known about real-time qualitative interviews.

As a result of the lack of literature around the use of internet-mediated substance misuse treatment and recovery resources, this study will use an online quantitative survey to i) find out more information about the range of TETRR available, and ii) compare use of TETRR between participants at different stages of recovery. Furthermore, due to the scarcity of studies that have employed internet-mediated qualitative interview methods, this study will also use these methods to iii) explore why and how people use TETRR, and to iv) extend the evidence base around these qualitative methods. This mixed methods design will also triangulate findings and ensure increased validity (Creswell, 2013).

# Methods

## Design

This study employed a mixed-method design, incorporating both a structured quantitative online survey and a semi-structured qualitative online text-based interview.

## Participants

Participants were included in the research if they used online ‘recovery’ resources related to substance use. Those under 18 years were excluded from the study.

Participants were recruited by snowball sampling through initially advertising the study on online forums (including Facebook and Twitter via Breaking Free Online’s and in2recovery’s pages, which were then shared through other substance misuse organisations and websites), conferences and public events which had a focus on substance use and recovery. See Appendix A for an example advertisement. A total of 133 participants responded to the online questionnaire. Of these, 3 participants were excluded immediately as they had

identified themselves as being under 18 years of age, leaving 130 participants: 66 males, 63 females and one individual who did not specify their gender. Partially completed questionnaires were also included in analyses. Participants had a mean age of 45 years, with a range of 20 – 67 years. Of 116 participants who responded to the question, 12% identified that they were working towards recovery (taking action to reduce or stop using substances), 56% were in recovery or abstinent (maintaining recovery from substance use) and 32% were not working towards recovery (no perceived difficulties with substance use). Of 105 participants who responded to the question, 19% stated that they were receiving face-to-face support.

For the qualitative investigation, 26 participants reported an interest in taking part in interviews. Of these, 16 participants (female = 6) responded to an email inviting them to participate, of whom 15 were 'in recovery or abstinent', and one was 'not working towards recovery'. The average age of participants was 48 years old. These participants reported using forums and information resources the most (88% and 81% respectively), and only 3 participants were still receiving face-to-face support for their substance use. Participants reported evenings as the most popular time of day to access these resources (75%), with 63% of participants spending over 3 hours per week on these resources.

## Procedure

The Association of Internet Researcher's (Ess & Association of Internet Researchers, 2002) and the British Psychological Society's (British Psychological Society, 2013) ethical guidelines were adhered to throughout to ensure that participants were fully aware of the purpose of the study in order to provide their informed consent to participate, and that they were aware of their right to withdraw from the study at any time, and their information removed if they wished. Participants under the age of 18 were excluded from the survey, in order to mitigate against minors participating, who may not be deemed capable of providing informed consent. Participants who consented to take part in the study were provided with the URL to access the questionnaire online through 'Survey Monkey' (www.surveymonkey.co.uk). Information was provided about the study on the first screen of the survey, and participants were reminded of their right to withdraw. Only one response per computer could be accepted and those who indicated that they were under 18 years of age were automatically disqualified from the survey.

Questions asked participants to select which technology-enhanced treatment and recovery resources (TETRR) they currently use from a pre-prepared list of resources, and were also given the opportunity to add their own resources if they wanted to. The pre-prepared list was generated through a discussion with the authors of this paper, who are experienced in, and are currently producing their own TETRR (at the time this paper was written). The full range of TETRR and the categories within which these were included can be found in Appendix B. Note that the sample size in the table relates to the total number of participants who responded to that specific question. Participants had to respond to every item, even if the response was 'no'. Consequently, any items with missing data would indicate that participants had not responded and therefore left the survey. Categories of TETRR included in the questionnaire were therapeutic resources, forums, information, harm reduction, mental health, and family and friends. Participants were also asked about their recovery status (whether they would currently regard themselves as 'in recovery or abstinent', 'not working towards recovery', 'working towards recovery'), how long they used the online resources for, when they accessed the resource, and which device(s) they used to access the resource.

At the end of the survey, participants were asked if they would like to take part in an online qualitative interview about TETRR. If they were interested, they were asked to provide their email address and specify their preferred mode of communication by which to conduct the interview, such as 'Skype' or email. The lead researcher (SD) responded to those who had provided their emails by sending participants an information sheet about the interview (via email), confirming participants' preferred mode of communication and 'handle' (user name), and by asking what days and times were preferable for them to be interviewed. If participants still wished to proceed with the interview, the researcher was able to confirm the details and answer any further questions.

Interviews were semi-structured and questions were open-ended and designed to elicit further information and clarification of participants' use of TETRR. Interviews were conducted using either synchronous (real time, for example instant messenger) or asynchronous (not in real time, for example email) text-based online

programmes which the participant had identified as their preferred mode of communication. This did not require the use of microphones or web-cameras. At the start of the interview, participants were reminded of the aims of the study and of their confidentiality rights. Participants were asked to let the researcher know if they did not want to answer a question or if they wished to withdraw before leaving the interview. Emoticons and abbreviations were permitted, however any ambiguous responses were probed for further clarification. Participants were debriefed at the end of the interview and thanked for their participation.

### Analytic Method

For the quantitative analysis, frequencies were gathered to explore the data around use of TETRR. Tests of difference were used to investigate self-reported recovery status (the stage of recovery the participant was currently in: 'in recovery or abstinent', maintaining recovery from substance use; 'not in recovery', no perceived difficulties with substance use; or 'working towards recovery or abstinence', taking action to reduce or stop using substances) by types of online resources used and how the online resources were used respectively. Those 'in recovery' are intended to map onto the maintenance stage of the TTM, whilst those 'working towards recovery' are intended to map onto the preparation and action stages of the TTM. Data collected on those 'not working towards recovery', will be used to understand how TETRR are used by people not intending to seek treatment or recovery for themselves, for example professionals working within the treatment sector, or family and friends supporting people in recovery.

Thematic analysis was used to explore and describe the qualitative data. Transcripts were first read over to ensure familiarity. Notes were made in the left-hand margin of the documents summarising any interesting findings. After coding all the transcripts in this way, general 'themes' occurring throughout the interviews were noted in the right-hand margin of the document alongside the relevant text. These 'themes' were then collated, grouped and collapsed into three overarching themes, with sub-themes. The themes were then checked against the transcripts to ensure that themes and sub-themes were discrete and appropriately described the data. These themes were then checked by another researcher, and any discrepancies were discussed and resolved.

## Results

### Quantitative Analysis

Shapiro-Wilks tests indicated that variables were not normally distributed ($p < .05$). The associated total frequency of use of each type of TETRR was calculated (see Table 1). Note that the sample size in the table relates to the total number of participants who responded to that specific question. Participants had to respond to every item, even if the response was 'no'. Consequently, any items with missing data would indicate that participants had not responded and therefore left the survey. As can be seen from the table, 'forums' appeared to have the highest percentage of use (83.33%), most participants had been using online resources for over three years (44.94%), and generally spent over three hours per week on the resource(s) (44.94%). See Table 2 for further information on TETRR usage data collected from the questionnaire.

Table 1. *A Frequency Table of the Use of Technology Enhanced Resources.*

| **Resources** | ***N* (%)** | **Sample size** |
|---|---|---|
| Therapeutic | 65 (65) | 100 |
| Forums | 80 (83.33) | 96 |
| Information | 68 (72.34) | 94 |
| Harm reduction | 36 (39.13) | 92 |
| Family and friends | 26 (28.26) | 92 |
| Mental health | 30 (32.61) | 92 |

Table 2. *A Frequency Table of Time Spent Using Technology Enhanced Resources*.

| Variables | *N* (%)[a] |
|---|---|
| **How long using online resources** | |
| Less than 6 months | 9 (10.11) |
| 6 months-1 year | 20 (22.47) |
| 1-2 years | 7 (7.87) |
| 2-3 years | 13 (14.61) |
| 3+ years | 40 (44.94) |
| **Time spent using resources per week** | |
| Less than 1 hour | 19 (21.35) |
| 1-2 hours | 19 (21.35) |
| 2-3 hours | 11 (12.36) |
| 3+ hours | 40 (44.94) |

***Note***: [a]Sample size = 89

The difference between how online resources were used across recovery status (i.e. the stage of the recovery process participants identified themselves as being at) was tested using a chi-square to observe whether there were any differences between variables. See Table 3 for frequencies and chi-square test values. More participants used the online resources during the evening compared to any other time of day, and there was a significant association between recovery status and the number of participants who used the resources during the evening, with a significantly higher number of participants 'in recovery' using resources during this time of day compared to the other recovery status groups ($\chi^2$ = 18.88, *df* = 2, *p* < .001). There were no significant differences between the groups according to the types of devices used to access the online resources.

Table 3. *Chi-Square Values for Support, Time of Day Accessing Resource and Devices Used across the Three Different Recovery Statuses.*

| Variables | **Recovery status** *N* (% of grand total) | | | **Total *N*** (%)[a] | **$X^2$** |
|---|---|---|---|---|---|
| | **In recovery** | **Not working towards recovery** | **Working towards recovery** | | |
| **Time of day** | | | | | |
| Morning | 31 (34.07) | 8 (8.79) | 6 (6.59) | 45 (49.45) | .36 |
| Afternoon | 25 (27.47) | 6 (6.59) | 6 (6.59) | 37 (40.66) | .59 |
| Evening | 49 (53.85) | 5 (5.49) | 9 (9.89) | 63 (69.23) | 18.88** |
| Night | 22 (24.18) | 4 (4.4) | 5 (5.49) | 31 (34.07) | 1.42 |
| Weekdays | 25 (27.47) | 9 (9.89) | 7 (7.69) | 41 (45.05) | .86 |
| Weekends | 28 (30.77) | 4 (4.4) | 7 (7.69) | 39 (42.86) | 4.13 |
| Total respondents | | | | 91 (100) | |
| **Devices used** | | | | | |
| Computer | 24 (26.97) | 10 (11.24) | 3 (3.37) | 37 (41.57) | 3.93 |
| Laptop | 36 (40.45) | 10 (11.24) | 7 (7.87) | 53 (59.55) | .23 |
| Tablet | 29 (32.58) | 7 (7.87) | 7 (7.87) | 43 (48.31) | .52 |
| Mobile | 39 (43.82) | 9 (10.11) | 9 (10.11) | 57 (64.04) | 1.17 |
| Total respondents | | | | 89 (100) | |

***Notes***: [a] *df* = 2; ** *p* < .001

The difference between the types of online resources used across recovery statuses was tested, and there was a significant difference between the groups on the total use of online therapeutic resources (see Table 4 for findings from independent Kruskal-Wallis tests). Post hoc analyses revealed that those 'working towards recovery' used more therapeutic resources than those 'in recovery' ($p$ = .049) and those 'not working towards recovery' ($p$ = .006) respectively. There was no difference in the use of therapeutic resources between those 'in recovery' and 'not working towards recovery' ($p$ = .075).

Table 4. *Online Resources Means, Standard Deviations and Kruskal-Wallis Values across the Three Different Recovery Statuses*.

| **Variables** | **In recovery** ***M (SD)*** | **Not working towards recovery** ***M (SD)*** | **Working towards recovery** ***M (SD)*** | ***df*** | ***z*** | ***r*** |
|---|---|---|---|---|---|---|
| Total therapeutic | 1.02 (.85) | .65 (.89) | 1.54 (.88) | 2 | 9.85 * | 0.99 |
| Total forum | 1.79 (1.18) | 1.32 (.99) | 1.77 (1.24) | 2 | 2.49 | 0.25 |
| Total information | 2.36 (2.42 | 3.1 (2.79) | 1.85 (1.82) | 2 | 1.66 | 0.17 |
| Total harm reduction | .5 (.79) | 1.21 (1.27) | .69 (1.03) | 2 | 5.58 | 0.56 |
| Total family and friends | .22 (.42) | .26 (.45) | .23 (.44) | 2 | 0.18 | 0.02 |
| Total mental health | .33 (.48) | .16 (.37) | .15 (.38) | 2 | 3.27 | 0.33 |
| Total all resources | 6.22 (4.08) | 6.79 (4.1) | 6.23 (4.34) | 2 | 0.53 | 0.05 |

***Note***: *$p$ < 0.05

## Qualitative Analysis

From the data collected during the qualitative online interviews, three themes were identified which related to participants' use of TETRR: i) 'engaging with the online world', ii) 'TETRR to enhance social functioning', and iii) 'barriers to the use of TETRR'. Throughout the findings, the interaction between the online and offline worlds are reported, including how these may be used to support one another in people's recovery. These themes will now be discussed in further detail and sub-themes will also be presented.

**i) Engaging with the online world.** This theme encapsulates why people may use TETRR compared to more traditional offline resources, but also the role of offline resources in helping to encourage the use of TETRR.

***Advantages of online***. It is important to look at the added value that online resources can bring to 'traditional' recovery before understanding how the two resources can interact. Online resources were seen to offer benefits separate to their offline counterparts. Specifically, TETRR were perceived to be advantageous due to their accessibility:

> *"the flexibility of online 24/7" (Female, age 43, in recovery)*

> *"Sometimes in early recovery it's the small hours of the morning that are the hardest. And there's no support available, but if you're connected online [...] you can usually log on somewhere in the world and find someone to chat to and identify with." (Male, age 48, in recovery)*

Recovery is not constricted to typical office hours, hence online support is seen to be useful in providing an additional service to extend the support provided by offline resources.

A further distinction drawn between online and offline resources was the potential for TETRR to be used when co-morbid mental health difficulties, such as social anxiety, may be exacerbated by social situations and group therapy:

> *"group work is sometimes just thrown together and people are expected to get over their social anxiety & attend" (Female, age 43, in recovery)*

Barriers to accessing offline support are suggested to be overcome through utilising TETRR, which can minimise feelings of anxiety about group-based recovery and provide support throughout the day.

***Encouraging use of online resources***. Although the advantages of TETRR were realised, offline resources were also seen to offer their own respective benefits, particularly with regard to supporting TETRR use. Participants were able to recognise the utility of combining both approaches:

> *"people don't always have access to the technology need as well as have the skill set required to navigate the internet, offline groups can support this and feed into also" (Male, age 44, in recovery)*

A barrier to accessing online groups could relate to the skill-set of the person, however offline support may help clients to use technology and develop their skills and confidence in using it. These benefits are not limited to the client, but staff involved in recovery services may also use a combination of both approaches to help support their work:

> *"If we can't meet face to face in person then we meet via FaceTime or Skype" (Female, age 54, in recovery)*

In this example, digital technologies may be used to facilitate treatment and recovery, and this could be used to maintain contact and support clients if offline communication is unfeasible. As well as the ability to use both resources in tandem, it was also apparent from the interviews that use of online support, including TETRR, could be a first step towards accessing support generally, which may include offline support, by providing the opportunity for initial connection with others in the recovery community:

> *"this can be a first contact if people are isolated as they might not have them local and also to be able to connect to large numbers of people in recovery and have their support" (Male, age 41, in recovery)*

> *"Sometimes fear and self-esteem can be a major barrier to accessing support, and online interactions can be a little nudge" Male, age 48, in recovery)*

These data demonstrate a link between the online and offline worlds in the ways in which they can support each other to encourage further use of these resources.

**ii) TETRR to enhance social functioning**. This theme considers the use of TETRR to help those who are in and not in recovery to re-engage with their social and work life.

***Maintenance***. For those who were in recovery, sources of recovery maintenance – i.e. the managing of ways to remain in recovery and avoid relapse – could be gained through an interaction with online materials:

> *"[I] facilitate SMART once a week […] I enjoy the facilitating they are some of the things that help me stay abstinent" (Male, age 41, in recovery)*

> *"I used it [online resources] myself to advocate and it was like a parallel process" (Female, age 43, in recovery)*

By using their own knowledge and experience, some participants were able to facilitate online recovery support groups and promote, or 'advocate', relevant resources to those still working towards recovery. Using these resources also provided participants with some connection to their previous lifestyle, and was suggested to help participants maintain their own recovery.

Some participants reported that they actively contributed to online recovery groups and literature. The idea of using these online resources as a way of giving back to the recovery community was also apparent:

> *"I access a lot now though and actually contribute to a lot as well as having my own little piece of the net to offer support." (Male, age 48, in recovery)*

> *"It's a great resource for me to give back as well, to give the still suffering some hope" (Female, age 54, in recovery)*

Interaction with TETRR could be seen to work towards recovery maintenance in those who are 'in recovery', and this experience also enabled participants to help others, either by creating online resources or using their knowledge to direct others to useful resources.

***Connection***. Online resources were considered valuable for staying connected with people and these resources were seen to offer a sense of support and belonging:

> *"not feeling alone" (Female, age 48, in recovery)*

> *"I've made some of the best friends I've yet to meet." (Male, age 49, in recovery)*

Despite not being in physical contact with those in the recovery community, online resources were able to help people communicate with others and develop friendships, with this facilitating in itself an online recovery community:

> *"it gives you a feeling of being a part of something rather than apart from everything. [...] There's something amazing about talking to someone you never met and just feeling connected" (Male, age 48, in recovery)*

This notion of 'connection' was seen to be something characteristic of online resources and was something that was sought online. This is in contrast to offline groups which were perceived to be of more therapeutic value than a means of gaining social support:

> *"I go to Mutual Aid meetings and I share with peers in person/over the phone and I use online forums to socialise and connect." (Male, age 50, in recovery)*

> *"services on the street but that was only the clinical aspect of my recovery, once through those services I needed to access support and found the internet as a way to connect with other people and groups" (Male, age 44, in recovery)*

There appeared to be distinct uses for different resources, again demonstrating how both online and offline resources could be used together to complement each other.

***Career***. In contrast to enabling connection for personal support, the use of TETRR were able to assist many participants in their professional roles which were often grounded in substance misuse recovery. The use of online resources as a means to seek information was apparent, in particular the ability to use TETRR to extend personal contacts in order to gain further subjective insights into the sector:

> *"I am interested to read about articles that relate to addiction, new ways of treatment and further contacts/information" (Female, age 38, in recovery)*

> *"I use them to connect with people to share ideas of research, policy and practice and the reality of what is going on 'on the ground'" (Male, age 59, not working towards recovery)*

Information seeking was also seen to be used for research purposes. In this instance, a participant was able to look at other online resources to compare their service with what others were offering:

*"interested to see what [name of TETRR] is doing and people in other health areas where the tools and techniques can be applied to alcohol" (Female, age 41, in recovery)*

Overall the ability to use online resources for career purposes was found to extend knowledge of the sector and of competitors. It could also be used for support purposes to connect and make contacts with others, which may be an important aspect of enhancing social functioning in those who are in recovery from substance misuse:

*"I've received tremendous benefits from these online resources both in developing my own skills and knowledge base, through time I've developed an excellent support network. It has even led me to earning money by delivering training" (Male, age 53, in recovery)*

**iii) Barriers to the use of TETRR**. In contrast to some of the suggested benefits of online resources, as explored through the previous themes, there were also barriers to using these resources.

***Accessibility***. A principal barrier related to the lack of signposting to TETRR from recovery services, such as what online information or support networks were available:

*"there was nothing telling me what worked for other people like me." (Female, age 41, in recovery*)

*"more information regarding them could be available in community groups in order to get those attending community groups to access online" (Male, age 45, in recovery)*

Offline groups are typically seen as 'traditional' and widely accessed forms of support, therefore it may be that community groups could provide a signposting service to bridge the offline and online recovery domains, as proposed by the participant in the example above.

Should service users know where to go for appropriate online support, there may be other barriers surrounding the user's abilities and also difficulties with the technology itself:

*"the quality of the phone line connection, it is very frustrating when you keep on dropping out during a meeting" (Male, age 62, in recovery)*

*"many service users we see are not computer literate" (Male, age 35, in recovery)*

Problems gaining access to TETRR, including having the basic skills and means to access them, is clearly a barrier to use of online resources. However, there are suggestions that offline services could offer the solution by offering signposting.

***Integrity***. Some participants commented on their perceptions of the integrity of resources, which considered their moral value and their trustworthiness. In the case of the former, online resources do not necessarily need to come from a qualified body, such as the UK's National Health Service, and could be posted by anyone, which could create difficulties regarding the appropriateness of the claims made:

*"I think there's loads of psychological inflexibility out there [...] sometimes this can evolve in an attempt to publicly shame and denigrate people which gets really unpleasant" (Male, age 60, in recovery)*

*"On line meetings are faceless allowing most people to come out with comments of a more personal nature" (Male, age 62, in recovery)*

As suggested in these examples, bullying may occur online, and without any mediation this could be problematic, particularly as it is easy to create a different identity online, perhaps illustrating the perceived 'facelessness' of online forums.

There was also a disagreement between the trustworthiness and suitability of different types of information available. Particularly in relation to harm reduction resources, there was a split between factual resources which

convey information about side-effects and the law, and user-led resources which focus on the subjective experiences of specific substances and of safe substance use practices:

> *"Factual is better for definitive information, discussions are tricky unless posts are validated. This can give conflicting, or personal viewpoints" (Male, age 35, in recovery)*

> *"The information shared is straight from the horse's mouth and I believe it to be much more credible and valuable than anything else [...] it's self-governing and the information is contemporaneous and, in the main, factual." (Male, age 60, in recovery)*

From the 'factual' resources perspective, for example resources informed by an authoritative body such as the National Health Service in the UK, participants perceive these as being beneficial as they provide reliable information. On the contrary, user-led resources are suggested to provide more experiential information around the lived experiences of recovery. Additionally, the perception of some information online lacking integrity, can act as a barrier to use; questions are raised regarding the reliability and suitability of information, which may lead participants to reject some resources.

***Support***. Some online groups are not mediated, and, as previously discussed, this may leave people open to victimisation. This lack of support, however, may also cause uncertainty or confusion around recovery:

> *"I think group feedback is a double edge sword - if its good it can help with therapeutic growth, but if it is negative it can leave people confused till the next week and sometimes peer group feedback is incorrect [...] this is also true of unstructured online groups" (Female, age 43, in recovery)*

If information given is inaccurate, this can be a barrier to receiving high quality therapeutic support as this incorrect advice may be maladaptive. It is clear, however, that this is not something only true of online groups, but also offline support.

A lack of physical contact and support was also suggested to be a limitation of online resources:

> *"part of this condition is isolation, what we don't want is for someone with an alcohol problem to stop drinking, but then isolate within the cyber world" (Female, age 54, in recovery)*

> *"You need to keep that real connection going. Its human nature" (Male, age 48, in recovery)*

Participants mentioned that it is possible to be isolated if just using TETRR as a treatment option. Participants seem to distinguish between the 'feeling' of belonging gained through TETRR and the 'real' physical support gained through offline support as suggested above. If this physical support is important, then it would follow that family and friends' support outside office hours is also important. However, participants identified that there was a lack of online provision and information available to family and friends to support those in recovery:

> *"I work with the whole family often and it really is sad how little is available for the family, and they are key" (Female, age 54, in recovery)*

> *"I don't think there is enough support out there for family and friends, on the whole there is very little even on a national level" (Male, age 50, in recovery)*

It can be suggested that providing offline support to people alongside online TETRR support is beneficial. This support may reduce isolation but also encourage skill development if service users have difficulties using technology, and may help to deal with integrity issues online. However, signposting is also needed for service users but also for their family and friends.

# Discussion

This study sought to explore the different online resources being used by people in recovery from substance misuse, through using online data collection methodologies, including an online quantitative survey and an online qualitative interview approach. Specifically, this study used these novel internet-mediated data collection approaches to gather information about the range of online recovery resources available, and how these resources may be used differently at different stages of the recovery process.

The results from the online quantitative survey suggested that online recovery forums are the most highly accessed type of online resource. These findings from the quantitative survey were supported by findings generated from the online qualitative interviews, which revealed that online recovery communities, linked via platforms such as forums, were important in creating a sense of connectedness and belonging. Taken together, the quantitative and qualitative findings around the value of forums to those in recovery suggest that face-to-face, physical contact with others in the offline world may not be as necessary as previously assumed for creating a sense of connection between people (Goodyer, 2014). This is in contrast to research such as that conducted by Fitzgerald (2013), which suggests that an individual's physical recovery community, and experiences of social connectedness achieved through this, is significantly, negatively associated with self-reported substance use. However, more in line with previous research around connectedness and online and offline modes of interaction, it was also reported in these qualitative interviews that whilst online support from others was helpful, it was perhaps not sufficient, and that offline support and physical contact with others is also important for those embarking on their recovery journey. This is supported by previous research by the authors, which reflects a preference by staff working in substance misuse services for the use of online groups, but only when supported by offline face-to-face support (Dugdale et al., 2016). This finding is also supported by literature that suggests the importance of recovery capital. This refers to the internal or external resources which may help to promote recovery (Best & Laudet, 2010; Cloud & Granfield, 2008). Social capital in particular may be useful in understanding this finding, as this relates to resources acquired as a result of social support and relationships, as can be seen through forum-based interactions (Cloud & Granfield, 2008).

Exploratory findings from the quantitative survey also revealed that online recovery resources were more likely to be accessed at specific times of day, for example in the evenings. This finding was supported by the qualitative interviews, with participants reporting that one of the main benefits for them of using online resources was that they enabled them to work on their recovery outside of the usual nine-to-five office hours during which treatment services are generally open. This may be especially important for people who have work and childcare commitments, for example, as offline recovery resources accessed via treatment services are constrained by having the resources to ensure that staff are available in services, and the times of day services might be open. This finding is reported within the literature (Andrews, Cuijpers, Craske, McEvoy, & Titov, 2010; Carroll & Rounsaville, 2010; Gainsbury & Blaszczynski, 2011) and is linked to suggestions of how the offline and online domains can support each other to facilitate access to treatment and recovery resources at any time of the day, whether it be offline, daytime resources via services, or online resources when services are not open during evenings and weekends.

In addition to accessing online resources for substance misuse recovery, participants in the quantitative survey also reported that they accessed online mental health resources, indicating that many may have experienced, or are currently experiencing, co-morbid mental health and substance use difficulties. Having a 'dual diagnosis' of both mental health and substance use difficulties is common amongst those in recovery, with between 75% and 85% of drug and alcohol users experiencing some form of mental health issue (Weaver et al., 2003). This finding would therefore indicate that many of the participants in the study may have been working on both their substance use and mental health difficulties at the same time, and were using online resources to enable them to do this. Qualitative findings from the study also suggest that the ability to use TETRR may help to ameliorate the symptoms of mental health difficulties, which may otherwise be exacerbated during offline group therapy, such as when social anxiety is induced.

In addition to the more exploratory, descriptive findings reported above, statistical analyses were also conducted on the quantitative survey data to compare access of online recovery resources across three groups of participants, who reported being at different stages of their recovery journey. These different stages may map

on to and be supported by the different stages of behaviour change conceptualised by the Transtheoretical Model (TTM: DiClemente et al., 2004; Prochaska & DiClemente, 1982). Quantitative analyses revealed that those who were 'working towards recovery' (those currently actively working on reducing or stopping their substance misusing behaviour) were significantly more likely to use online therapeutic resources than those who were 'in recovery' (those who were maintaining abstinence or reduced substance use) or 'not working towards recovery' (those who reported no current difficulties with substances). Those 'working towards recovery' could be suggested to be in the 'preparation' or 'action' stage of recovery within the TTM as they might be making plans to take action towards reducing their substance use, or currently actively working on reducing, or stopping, their substance use. Therefore, therapeutic resources, including CAT programmes such as Breaking Free Online, which explore the underlying causes behind substance misuse and facilitate the acquisition of skills to manage these difficulties, may be of particular benefit at this stage, when active behaviour change is being attempted. These quantitative findings would therefore indicate that specific kinds of online recovery resource may be more valuable at different stages of the recovery journey to support behaviour change.

Findings from the qualitative interviews support these quantitative findings, with some participants who were 'in recovery' reporting that they mainly used online resources to help sustain abstinence, which could indicate that they were in the 'maintenance' stage posited by the TTM. In particular, participants 'in recovery' reported in their qualitative interviews that an important part of this recovery maintenance was feeling they were giving something back to the recovery community, through contributing to forums, for example. This finding is supported by the literature related to Twelve-Step mutual aid groups such as Alcoholics Anonymous, which emphasise the importance of 'giving back' and supporting others in recovery as part of an individual's own ongoing recovery process (Borkman, 2008). However, these findings are highlighted with regard to this cross-sectional research. It is unknown how use of TETRR may change across the recovery journey, and therefore further longitudinal research is recommended to investigate such developments.

Taken together, the findings from both the quantitative survey and the qualitative interviews have provided tentative indications that there may be links between the specific stages of the recovery process, which may be conceptualised by the stages of the TTM and the use of different kinds of online recovery resources. However, in order to examine this in greater detail and understand further how specific online resources may be most appropriate for different people at different recovery stages, more research would need to be conducted. Presently though, there are findings from this research that would indicate that certain recovery resources, both online and offline, may be more helpful at during different stages of the recovery journey, which may contribute to developing signposting advice for service users to direct them to the most appropriate resources, whether these be online or offline.

Indeed, findings from the qualitative interviews suggest that there may be some interaction between the online and offline worlds, and the resources people can access within each. Participants reported in the interviews that online resources may act as useful segues into offline resources, providing a useful means of allowing service users initial contact to offline support and recovery groups, or as online communication channels to set up offline meetings, such as finding mutual aid community support groups around specific locations (e.g. http://www.alcoholics-anonymous.org.uk/AA-Meetings/Find-a-Meeting). Online resources or interactions may also work in conjunction with offline resources, to provide people with a means of support online, if they struggle to receive face-to-face support due to mental health difficulties, work or childcare commitments, as mentioned previously. Conversely, offline resources, including face-to-face support sessions, were reported as being helpful in allowing the development of the skills necessary to use technology and access online resources. Such offline face-to-face support in acquiring digital skills may be an important in promoting digital inclusion, by cultivating computer skills in those who are socially or economically marginalised to allow them to successfully function in today's digital society (Easton, 2014; Warschauer, 2004). An interaction between both online and offline resources may also mediate perceived online problems of 'isolation' and integrity issues by providing vital human contact offline.

Another area in which both online and offline resources could be utilised, could be around delivering signposting to online resources that the findings from this study are intended to support. Participants mentioned that there was a lack of signposting for online services, which could be a barrier to accessing these resources. Furthermore, there was also reported to be a lack of information for the family and friends of those

in recovery around online resources that may support them. It is therefore clear that more work needs to be done in helping people to access online support, and a combination of both online and offline signposting may provide a solution.

This work is not meant to provide a complete picture of all of the TETRR available, and further research may be required to continually update this resource. Through this research, initial steps towards producing signposting for online recovery resources have begun, with preliminary findings contributing to the development of information for healthcare services and service users about what resources are available and the types of online resources that might be most helpful at their particular stage of their recovery journey. However, despite the reported advantages of TETRR, this online support may still be perceived by many as disruptive (Edmondson et al., 2001; Hwang & Christensen, 2008). Therefore, it would be advantageous for future work to understand how this resource may be best presented in order to engage people in practice, for example print or online, and how this resource should be updated. Additionally, as with all research, there are some limitations to this study that warrant discussion and may direct further research to support the development of signposting advice for online recovery resources.

Firstly, only a small sample of participants took part in the follow-up interviews. Therefore, it is difficult to draw any main conclusions from these data alone, although the qualitative findings have been beneficial in adding further evidence to support the quantitative findings. This small response rate may be attributable to a lack of reimbursement for participation, and so the option for this may be considered in future studies in order to increase sample size. Additionally, it could be seen that these difficulties are not specific to online research methods and problems with recruitment and retention of participants may be seen across research generally, although it may be particularly easy for participants to ignore email requests about participation compared to face to face recruitment (Sheehan, 2001). A further limitation is that there was an unequal distribution of participants across the different recovery status groups, as those in the 'in recovery' group accounted for almost 60% of the overall total sample size from the quantitative survey. Furthermore, no participants who were 'working towards recovery' took part in the qualitative interviews, whilst 15 out of the 16 respondents regarded themselves as 'in recovery', again reiterating this potential response bias. If there was a more balanced response rate across the recovery groups then further themes may have been generated, and so the current qualitative findings may not offer an overall impression of how online resources are used by participants across different recovery stages. Then again it could be suggested that these findings may reflect the number of people across the different recovery groups who are actually accessing these resources; so those who are 'in recovery' may be more likely to utilise TETRR than those 'working towards recovery' and 'not working towards recovery'. It would be of benefit to collect further information on the types of online recovery resources accessed across all groups in order to produce a more complete picture of how these resources are used across the various recovery process stages and also which groups are more likely to use TETRR in general. Finally, the participants in this study were all largely based in the UK, and so it is not known what other online resources might be accessed in other parts of the world. Therefore, further research may include participants from countries outside of the UK in order to explore any cultural diversity around access to online recovery resources.

In addition to the principal aim of the study, which was to explore how online resources are used by individuals in recovery from substance use, the study also sought to extend the evidence base around the use of online text-based qualitative interviews, and so this novel method of data collection will also briefly be reflected upon. Within the study, participants taking part in the qualitative interviews could choose their preferred interview modality: synchronous or asynchronous interviews. During the process of completing the qualitative interviews, a stark contrast between synchronous and asynchronous methods of qualitative interview data collection was found.

Synchronous, real-time interview conducted over platforms such as Facebook or Skype were found to be beneficial as they provided a large amount of information in a short period of time, and points raised by participants could easily be probed by the interviewer and elaborated upon. However, these types of interviews were more difficult to schedule due to the need to find a time when the participant and interviewer were both available. In contrast, asynchronous interviews, which were conducted over email, involved the interviewer sending over a list of questions based upon the participant's initial quantitative survey answers and the participant then sending over their answers to these questions. Depending upon the responses, further

elaboration may be sought and the interviewer would then email over further questions, thereby continuing the process. Although more participants were happy ¬to be interviewed this way, as it allowed for responses to questions to be provided at a time that was most convenient to participants, answers given to questions were generally short, and it could take weeks before further elaboration, if any, was provided.

Overall, the process of using online interviews was interesting and made for an inexpensive way to collect data in a short space of time. Suggestions for future research would be to allow for flexibility in interviews and to use both synchronous and asynchronous methods of data collection as this may produce a greater response rate whilst maintaining quality. Furthermore, feedback from participants appeared quite consistent across both modalities, supporting the benefits for using online qualitative interviewing methods in general:

> *"I just feel the online interviewing process can have value in connecting more people and from varied locations and fields. It also has advantages in that data collecting material can be distributed and completed much quicker." (Male, age 45, Email)*

> *"I found the online interviewing process swift, easy to arrange and less time consuming than doing face to face." (Female, age 54, Facebook chat)*

## Conclusions

To conclude, online substance misuse treatment and recovery resources are being used within the substance use recovery community, allowing connections to be made between people and providing access to information and advice. Therapeutic resources in particular may be more likely to be used by those during the earlier stages of recovery, when they are 'working towards recovery'. In order to confer the most benefit from online treatment and recovery resources, it is suggested that they should be offered in combination with offline resources in order to support people as fully as possible, especially during times when offline resources via treatment services are unavailable, and also to ensure vital offline human contact and social support are provided alongside this. Unfortunately, there is limited signposting advice to direct people to the online treatment and recovery resources that they might find most beneficial during their specific recovery stage, so the continued development of this advice should be a focus for further study. Although this study has produced preliminary findings to support the production of such signposting advice for online treatment and recovery resources, future research is intended to explore the utility of online resources during a wider range of recovery stages, and also how these resources are accessed internationally.

## Conflicting Interests

SD, SE, GD and JW are all employees of Breaking Free Group where the Breaking Free Online treatment programme has been developed. MJ is the Community Director at in2recovery.

# References


Andrews, G., Cuijpers, P., Craske, M. G., McEvoy, P., & Titov, N. (2010). Computer therapy for the anxiety and depressive disorders is effective, acceptable and practical health care: A meta-analysis. *PloS one, 5*(10), e13196. http://dx.doi.org/10.1371/journal.pone.0013196

Barratt, M. J. (2012). The efficacy of interviewing young drug users through online chat. *Drug and Alcohol Review, 31*, 566-572. http://dx.doi.org/10.1111/j.1465-3362.2011.00399.x

Barratt, M. J., & Lenton, S. (2010). Beyond recruitment? Participatory online research with people who use drugs. *International Journal of Internet Research Ethics, 3*, 69-86.

Best, D., & Laudet, A. (2010). *The potential of recovery capital*. London, UK: RSA.

Best, D., McKitterick, T., Beswick, T., & Savic, M. (2015). Recovery capital and social networks among people in treatment and among those in recovery in York, England. *Alcoholism Treatment Quarterly, 33*, 270-282. http://dx.doi.org/10.1080/07347324.2015.1050931

Borkman, T. (2008). The twelve-step recovery model of AA: A voluntary mutual help association. In L. A. Kaskutas & M. Galanter (Eds.), *Recent developments in alcoholism* (pp. 9-35). New York, NY: Springer.

British Psychological Society. (2013). *Ethics guidelines for internet-mediated research*. Leicester, UK: Author.

Carbonari, J. P., & DiClemente, C. C. (2000). Using transtheoretical model profiles to differentiate levels of alcohol abstinence success. *Journal of Consulting and Clinical Psychology, 68*, 810-817. http://dx.doi.org/10.1037/0022-006X.68.5.810

Carroll, K., Ball, S., Martino, S., Nich, C., Babuscio, T., Nuro, K., . . . Rounsaville, B. (2008). Computer-assisted delivery of cognitive-behavioral therapy for addiction: A randomized trial of CBT4CBT. *American Journal of Psychiatry, 165*, 881-888. http://dx.doi.org/10.1176/appi.ajp.2008.07111835

Carroll, K., Ball, S., Martino, S., Nich, C., Babuscio, T., & Rounsaville, B. (2009). Enduring effects of a computer-assisted training program for cognitive behavioral therapy: A 6-month follow-up of CBT4CBT. *Drug and Alcohol Dependence, 100*, 178-181. http://dx.doi.org/10.1016/j.drugalcdep.2008.09.015

Carroll, K. M., Kiluk, B. D., Nich, C., Gordon, M. A., Portnoy, G. A., Marino, D. R., & Ball, S. A. (2014). Computer-assisted delivery of cognitive-behavioral therapy: Efficacy and durability of CBT4CBT among cocaine-dependent individuals maintained on methadone. *Computer, 171*, 436-444.

Carroll, K. M., & Rounsaville, B. J. (2010). Computer-assisted therapy in psychiatry: Be brave—it's a new world. *Current Psychiatry Reports, 12*, 426-432. http://dx.doi.org/10.1007/s11920-010-0146-2

Cloud, W., & Granfield, R. (2008). Conceptualizing recovery capital: Expansion of a theoretical construct. *Substance Use & Misuse, 43*, 1971-1986. http://dx.doi.org/10.1080/10826080802289762

Connors, G. J., DiClemente, C. C., Velasquez, M. M., & Donovan, D. M. (2012). *Substance abuse treatment and the stages of change: Selecting and planning interventions*. New York, NY: Guilford Press.

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.

DiClemente, C. C., Nidecker, M., & Bellack, A. S. (2008). Motivation and the stages of change among individuals with severe mental illness and substance abuse disorders. *Journal of Substance Abuse Treatment, 34*, 25-35. http://dx.doi.org/10.1016/j.jsat.2006.12.034

DiClemente, C. C., Schlundt, D., & Gemmell, L. (2004). Readiness and stages of change in addiction treatment. *American Journal on Addictions, 13*, 103-119. http://dx.doi.org/10.1080/10550490490435777

Dugdale, S., Elison, S., Davies, G., Ward, J., & Dalton, M. (2016). A qualitative study investigating the continued adoption of Breaking Free Online across a national substance misuse organisation: Theoretical conceptualisation of staff perceptions. *The Journal of Behavioral Health Services and Research*. Advanced online publication. http://dx.doi.org/10.1007/s11414-016-9512-0

Easton, S. (2014). CLIF impact project: Community learning and digital inclusion. *National Institute of Adult Continuing Education.*

Edmondson, A. C., Bohmer, R. M., & Pisano, G. P. (2001). Disrupted routines: Team learning and new technology implementation in hospitals. *Administrative Science Quarterly, 46*, 685-716. http://dx.doi.org/10.2307/3094828

Elison, S., Davies, G., & Ward, J. (2015a). An outcomes evaluation of computerised treatment for problem drinking using Breaking Free Online *Alcoholism Treatment Quarterly, 33*, 185-196.

Elison, S., Davies, G., & Ward, J. (2015b). Sub-group analyses of a heterogeneous sample of service users accessing computer-assisted therapy (CAT) for substance dependence using Breaking Free Online. *Journal of Medical Internet Research, 2*(2), e13.

Elison, S., Humphreys, L., Ward, J., & Davies, G. (2013). A pilot outcomes evaluation for computer assisted therapy for substance misuse- An evaluation of Breaking Free Online. *Journal of Substance Use, 19*, 313-318. http://dx.doi.org/10.3109/14659891.2013.804605

Elison, S., Ward, J., Davies, G., Lidbetter, N., Dagley, M., & Hulme, D. (2014). An outcomes study of eTherapy for dual diagnosis using Breaking Free Online. *Advances in Dual Diagnosis, 7*, 52-62. http://dx.doi.org/10.1108/ADD-11-2013-0025

Ess, C., & Association of Internet Researchers. (2002). *Ethical decision-making and Internet research: Recommendations from the AoIR ethics working committee.* Retrieved from http://aoir.org/reports/ethics.pdf

Fitzgerald, A. (2013, November). *Social connectedness and recovery: Do different types of social connectedness affect substance use disorders recovery outcomes among consumers receiving services in a recovery-oriented system of care approach in a community-based, urban setting?* Paper presented at the 141st APHA Annual Meeting, Boston, MA, USA.

Gainsbury, S., & Blaszczynski, A. (2011). Online self-guided interventions for the treatment of problem gambling. *International Gambling Studies, 11*, 289-308. http://dx.doi.org/10.1080/14459795.2011.617764

Goodyer, P. (2014). Staying clean: Why social networks matter. *Of Substance: The National Magazine on Alcohol, Tobacco and Other Drugs, 12*(3), 14-17.

Gruber, T., Szmigin, I., Reppel, A. E., & Voss, R. (2008). Designing and conducting online interviews to investigate interesting consumer phenomena. *Qualitative Market Research: An International Journal, 11*, 256-274. http://dx.doi.org/10.1108/13522750810879002

Helsper, E. (2008). *Digital inclusion: an analysis of social disadvantage and the information society*. (1409806146). London, UK.

Hester, R. K., Lenberg, K. L., Campbell, W., & Delaney, H. D. (2013). Overcoming Addictions, a Web-based application, and SMART Recovery, an online and in-person mutual help group for problem drinkers, part 1: Three-month outcomes of a randomized controlled trial. *Journal of Medical Internet Research, 15*(7), e134. http://dx.doi.org/10.2196/jmir.2565

Hewson, C. (2007). Gathering data on the Internet: Qualitative approaches and possibilities for mixed methods research. In A. N. Joinson, K. McKenna, T. Postmes, & U.-D. Reips (Eds.), *Oxford handbook of internet psychology* (pp. 405-428). UK: Oxford University Press.

Hwang, J., & Christensen, C. M. (2008). Disruptive innovation in health care delivery: A framework for business-model innovation. *Health Affairs, 27*, 1329-1335. http://dx.doi.org/10.1377/hlthaff.27.5.1329

Joinson, A. N. (2001). Self-disclosure in computer-mediated communication: The role of self-awareness and visual anonymity. *European Journal of Social Psychology, 31*, 177-192. http://dx.doi.org/10.1002/ejsp.36

Kaskutas, L. A., Borkman, T. J., Laudet, A., Ritter, L. A., Witbrodt, J., Subbaraman, M. S., . . . Bond, J. (2014). Elements that define recovery: the experiential perspective. *Journal of Studies on Alcohol and Drugs, 75*, 999-1010. http://dx.doi.org/10.15288/jsad.2014.75.999

Kay-Lambkin, F., Baker, A., Lewin, T., & Carr, V. (2011). Acceptability of a clinician-assisted computerized psychological intervention for comorbid mental health and substance use problems: Treatment adherence data from a randomized controlled trial. *Journal of Medical Internet Research, 13*(1), 254-264. http://dx.doi.org/10.2196/jmir.1522

Kay-Lambkin, F. J., Baker, A. L., Kelly, B. J., & Lewin, T. J. (2012). It's worth a try: The treatment experiences of rural and urban participants in a randomized controlled trial of computerized psychological treatment for comorbid depression and alcohol/other drug use. *Journal of Dual Diagnosis, 8*, 262-276. http://dx.doi.org/10.1080/15504263.2012.723315

Kay-Lambkin, F. J., Baker, A. L., Lewin, T. J., & Carr, V. J. (2009). Computer-based psychological treatment for comorbid depression and problematic alcohol and/or cannabis use: A randomized controlled trial of clinical efficacy. *Addiction, 104*, 378-388. http://dx.doi.org/10.1111/j.1360-0443.2008.02444.x

MacLean, D., Gupta, S., Lembke, A., Manning, C., & Heer, J. (2015). Forum77: An analysis of an online health forum dedicated to addiction recovery. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing* (pp. 1511-1526). New York, NY, USA: ACM.

Månsson, J., & Ekendahl, M. (2013). Legitimacy through scaremongering: The discursive role of alcohol in online discussions of cannabis use and policy. *Addiction Research & Theory, 21*, 469-478. http://dx.doi.org/10.3109/16066359.2012.731115

Migneault, J. P., Migneault, J. P., Adams, T. B., Migneault, J. P., Adams, T. B., Read, J. P., . . . Read, J. P. (2005). Application of the Transtheoretical Model to substance abuse: Historical development and future directions. *Drug and Alcohol Review, 24*, 437-448. http://dx.doi.org/10.1080/09595230500290866

Morley, K. I., Lynskey, M. T., Moran, P., Borschmann, R., & Winstock, A. R. (2015). Polysubstance use, mental health and high-risk behaviours: Results from the 2012 Global Drug Survey. *Drug and Alcohol Review, 34*, 427-437. http://dx.doi.org/10.1111/dar.12263

Neale, J., Allen, D., & Coombes, L. (2005). Qualitative research methods within the addictions. *Addiction, 100*, 1584-1593. http://dx.doi.org/10.1111/j.1360-0443.2005.01230.x

Orsolini, L., Francesconi, G., Papanti, D., Giorgetti, A., & Schifano, F. (2015). Profiling online recreational/prescription drugs' customers and overview of drug vending virtual marketplaces. *Human Psychopharmacology: Clinical and Experimental, 30*, 302-318. http://dx.doi.org/10.1002/hup.2466

Prochaska, J. O., & DiClemente, C. C. (1982). Transtheoretical therapy: Toward a more integrative model of change. *Psychotherapy: Theory, Research & Practice, 19*, 276-288. http://dx.doi.org/10.1037/h0088437

Sheehan, K. B. (2001). E-mail survey response rates: A review. *Journal of Computer-Mediated Communication, 6*(2). http://dx.doi.org/10.1111/j.1083-6101.2001.tb00117.x

Warschauer, M. (2004). *Technology and social inclusion: Rethinking the digital divide*. Cambridge, MA: MIT Press.

Weaver, T., Madden, P., Charles, V., Stimson, G., Renton, A., Tyrer, P., . . . Wright, N. (2003). Comorbidity of substance misuse and mental illness in community mental health and substance misuse services. *The British Journal of Psychiatry, 183*, 304-313. http://dx.doi.org/10.1192/bjp.183.4.304

Williams, A. L., & Merten, M. J. (2008). A review of online social networking profiles by adolescents: Implications for future research and intervention. *Adolescence, 43*, 253-274.

Wright, K. B. (2005). Researching Internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of Computer-Mediated Communication, 10*(3). http://dx.doi.org/10.1111/j.1083-6101.2005.tb00259.x

Yarosh, S. (2013). Shifting dynamics or breaking sacred traditions? The role of technology in twelve-step fellowships. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 3413-3422). New York, NY, USA: ACM.

# Appendix A


*Figure A1*. Example advertisement.

# Appendix B

Table B1. *List of online recovery resources listed in the survey with associated frequencies of use*.

| Resource | *N* (%) |
|---|---|
| **Therapeutic resources** | |
| BFO | 18 (18) |
| SMART | 17 (17) |
| 12 step | 24 (24) |
| In the rooms | 10 (10) |
| Other | 30 (30) |
| Total response | 100(100) |
| **Forums** | |
| In2recovery | 18 (18.75) |
| Facebook | 67 (69.79) |
| Twitter | 42 (43.75) |
| Soberistas | 6 (6.25) |
| Club soda | 11 (11.46) |
| Hello Sunday Morning | 2 (2.08) |
| Other | 15 (15.63) |
| Total response | 96 (100) |
| **Information** | |
| NHS | 33 (35.11) |
| DrugScope Daily | 28 (29.79) |
| Deirdre Boyd | 15 (15.96) |
| William White | 29 (30.5) |
| Russell Webster | 11 (11.7) |
| Youtube | 34 (36.17) |
| Drink and Drugs News | 34 (36.17) |
| Film Exchange on Alcohol and Drugs | 13 (13.83) |
| Treatment provider | 22 (23.4) |
| Other | 11 (11.7) |
| Total response | 94 (100) |
| **Harm reduction** | |
| Bluelight | 9 (9.78) |
| EROWID | 18 (19.57) |
| Frank | 21 (22.83) |
| DAN24/7 | 1 (1.09) |
| Know the score | 8 (8.7) |
| Other | 5 (5.43) |
| Total response | 92 (100) |
| **Other** | |
| Family and friends | 21 (22.83) |
| Mental health | 25 (27.17) |
| Total response | 92 (100) |

**Correspondence to:**
Stephanie Dugdale
274 Deansgate
Manchester
England
M3 4JB

Email: sdugdale(at)breakingfreegroup.com

## About authors

**Stephanie Dugdale** is Research Associate at Breaking Free Group, and her current role focuses on expanding the evidence base for Breaking Free Online. She has a background in Health Psychology and is currently studying for a Professional Doctorate in Health Psychology at Staffordshire University, UK.

**Sarah Elison** is a Chartered Psychologist and Research Director at Breaking Free Group, where she leads the ongoing programme of research into the efficacy of Breaking Free Online. She has a background in behavioural science research and an interest in evaluating complex behavioural change interventions.

**Glyn Davies** is Service Development Director at Breaking Free Group. He played an instrumental role in the development of Breaking Free Online. He has an academic background in criminology and criminal justice, and previous experience of the commissioning and delivery of substance misuse and criminal justice services.

**Jonathan Ward** is the Founder and Managing Director of Breaking Free Group. He led the team that developed Breaking Free Online. Previously he practiced as a Clinical Psychologist in the U.K. National Health Service, working primarily in adult mental health.

**Michaela Jones** is in long term recovery and has been active in promoting visible recovery since 2008. As a "recoverist" she is engaged in a variety of roles, with a focus on building sustainable recovery communities.