

## RESEARCH PAPER

# *Efficacy of the Rediscovery Process on Alcohol Use, Impulsivity and Flourishing: A Preliminary Randomised Controlled Study and Preliminary Cohort Study*

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## Abstract

**Background:** Despite developing interest in treatments encouraging flourishing in Substance Use Disorder there is little research on their efficacy.

**Methods:** A preliminary randomised controlled study (wait-list or immediate intervention) (n=72) and cohort study (n= 60) evaluated outcomes in alcohol misusers of The Rediscovery Process (TRP), a flourishing focussed approach, compared to treatment as usual (TAU). Alcohol use, flourishing, impulsivity and recovery capital were analysed pre-, 1 and 3-month post-intervention.

**Results:** The studies found TRP significantly decreased alcohol use and impulsivity, and increased flourishing and some elements of recovery capital, compared to TAU and these changes were maintained at 1 and 3-months post-intervention, compared to pre-intervention.

**Discussion:** Therefore TRP, compared to TAU, significantly improves a range of important alcohol misuse outcomes that are maintained over the 3-month period.

**Conclusions:** These results help bridge the gap between addressing the psychopathology in substance use and the recent interest in increasing flourishing.

**Keywords:** Positive psychology; flourishing; recovery capital; alcohol use; impulsivity.

## Abstract

**Contexte:** Malgré un intérêt croissant pour les traitements encourageant l'épanouissement des troubles liés à l'usage de substances, il existe peu de recherches sur leur efficacité.

**Méthodes:** Une étude préliminaire randomisée contrôlée (liste d'attente ou intervention immédiate) (n = 72) et une étude de cohorte (n = 60) ont évalué les résultats chez les alcooliques du processus de redécouverte (TRP), une approche ciblée florissante, par rapport au traitement comme habituel (TAU). Consommation d'alcool, floraison, impulsivité et capital de récupération ont été analysés avant, 1 et 3 mois après l'intervention.

**Résultats:** Les études ont montré que le TRP réduisait considérablement la consommation d'alcool et l'impulsivité, et augmentait l'épanouissement et certains éléments du capital de récupération, par rapport à la TAU et que ces changements étaient maintenus 1 et 3 mois après l'intervention, par rapport à la pré-intervention.

**Discussion:** Par conséquent, TRP, par rapport à TAU, améliore considérablement une gamme de résultats importants d'abus d'alcool qui sont maintenus au cours de la période de 3 mois.

**Conclusions:** Ces résultats aident à combler le fossé entre le traitement de la psychopathologie dans la consommation de substances et l'intérêt récent pour une croissance croissante.

**Mots clés:** psychologie positive; florissant; capital de récupération; consommation d'alcool; impulsivité.

## INTRODUCTION

Alcohol misuse is included in the current definition of Substance Use Disorders (SUD) in DSM-5 (American Psychiatric Association, 2013). It is identified by alcohol use that continues despite experiencing symptoms as a result and is classified, depending on the number of symptoms present as mild, moderate and severe (with the latter group often being physiologically dependent on alcohol). A variety of systems are utilised for reporting on alcohol use. In England, where this study was undertaken, data is collected on units used rather than symptoms and severity. The 2019 report on alcohol use and misuse in England, identified 21% of adults as drinking at increased or higher risk of harm (consuming more than 14 units of alcohol each week) (NDTMS, 2019). These patterns of drinking can result in poor physical and mental health outcomes, often referred to as the consequences of harmful drinking (NICE, 2011), and can result in the development of a range of social problems, including breakdown of family cohesion, homelessness, violent behaviour and alcohol-related crime, with these last two often being described as consequences of hazardous drinking (Institute of Alcohol Studies, 2006), although the term harmful drinking is often used to include the full range of consequences (NICE, 2010). Approaches for helping those with alcohol issues has moved from a disease-based illness model to a bio-psycho-social one (Kushnir et al., 2016; Peele, 2016). This has resulted in the development of a range of psychological approaches with Cognitive Behaviour Therapy (CBT) combined with Contingency Management (CM), a type of behavioural therapy that encourages 'reinforcement' or rewarding of positive behavioural change (Petty, 2011) being the central approach to drug treatment programmes provided by the National Health Service/Public Health England (NICE, 2007).

An extensive evidence base for CBT for health issues has developed, with a review of 269 meta-analyses (Hofmann et al., 2012) supporting CBT's value for a wide range of psychological issues, including SUD. Reviews specifically focused on CBT in SUD (Dutra et al., 2008; Magill & Ray, 2009; McHugh et al., 2010) found evidence of moderate to small efficacy for the approach. More recent RCTs have focused on specific interest groups, identifying CBT efficacy for issues such as alcohol misuse and domestic violence (Easton et al., 2017) and newer methods of delivery such as web-delivered CBT (Acosta et al., 2017). Critiquing CBT, Gilbert (2009) urges some caution of over-reliance on CBT noting that despite its recent dominance

in psychotherapy, with proponents citing the wealth of evidence supporting CBT, the NICE guidelines (NICE, 2019) do not support the superiority of CBT over all other interventions, except with respect to some anxiety disorders. A meta-analysis (Powers et al., 2008) also notes that other behavioural couples therapy showed a greater effect size for alcohol use than CBT. Additionally, a review of meta-analyses (Hofmann et al., 2012) found that although effective for treating some classes of drug use (cannabis and nicotine) CBT was comparatively less effective for alcohol use issues, although no effect sizes were reported and a Cochrane review on psychosocial interventions in SUD refrained from a conclusion on CBT due to the paucity and low quality of studies in the field (Klimas et al., 2013).

Although the CBT/CM approaches are central to most specialist services those programmes are often supplemented by other approaches including medication, Motivational Interviewing (MI) (Miller, 1983), 12 step approaches (Kendra et al., 2015) and more recently mindfulness approaches (Bowen et al., 2017). These supplemental approaches are also reported to have variable outcomes and levels of acceptance by those with alcohol use issues (Reynolds et al., 2015; UKATT Research Team, 2005). Additionally, those consuming more than 14 units of alcohol each week, are estimated to make up 21% of England's adult population (NDTMS, 2019), yet only 0.19% of England's adult population (NDTMS, 2019; Office for National Statistics, 2019) accessed specialist care for alcohol issues, as a result, many use a mix of approaches including self-help and 12 step programmes instead of or in addition to structured specialist care to address their issues (Drummond et al., 2005). The resultant combination of the wide range of approaches adopted by those misusing alcohol, mentioned above, is a recognised feature in research into alcohol issues and is termed receiving 'Treatment As Usual' (TAU) (Bowen et al., 2014; Litten et al., 2015).

### The recovery agenda and flourishing approaches

The variable success experienced by those seeking help with SUD from drug services in the UK (NDTMS, 2017), together with the reported uniformity of response to current approaches (consisting of CBT, 12-step facilitation therapy (TSF), Motivational Enhancement Therapy (MET), or social and behavioural network therapy (SBNT)) (Dale et al., 2017; Maisto et al., 2015; UKATT Research Team, 2005) and the concerns raised about the efficacy of CBT suggest that new concepts in treatments are required.

This has led to the rising importance of a recovery agenda

(HM Government, 2017) and positive psychology concepts in SUD (Krentzman, 2013). Positive psychology's approach to SUD includes a focus on encouraging flourishing, defined as "filled with emotional vitality...functioning positively in the private and social realms of their lives" (Keyes & Haidt, 2007, p. 6), in addition to a focus on reducing negative variables such as impulsivity and substance use. However, as identified in two recent systematic reviews on the subject, there is little research into the value of flourishing in SUD (Parker, Banbury, et al., 2018) or on approaches designed to increase flourishing and reduce substance use (Krentzman, 2013).

Additionally, there are issues with the use of the term flourishing in research, as it has been used interchangeably with well-being and happiness (Hone et al., 2014). This has resulted in research that focuses on the components of flourishing, i.e. the levels of hedonic well-being (the desire for pleasure and happiness) or eudaimonic well-being (the cultivation of personal strengths and contribution to the greater good) rather than on the investigation of the comprehensive state of flourishing (Schotanus-Dijkstra, Pieterse, et al., 2016). This has resulted in findings that are difficult to compare due to the various operationalisations of 'flourishing' used (Hone et al., 2014). As suggested by Hone's review (2014), for clarity in this paper the term flourishing is used to represent the combined presence of 'hedonic and eudaimonic wellbeing components' (Henderson & Knight, 2012, p. 196). This distinguishes it from the more general term 'wellbeing' which has a range of various conceptualised measures, as identified in the paper reviewing 99 measures of wellbeing (Linton et al., 2016).

Additionally, some caution has also been identified by those working in the SUD field concerning the adoption of positive psychology approaches. The main concern was that this new focus on increasing flourishing might decrease the time and resources available for delivering impulsivity reducing approaches (Krentzman & Barker, 2016). However, a recent paper that identified a strong significant negative correlation between impulsivity and flourishing, suggests the aims of both approaches are interrelated (Parker, 2019).

### Research aims

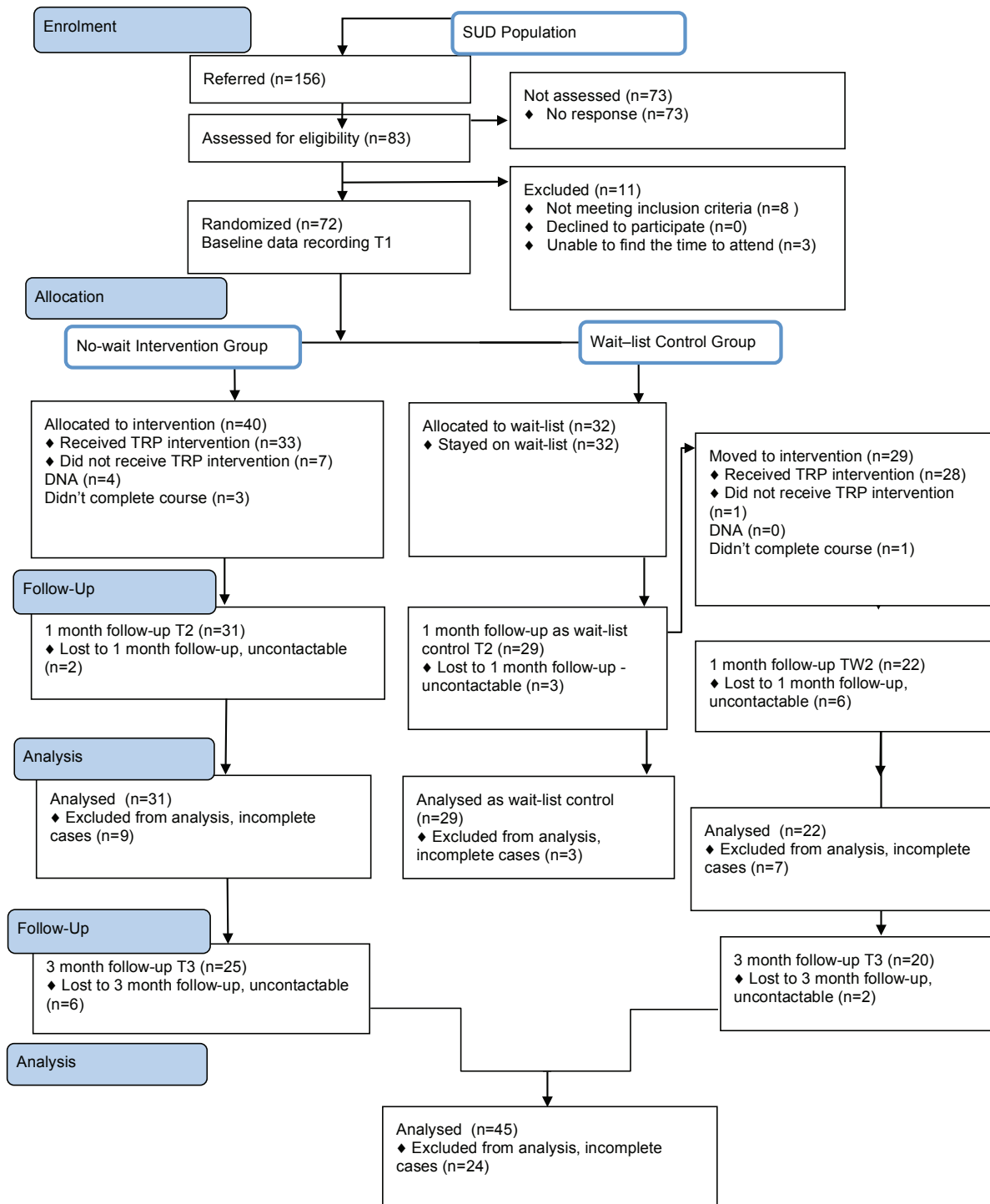
To address this lack of evidence and reported caution of flourishing focused positive psychology approaches to alcohol misuse, this study evaluated the efficacy of a recovery and flourishing focussed, self-coaching approach, The Rediscovery

Process (TRP) for reducing self-reported alcohol use. The TRP is a development of the Lightning Process (LP), an approach focused on improving outcomes for those with a range of chronic health disorders (Crawley et al., 2013, 2018). It was developed in response to a request from a drug service to design a version of the LP to attempt to reduce alcohol and substance use and improve recovery outcomes, using a recovery and flourishing focused approach, for those with a range of SUD.

The TRP is a flourishing focused psycho-social training programme aiming to train individuals to make more useful choices, especially around alcohol and substance use, based on the concept of meta-cognitive self-appraisal (Toneatto, 1999, 2003) and utilising the window of opportunity to interrupt unconscious impulsive pathways (Obhi & Haggard, 2004; Tomassini et al., 2012) to activate new more creative pathways as suggested by the broaden and build concept (Fredrickson, 2004). It encourages the participant to develop a compassionate self-coaching relationship towards themselves, which has the potential to create a sense of empowerment by shifting the locus of control back to the client (Haynes & Ayliffe, 1991; Horvath & Yeterian, 2012), developing self-compassion (Neff et al., 2007) and increasing the individual's sense of options (Fredrickson, 2004). It is delivered in small groups (<5) by external trainers registered to deliver the programme, on three consecutive days, with each session lasting 3 hours. The training involves taught elements focusing on the concepts mentioned above combined with specific tools to put the concepts into practice. These include 'thought interrupting' techniques (Monk, Trafton, & Boehm-Davis, 2008; Westbrook et al., 2010), self-reflection and re-vivification of appropriate desired states (Speer, Bhanji, & Delgado, 2014; Speer & Delgado, 2017). It differs from other standardly used psycho-social approaches in SUD, such as CBT, MI and mindfulness approaches, with its focus on how language impacts neurological activity, the use of somatic learning to assist changing habitual pathways, directed re-vivification of memories to reactivate valuable affective states and its delivery structure of 3 hour sessions on three consecutive days and follow up sessions of one hour for three weeks (Parker, Aston, et al., 2018).

With the exception of a small scale proof of concepts study for its use in SUD (Parker, 2013), where the participants had substance and/or alcohol misuse issues, and an association study of impulsivity and flourishing in those attending the TRP intervention (Parker, 2019), little research has been published on its efficacy for those with alcohol use issues. Therefore, a Preliminary Randomised

Figure 1: Consort flowchart with numbers



Controlled Study (PRCS) and a preliminary cohort study were designed to address these gaps in the evidence base.

The primary hypothesis was that the TRP would reduce the amount of self-reported alcohol use compared to TAU. The secondary hypotheses were that the TRP would (1) increase self-reported flourishing and recovery capital; (2) reduce self-reported impulsivity compared to TAU; (3) that outcomes would be independent of referral route (self-referred or service referred).

## METHODS

### Design

A multi-site single-blinded PRCS with an active intervention group receiving TRP and a waitlist group receiving TAU was undertaken to compare changes in alcohol usage, flourishing, impulsivity and recovery capital, for those in each arm. The trial was designed and reported according to the guidelines of the Consolidated Standards of Reporting Trials (CONSORT) (Schulz et al., 2010).

### Participants

156 adults with alcohol misuse issues were recruited between January 2013 and July 2017 (Figure 1) from drug service and by self-referral through social media advertising. Their level of alcohol consumption was assessed by the use of Treatment Outcomes Profile (TOP) forms (Marsden et al., 2008). This was used in preference to the DSM-V categories of mild/moderate/severe, as this is the data standardly used by the National Drug Treatment Monitoring Service to report alcohol use data for the UK Government (NDTMS, 2017).

The service-referred sample was recruited through Cumbria Alcohol Drugs Advisory Service (CADAS) in Carlisle and Barrow-in-Furness. To include those who may not normally attend specialist services (Drummond et al., 2005), self-referral participants were recruited by advertisements on social media platforms. Participants were required to be in the contemplation or action stage of change (DiClemente et al., 1999) ascertained by interview by keyworkers and researchers using a standard check sheet, prior to recruitment.

Those with significant mental health issues that affected their comprehension, such as psychosis, and those with physiological dependence on alcohol, were excluded, however, those with dual diagnosis, often found in those with SUD (Camacho et al., 2016; Gournay, 2016), were not excluded. Clients whose English was insufficient, or who did not have the capacity as defined by the

Mental Capacity Act 2005 (Department of Health, 2005) were also excluded.

Of the 156 participants recruited 73 were unresponsive to further communication; 8 did not fit the inclusion criteria and 3 were unable to attend due to timing issues. This resulted in a convenience sample for the PRCS of 72 participants (mean age of 34.88 ( $SD = 9.04$ ), 42 female, 30 male, referred via substance use service  $n = 17$ , self-referred  $n = 55$ ) with no significant difference in alcohol usage identified between the two referral groups.

This sample also provided participants for the cohort study, which evaluated the maintenance of outcomes over a 3 month period of the entire cohort (IIG plus WLJ after attending the TRP), once all participants had attended the intervention. The sample was reduced due to attrition during the waitlist period ( $n = 69$ , mean age 34.87 ( $SD = 10.34$ ), 39 female, 30 male)).

### The intervention and control groups

TAU was used as the control. As outlined earlier the term TAU is used to reflect the well-recognised use of a combination of interventions by drug services and users to address substance issues, including CBT/CM, MI, 12 step programmes, mindfulness, self-help techniques and 12 step approaches (Bowen et al., 2014; Litten et al., 2015; Substance Abuse and Mental Health Services Administration (US), 2004).

The TRP, also described earlier, was used as the active additional intervention. Registered TRP trainers, with a minimum of five years' experience of delivering the programme in a clinical environment, delivered the seminars on the participating services' premises or in external training rooms.

### Materials

Data on the primary outcome of alcohol usage (days and amounts) and of recovery capital (psychological and physical health, quality of life (QOL), days at work or college and housing issues) were collected using the TOP form (Marsden et al., 2008). The items that appear in the TOP form have been psychometrically evaluated and demonstrated an acceptable level of reliability and validity and the intraclass correlation coefficients for Cohen's kappa for dichotomous measures and scale measures were equal to or greater than 0.61 and 0.75, respectively (Marsden et al., 2008).

Data on flourishing were collected using the Flourishing Scale (Diener et al., 2010) an 8-item measure of an individual's self-perceived success in important areas such as relationships,



self-esteem, purpose, and optimism. High scores signify that the individual views themselves in positive terms in these important areas of functioning. The measure has good psychometric properties with the Cronbach's alpha of .87 (Diener et al., 2010).

Data on impulsivity was measured using the impulsivity section of the Low Self-Control Measure (LSC) (Grasmick et al., 1993). The LSC has been well-validated, with a strong Cronbach's alpha of .79. (Grasmick et al., 1993).

### Procedures

Pragmatic randomisation was employed to avoid high attrition levels common in this population as recommended by other authors (Hotopf, 2002; Loveland & Driscoll, 2014; Northrup et al., 2017). This procedure allocated a participant to the Immediate Intervention Group (IIG) ( $n = 32$ ) if they were recruited within a week prior to the next available seminar, or to the Wait-List Group (WLG) ( $n = 40$ ) if they were recruited more than a week prior to a seminar.

Participants were considered to be non-completers if they failed to attend two arranged seminars or did not respond to four attempts to contact them to collect data.

After randomisation all participants received an information pack, containing their seminar date, consent and self-report forms, which collected baseline data. The IIG took the seminar within the week and data from both groups were collected a month later. The WLG then received the TRP.

Once all participants had attended the intervention the preliminary cohort study evaluated the outcomes, as previously set out in the materials sections, and variance in those outcomes from referral route, at pre, 1 month, 3 months post-intervention of the entire cohort (IIG plus WLG after attending the TRP) (See Figure 1).

The fidelity of the intervention was maintained by using an un-editable set of presentation materials delivered by trainers and a standardised manual for participants.

Reflexivity procedures as suggested by researchers (Curzer & Santillanes, 2012; Rhodes & Coomber, 2010) were implemented by the co-researchers to reduce any influence of the dual role taken by one of the researchers (PP), who was also the designer of the TRP intervention, as noted by others (Pannucci & Wilkins, 2010). To this end, Green and Thorogood's (2004) standards of rigour, which include transparency, reliability of credibility, validity, comparability and reflexivity, were used as a guide to design a series of strategies, to ameliorate these issues.

Ethics approval was obtained from the London Metropolitan University Ethics Board and data were collected via a range of options (by post, face to face with key-workers or online) in adherence to British Psychological Society guidelines for internet-mediated research (IMR) (British Psychological Society, 2013).

### DATA ANALYSIS

#### Sample size

Calculating power in studies where there is little published data on previous trials, such as in this case, is recognised to provide research challenges (Röhrig et al., 2010). A priori power was calculated using g-power (Faul et al., 2009). As the earlier proof of concepts study showed a large effect (Parker, 2013) pre and post-intervention an estimated effect size of 0.76 was used for the PRCS, with an  $\alpha$  error probability set to 0.05, and power of 0.80 and g-power returned a calculation of a total sample size of 60, shared equally between the immediate intervention and control group with an actual power of 0.80. The effect size of sustainability of outcomes was estimated to be smaller from the proof of concepts study and an effect size of 0.42 was used with an  $\alpha$  error probability set to 0.05, and power of 0.80 and g-power returned a calculation of a total sample size of 42 for both the within and within/between analysis, shared equally between the immediate intervention and control group with an actual power of 0.80.

#### Attrition rates

These were measured for those completing baseline data but leaving the project at 1 month or 3 months.

#### Statistical methods

The data from the studies were analysed using SPSS v25 (IBM Corp, 2017) 1) as a mixed analysis to compare the effects of the intervention on the immediate intervention group and the one month waitlist group (between groups) at baseline and 1 month (within groups); 2) as a mixed analysis to compare the effects of the referral route into the study (between groups) on outcomes, at pre-course, 1 month and 3 months (within groups); 3) as a repeated measures analysis (within groups) to identify if the effects of the intervention were sustained over a 3 month post-intervention period.

Parametric tests were employed for normally distributed data and non-parametric tests were used for non-normally distributed data. A complete case (CC) analysis was adopted as

recommended in cases of substantial attrition, commonly found in SUD research (Mukaka et al., 2016).

Significance level was set at 2-tailed  $P$  value  $< .05$ . Results are reported as median ( $Mdn$ )  $\pm$  interquartile range (IQR) for non-normally distributed data, mean ( $M$ )  $\pm$  standard deviation ( $SD$ ) for normally distributed data or percentage/number unless specified otherwise.

## RESULTS

### Reliability of the measures

A Cronbach's alpha test was undertaken to assess the reliability of each of the multiple-item measures used at each time point for the current sample (Low self-control scale (Marsden et al., 2008) and Flourishing scale (Diener et al., 2010)). The reliability of the TOP form (Marsden et al., 2008) cannot be assessed with a Cronbach test due to its single-item scales and dichotomous items. Instead prior reported test-retest reliability results were used (Marsden et al., 2008) to validate its reliability as previously reported in the *materials* section.

At baseline the Low self-control scale returned a Cronbach's alpha value of 0.691 suggesting acceptable reliability; the Flourishing scale returned a Cronbach's alpha value of 0.931 suggesting excellent reliability.

At 1-month Low self-control scale returned a Cronbach's alpha value of 0.780 suggesting good reliability; the Flourishing scale returned a Cronbach's alpha value of 0.886 suggesting good reliability.

At 3 months Low self-control scale returned a Cronbach's alpha value of 0.637 suggesting acceptable reliability; the Flourishing scale returned a Cronbach's alpha value of 0.906 suggesting good reliability.

### Attrition rates

Attrition affected both IIG (remaining = 31, non-attendance = 7, not-contactable = 2) and WLG (remaining = 29, not-contactable = 3). This provided a sample of 60 (male = 23, female = 37, mean age = 34.8  $SD$  = 10.68) who completed data at both baseline and 1 month time points. Randomisation appeared to be successful with no significant difference in any of the measures between either group in the PRCS at baseline. The cohort outcomes were collected at baseline ( $n$  = 69, WLG = 29, IIG = 40) at 1 month ( $n$  = 53, WLG = 22, IIG = 31) and 3 months ( $n$  = 45, WLG = 20, IIG = 25). Therefore, in the PRCS, attrition rates were 16.7% but

increased in the cohort study to 23.1% at 1 month and 34.7% at 3 months.

Attrition rates were evaluated by gender, age, substance use, recovery capital, impulsivity and flourishing levels at baseline to identify if there were differences in the completing or non-completing populations.

Baseline QOL were significantly different between those completing the study ( $Mdn$  = 14(7)) and those dropping out at any point ( $Mdn$  = 10(10));  $U$  = 422.5  $p$  = 0.031  $r$  = 0.25. When analysed by those leaving the study by 1 month, a significant difference was found, between completer ( $Mdn$  = 14(7)) and non-completers ( $Mdn$  = 10(10))  $U$  = 308  $p$  = 0.012,  $r$  = 0.29, identifying lower QOL at baseline amongst non-completers at both stages.

Baseline flourishing was significantly different for those non-completing at 1 month between completers ( $Mdn$  = 38(16)) and non-completers ( $Mdn$  = 32(17)),  $U$  = 298  $p$  = 0.009  $r$  = 0.31 but was not significantly different for those leaving at all timepoints.

A significant association at baseline was observed between gender and non-completion  $\chi^2(1)$  = 6.00,  $p$  = 0.014, for those non-completing overall, with more males non-completing, but no significant association between gender and non-completion was observed for those leaving at 1 month.

For all other measures; usage of alcohol, age, referral route or treatment or waitlist group; levels of impulsivity, psychological and physical health; and college or working days there was no significant difference between the completer or non-completer group, in either of the evaluations.

### Alcohol use outcomes

Alcohol usage was not significantly different between both groups at baseline but was reduced significantly between baseline and 1 month in the intervention compared to the control group (see Table 1) reporting a Mann Whitney  $U$  = 246.0,  $p$  = .003,  $r$  = .39. A Friedman test of differences reported a statistically significant reduction in alcohol use over the three time periods, and post hoc tests ( $p$  < 0.17) identified a significant difference between alcohol use at pre-intervention and 1 month which was maintained at 3 months (Table 2).

### Flourishing and impulsivity outcomes

Flourishing scores increased significantly between baseline and 1 month for those in the intervention compared to the control group, reporting a Mann Whitney  $U$  = 244.5,  $p$  = .002,  $r$  = .39

Table 1. Mean ranks, Mann Whitney U, *p*, *r* values for PRCS

Outcome	PRCS		Median at baseline IIG (IQR), n = 32	Median at 1 month IIG (IQR), n = 29	Mann-Whitney U	<i>p</i> value	<i>r</i> value
	Median at baseline WLG (IQR), n = 40	Median at 1 month WLG (IQR), n = 31					
Alcohol	132 (255)	140 (273)	55 (280)	30 (140)	246	0.003	0.39
Flourishing	33 (13)	37 (17)	39 (19)	45 (14)	244.5	0.002	0.39
Psychological Health	11 (7)	10 (5)	12 (5)	15 (5)	242.5	0.002	0.4
Physical Health	12 (6)	10 (8)	11 (8)	15 (6)	303.5	0.03	0.28
QOL	13 (6)	11 (8.5)	15 (7)	15 (7)	274	0.009	0.34
Days at Work	5 (28)	2 (12.50)	0 (20)	0 (17)	444.5	0.936	0.01
Days at College	0 (0)	0 (0)	0 (0)	0 (0)	446.5	0.918	0.01

Table 2. Cohort study: means (SD) at baseline, 1 and 3 months,  $\chi^2$ , *p* values

Outcome	Cohort study			Friedman test $\chi^2$	Friedman test <i>p</i>
	Mean at baseline (SD), n = 69	Mean at 1 month (SD), n = 53	Mean at 3 months (SD), n = 45		
Alcohol	184 (214)	144 (385)	121 (183)	11.6	0.003
Flourishing	38 (10.20)	46 (8.08)	43 (7.54)	17.51	< .001
Psychological Health	10 (4.12)	15 (4.35)	15 (4.40)	27.68	< .001
Physical Health	11.2 (4.43)	13.8 (3.92)	13.2 (14.40)	9.05	0.01
QOL	12.6 (4.77)	13.4 (4.95)	11.4 (6.54)	2.3	0.31
Days at Work	8.49 (9.56)	9.27 (9.53)	9.33 (10.23)	2.58	0.27
Days at College	0.40 (1.21)	0.56 (3.00)	0.38 (1.50)	0.33	0.85
Impulsivity	11 (10.20)	8 (8.08)	8 (7.54)	20.61	< .001

Table 3: Means and standard deviations (SD) of impulsivity scores for intervention and wait groups at baseline and 1 month

Time point	Intervention	SD	Wait	SD
Baseline	11.1	3.07	11.2	3.00
1 month	9.29	3.20	11.3	2.51



(see Table 1). A Friedman test of differences reported a statistically significant increase in flourishing over the three time periods and post hoc tests ( $p < 0.17$ ) identified a significant difference between flourishing at pre-intervention and 1 month which was maintained at 3 months (Table 2).

A mixed-design 2 by 2 ANOVA identified a significant interaction between time and control/intervention group for impulsivity scores ( $F(1, 58) = 5.99, p = .017, \eta^2 p^2 = .094, d = 0.70$ ). Mean scores decreased for the intervention group and increased for the control group, as reported in Table 3.

Follow up paired sample t-tests identified that IIG impulsivity scores were significantly lower at 1 month than baseline  $t(30) = 2.68, p = .012, d = .58$ . No significant difference was found,  $t(28) = -.43, p = .67$ , between WLG baseline and 1 month impulsivity scores.

Independent sample t tests analysed differences in impulsivity scores between the IIG and WLG groups at both time points. No significant difference was found between the groups at baseline  $t(58) = -.074, p = .94$ . At 1 month impulsivity scores for the IIG were significantly lower than in WLG,  $t(58) = -2.76, p = .008$ , Hedges  $g = .71$ .

A Friedman test of differences reported a statistically significant decrease in impulsivity over the three time periods,  $\chi^2(2) = 20.605, p < .001$ . Post hoc tests ( $p < 0.17$ ) identified there was a significant difference between impulsivity use at pre-and 1 month post-intervention which was maintained at 3 months.

### Recovery capital outcomes

Psychological and physical health and QOL increased significantly at 1 month for those in the intervention compared to the control group (Table 1). The significant change was maintained in psychological health at 1 and 3 months, compared to baseline. Results were less clear for physical health which showed that there was no significant difference between 1 and 3 months ( $Z = -1.026, p = .30$ ) but there was also no significant between different pre-intervention and 3 months post-intervention ( $Z = -2.322, p = .020, r = .35$ ). QOL was not statistically significantly different over the three time periods, and no significant change was noted in days at college or work in the control period or the 3 month period and there was not enough data returned on housing issues, for analysis (Table 2).

### Variation by referral route

The cohort study outcomes were analysed for variance by referral route and no significant difference was reported in any

of the measures, with the exception of a significant difference in impulsivity at 1 month  $U = 78, p = .004, r = .43$  (self  $Mdn = 7$  (3), service  $Mdn = 11$  (4)), and QOL at 3 months  $U = 109.5, p = .038, r = .31$  (self  $Mdn = 12$  (15), service  $Mdn = 15$  (5)).

## DISCUSSION

This is the first PRCS and cohort study into TRP. It aimed to evaluate if TRP could reduce the amount of self-reported alcohol use, reduce self-reported impulsivity and increase self-reported flourishing for those with alcohol misuse issues compared to TAU, and if there were any differences due to referral route into the study. It found that the hypotheses were partially supported with those receiving the intervention reporting significantly changed alcohol usage, impulsivity, flourishing and elements of recovery capital compared to those who received substance misuse management approaches as usual. Improvements in alcohol usage, flourishing, impulsivity, and psychological health were significantly maintained over time, and there was little variance due to referral route.

Although this is a preliminary study, with a small sample, the significant changes in reduced alcohol usage from this intervention compared to those accessing usual services or self-help methods suggest that this new approach may have value in helping address the core issue of low recovery rates for those with SUD (NDTMS, 2016). Additionally, the time required for delivery of the TRP compares well to that of intervention delivery in drug treatment services. The TRP outcomes appear to be as a result of a briefer, three 3-hour sessions, intervention compared to those accessing more prolonged interventions (average time in drug services treatment is 203 days (NDTMS, 2017)) from TAU. There are, however, issues with this comparison, as those with current physiological dependence on alcohol (often categorised as 'severe') were excluded from this study, and it is difficult to identify how similar the samples are as the NDTMS reports on 'days used' rather than the 'units used' in this study. Other studies have reported 'units used'. One study, on mindfulness approaches to alcohol use, found a significant reduction in alcohol use in those receiving ultra-brief 11 minute mindfulness compared to relaxation (Kamboj et al., 2017), however, the data are difficult to also directly compare with mindfulness reducing use from a mean of 9.3 to 3 units, over the 7 day study period, and in this study TRP reducing from a median of 55 to 30 units.

The improvements in impulsivity identify the approach may

be of use in affecting this factor linked to the development and maintenance of SUD (Gullo et al., 2014; Tomassini et al., 2012; Winhusen et al., 2013). These findings also add weight to the theory that impulsivity is changeable (Chen, 2006; Littlefield et al., 2015) and not a mainly static trait (Barratt, 1975).

This study into this flourishing-focused intervention, derived from positive psychology concepts, helps support the value of positive psychology approaches in SUD (Keyes, 2006; McGaffin et al., 2015; Schotanus-Dijkstra, ten Have, et al., 2016) by reporting on the TRP's ability to achieve changes in both flourishing and to reduce alcohol use. As a result, it helps to begin to address some of the key concerns highlighted by researchers and clinicians as to how positive psychology approaches might work alongside a psychopathology model of SUD (Krentzman, 2015; Krentzman & Barker, 2016).

### Limitations

Difficulties with the recruitment of participants from drug service partners resulted in an imbalance in sample sizes, with a potential for sample bias (service participants  $n = 14$ , self-referred  $n = 31$ ). Recruiting non-service users achieved an important research goal of reaching those 10% not engaged with specialist services (Drummond et al., 2005), yet raised an issue of homogeneity of the sample, and the possibility that an effect was due to engagement with a caring professional in those not using specialist services. Further research of these sub-groups would clarify these effects, however, neither of these limitations appeared to have affected the data which when analysed identified there was no difference in outcomes due to referral route.

The influence of other potential issues of homogeneity was considered, including the effect of the TUA group and the self-report of alcohol misuse. However, the researchers felt that as this control group is standardly used and well defined in the field of SUD (Bowen et al., 2014; Litten et al., 2015; Substance Abuse and Mental Health Services Administration (US), 2004) and the standard practice in drug services and in governmental drug treatment monitoring service of using self-report as a method of evaluating changes in usage, (NDTMS, 2017) it was reasonable to adopt these methodologies.

Issues with the absence of entire sets of data from individuals in SUD research are widely reported (Loveland & Driscoll, 2014; McGaffin et al., 2015) and were present in this study. A complete case (CC) analysis was adopted to address this (Mukaka et al., 2016), which reduced the sample size, raising the possibility of

type two errors, and the potential of a single individual's response affecting the data for the group as a whole (Faber & Fonseca, 2014), however, the power calculations showed the sample size was still adequate to power the study.

Issues concerning the incomplete representation of all categories of alcohol usage in the sample (particularly the exclusion of those with psychological dependence) might affect the wider clinical significance of this preliminary study. Further research with a group representative of all those in alcohol treatment service would be of value in identifying the application the intervention more clearly.

The use of the Flourishing Scale (Diener et al., 2010) provided a valuable and easy to complete measurement tool. However, as is common in developing fields, the most appropriate way to operationalise flourishing is still in debate, with variations in results reported from using the differing conceptualisations (Hone et al., 2014; Huta & Waterman, 2014). Although the flourishing scale is well-validated and frequently used, this potential limitation needs to be factored into the consideration of the representativeness of the flourishing scores.

### Implications

Further research is suggested to evaluate the intervention more fully. That research would benefit from a larger sample ( $n > 200$ ), of a population matched with those in alcohol treatment. It would benefit from having 3 arms including an intervention arm, a control group with a well-defined treatment regime, and a further control group uninvolved in the study using the same well-defined treatment, a 3 month control period, a 6 and 12 month follow up period and an evaluation of the comparative cost-effectiveness.

The current study also has three main implications for clinicians and drug services. Firstly, it adds to the evidence base of the importance of flourishing in alcohol treatment and may promote further research and more inclusion of that concept in the field. Secondly, it identifies that an intervention addressing flourishing contributes to changes in recovery capital, impulsivity and alcohol usage. This supports the concept that positive psychology approaches can assist, rather than distract from, the desired outcomes of psychopathological focused approaches to SUD. Thirdly, it provides evidence supporting the efficacy of a new brief approach to address both the psychopathology of SUD and the positive psychology agenda of increasing flourishing.

## CONCLUSION

This study found a new approach to SUD significantly changed alcohol use, impulsivity, flourishing and elements of recovery capital compared to substance misuse approaches as usual. These changes were maintained over time and were largely independent of the referral route to the study. These findings support the inclusion of this approach within the range of current positive psychology interventions. It is hoped that this study will encourage further research and a wider adoption of the flourishing concept and this new approach, in alcohol treatment. ■

## Citation

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## References

- Acosta, M. C., Possemato, K., Maisto, S. A., Marsch, L. A., Barrie, K., Lantinga, L., Fong, C., Xie, H., Grabinski, M., & Rosenblum, A.** (2017). Web-delivered CBT reduces heavy drinking in OEF-OIF veterans in primary care with symptomatic substance use and PTSD. *Behavior Therapy*, 48(2): 262-276. <https://doi.org/10.1016/j.beth.2016.09.001>
- Altmann, E. M., & Trafton, J. G.** (2007). Timecourse of recovery from task interruption: Data and a model. *Psychonomic Bulletin & Review*, 14(6): 1079-1084.
- American Psychiatric Association.** (2013). DSM-5. [http://www.dsm5.org/Documents/Substance Use Disorder Fact Sheet.pdf](http://www.dsm5.org/Documents/Substance%20Use%20Disorder%20Fact%20Sheet.pdf)
- Barratt, E. S.** (1975). *Barratt impulsiveness scale*. Barratt-Psychiatry Medical Branch, University of Texas.
- Bowen, S., De Boer, D., & Bergman, A. L.** (2017). The role of mindfulness as approach-based coping in the PTSD-substance abuse cycle. *Addictive Behaviors*, 64: 212-216. <https://doi.org/10.1016/j.addbeh.2016.08.043>
- Bowen, S., Witkiewitz, K., Clifasefi, S. L., Grow, J., Chawla, N., Hsu, S. H., Carroll, H. A., Harrop, E., Collins, S. E., Lustyk, M. K., & Larimer, M. E.** (2014). Relative efficacy of mindfulness-based relapse prevention, standard relapse prevention, and treatment as usual for substance use disorders: A randomized clinical trial. *JAMA Psychiatry*, 71(5): 547-556. <https://doi.org/10.1001/jamapsychiatry.2013.4546>
- British Psychological Society.** (2013). *Ethics guidelines for internet-mediated research*. <https://beta.bps.org.uk/news-and-policy/ethics-guidelines-internet-mediated-research-2013>
- Camacho, R. C., Chavez, L., Villar, A., Vidal, C., Polo, R., Baca-García, E., & Alegria, M.** (2016). Understanding discrepancies in the prediction of mental health, substance use and dual disorders. Implications from a multi-site international study. *European Psychiatry*, 33: S642-S643. <https://doi.org/10.1016/j.eurpsy.2016.01.1904>
- Chen, G.** (2006). Natural recovery from drug and alcohol addiction among Israeli prisoners. *Journal of Offender Rehabilitation*, 43(3): 1-17. [https://doi.org/10.1300/J076v43n03\\_01](https://doi.org/10.1300/J076v43n03_01)
- Crawley, E., Gaunt, D., Garfield, K., Hollingworth, W., Sterne, J., Beasant, L., Collin, S. M., Mills, N., & Montgomery, A. A.** (2018). Clinical and cost-effectiveness of the Lightning Process in addition to specialist medical care for paediatric chronic fatigue syndrome: Randomised controlled trial. *Archives of Disease in Childhood*, 103: 155-164. <https://doi.org/10.1136/archdischild-2017-313375>
- Crawley, E., Mills, N., Hollingworth, W., Deans, Z., Sterne, J., Donovan, J., Beasant, L., & Montgomery, A.** (2013). Comparing

specialist medical care with specialist medical care plus the Lightning Process® for chronic fatigue syndrome or myalgic encephalomyelitis (CFS/ME): Study protocol for a randomised controlled trial (SMILE Trial). *Trials*, 14: 444. <https://doi.org/10.1186/1745-6215-14-444>

**Dale, V., Heather, N., Adamson, S., Coulton, S., Copello, A., Godfrey, C., Hodgson, R., Orford, J., Raistrick, D., Tober, G., & others.** (2017). Predicting drinking outcomes: Evidence from the United Kingdom Alcohol Treatment Trial (UKATT). *Addictive Behaviors*, 71: 61-67. <https://doi.org/10.1016/j.addbeh.2017.02.023>

**Department of Health.** (2005). *Mental Capacity Act 2005*. <http://www.legislation.gov.uk/ukpga/2005/9/contents>

**DiClemente, C. C., Bellino, L. E., & Neavins, T. M.** (1999). Motivation for change and alcoholism treatment. *Alcohol Research and Health*, 23(2): 87-92.

**Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biwas-Diener, R.** (2010). New measures of well-being: Flourishing and positive and negative feelings. *Social Indicators Research*, 39: 247-266. <https://doi.org/10.1007/s11205-009-9493-y>

**Drummond, C., Oyefeso, A., Phillips, T., Cheeta, S., Deluca, P., Perryman, K., Winfield, H., Jenner, J., Cobain, K., Galea, S., Saunders, V., Fuller, T., Pappalardo, D., Baker, O., & Christouopoulos, A.** (2005). Alcohol Needs Assessment research project (ANARP): The 2004 national Alcohol Needs Assessment for England: (624392007-001) [Data set]. *American Psychological Association*. <https://doi.org/10.1037/e624392007-001>

**Dutra, L., Stathopoulou, G., Basden, S. L., Leyro, T. M., Powers, M. B., & Otto, M. W.** (2008). A meta-analytic review of psychosocial interventions for substance use disorders. *The American Journal of Psychiatry*, 165(2): 179-187. <https://doi.org/10.1176/appi.ajp.2007.06111851>

**Easton, C. J., Crane, C. A., & Mandel, D.** (2017). A randomized controlled trial assessing the efficacy of cognitive behavioral therapy for substance-dependent domestic violence offenders: An integrated substance abuse-domestic violence treatment Approach (SADV). *Journal of Marital and Family Therapy*. <https://doi.org/10.1111/jmft.12260>

**Faber, J., & Fonseca, L. M.** (2014). How sample size influences research outcomes. *Dental Press Journal of Orthodontics*, 19(4): 27-29. <https://doi.org/10.1590/2176-9451.19.4.027-029.ebo>

**Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G.** (2009). Statistical power analyses using G\* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4): 1149-1160. <https://doi.org/10.3758/BRM.41.4.1149>

**Faymonville, M.-E., Boly, M., & Laureys, S.** (2006). Functional neuroanatomy of the hypnotic state. *Journal of Physiology-Paris*, 99(4-6): 463-469. <https://doi.org/10.1016/j.jphysparis.2006.03.018>

**Fredrickson, B. L.** (2004). The broaden-and-build theory of positive emotions. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 359(1449): 1367-1378. <https://doi.org/10.1098/rstb.2004.1512>

**Gilbert, P.** (2009). Moving beyond cognitive behaviour therapy. *The Psychologist*, 22(5): 400-403.

**Gournay, K.** (2016). Reflections on 20 years of dual diagnosis research. *Journal of Psychiatric and Mental Health Nursing*, 23(5): 243-244. <https://doi.org/10.1111/jpm.12305>

**Grasmick, H. G., Tittle, C. R., Bursik, R. J., & Arneklev, B. J.** (1993). Testing the core empirical implications of Gottfredson and Hirschi's general theory of crime. *Journal of Research in Crime and Delinquency*, 30(1): 5-29. <https://doi.org/10.1177/0022427893030001002>

**Grinder, J., & Bandler, R.** (1981). *Trance-formations*. Real People Press.

**Gullo, M. J., Loxton, N. J., & Dawe, S.** (2014). Impulsivity: Four ways five factors are not basic to addiction. *Addictive Behaviors*, 39(11): 1547-1556. <https://doi.org/10.1016/j.addbeh.2014.01.002>

**Henderson, L., & Knight, T.** (2012). Integrating the hedonic and eudaimonic perspectives to more comprehensively understand wellbeing and pathways to wellbeing. *International Journal of Wellbeing*, 2(3): 196-221. <https://doi.org/10.5502/ijw.v2i3.3>

**HM Government.** (2017). *Drug strategy 2017*. <https://www.gov.uk/government/publications/drug-strategy-2017>

**Hofmann, S. G., Asnaani, A., Vonk, I. J. J., Sawyer, A. T., & Fang, A.** (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive Therapy and Research*, 36(5): 427-440. <https://doi.org/10.1007/s10608-012-9476-1>

**Hone, L., Jarden, A., Schofield, G. M., & Duncan, S.** (2014). Measuring flourishing: The impact of operational definitions on the prevalence of high levels of wellbeing. *International Journal of Wellbeing*, 4(1): 62-90. <https://doi.org/10.5502/ijw.v4i1.4>

**Hotopf, M.** (2002). The pragmatic randomised controlled trial. *Advances in Psychiatric Treatment*, 8(5): 326-333. <https://doi.org/10.1192/apt.8.5.326>

**Huta, V., & Waterman, A. S.** (2014). Eudaimonia and its distinction from hedonia: Developing a classification and terminology for understanding conceptual and operational definitions. *Journal of Happiness Studies*, 15(6): 1425-1456. <https://doi.org/10.1007/s10902-013-9485-0>

**IBM Corp.** (2017). *IBM SPSS Statistics for Windows (Version 25)* [Windows]. IBM Corp.

**Institute of Alcohol Studies.** (2006). *Interventions to tackle harmful alcohol consumption*. <http://www.ias.org.uk/What-we-do/Alcohol-Alert/Issue-1-2006/Interventions-to-tackle-harmful-alcohol-consumption.aspx>



**Kamboj, S. K., Irez, D., Serfaty, S., Thomas, E., Das, R. K., & Freeman, T. P.** (2017). Ultra-brief mindfulness training reduces alcohol consumption in at-risk drinkers: A randomized double-blind active-controlled experiment. *International Journal of Neuropsychopharmacology*, 20(11): 936-947. <https://doi.org/10.1093/ijnp/pyx064>

**Kendra, M. S., Weingardt, K. R., Cucciare, M. A., & Timko, C.** (2015). Satisfaction with substance use treatment and 12-step groups predicts outcomes. *Addictive Behaviors*, 40: 27-32. <https://doi.org/10.1016/j.addbeh.2014.08.003>

**Keyes, C. L. M.** (2006). Mental health in adolescence: Is America's youth flourishing? *American Journal of Orthopsychiatry*, 76(3): 395-402. <https://doi.org/10.1037/0002-9432.76.3.395>

**Keyes, C. L. M., & Haidt, J.** (2007). *Flourishing: Positive psychology and the life well-lived*. American Psychological Assoc.

**Klimas, J., Field, C.-A., Cullen, W., O'Gorman, C. S., Glynn, L. G., Keenan, E., Saunders, J., Bury, G., & Dunne, C.** (2013). Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users: Cochrane Review. *Systematic Reviews*, 2013(12), CD009269. <https://doi.org/10.1186/2046-4053-2-3>

**Krentzman, A. R.** (2013). Review of the application of positive psychology to substance use, addiction, and recovery research. *Psychology of Addictive Behaviors: Journal of the Society of Psychologists in Addictive Behaviors*, 27(1): 151-165. <https://doi.org/10.1037/a0029897>

**Krentzman, A. R.** (2015). Yin and yang of positive psychology and addiction. *The Addictions Newsletter*, Fall: 5-8. <http://www.cehd.umn.edu/ssw/Documents/KrentzmanTANNewsletter.pdf>

**Krentzman, A. R., & Barker, S. L.** (2016). Counselors' perspectives of positive psychology for the treatment of addiction: A mixed methods pilot study. *Alcoholism Treatment Quarterly*, 34(4): 370-385. <https://doi.org/10.1080/07347324.2016.1217705>

**Kushnir, V., Godinho, A., Hodgins, D. C., Hendershot, C. S., & Cunningham, J. A.** (2016). Motivation to quit or reduce gambling: Associations between Self-Determination Theory and the Transtheoretical Model of Change. *Journal of Addictive Diseases*, 35(1): 58-65. <https://doi.org/10.1080/10550887.2016.1107315>

**Langer, E. J.** (2009). *Counterclockwise: Mindful health and the power of possibility* (1st edition). Ballantine Books.

**Linton, M.-J., Dieppe, P., & Medina-Lara, A.** (2016). Review of 99 self-report measures for assessing well-being in adults: Exploring dimensions of well-being and developments over time. *BMJ Open*, 6(7): e010641. <https://doi.org/10.1136/bmjopen-2015-010641>

**Litten, R. Z., Ryan, M. L., Falk, D. E., Reilly, M., Fertig, J. B., & Koob, G. F.** (2015). Heterogeneity of Alcohol Use Disorder: Understanding

Mechanisms to Advance Personalized Treatment. *Alcoholism: Clinical and Experimental Research*, 39(4): 579-584. <https://doi.org/10.1111/acer.12669>

**Littlefield, A. K., Stevens, A. K., Cunningham, S., Jones, R. E., King, K. M., Schumacher, J. A., & Coffey, S. F.** (2015). Stability and change in multi-method measures of impulsivity across residential addictions treatment. *Addictive Behaviors*, 42: 126-129. <https://doi.org/10.1016/j.addbeh.2014.11.002>

**Loveland, D., & Driscoll, H.** (2014). Examining attrition rates at one specialty addiction treatment provider in the United States: A case study using a retrospective chart review. *Substance Abuse Treatment, Prevention, and Policy*, 9(1): 41. <https://doi.org/10.1186/1747-597X-9-41>

**Magill, M., & Ray, L. A.** (2009). Cognitive-behavioral treatment with adult alcohol and illicit drug users: A meta-analysis of randomized controlled trials. *Journal of Studies on Alcohol and Drugs*, 70(4): 516-527. <https://doi.org/10.15288/jsad.2009.70.516>

**Maisto, S. A., Roos, C. R., O'sickey, A. J., Kirouac, M., Connors, G. J., Tonigan, J. S., & Witkiewitz, K.** (2015). The indirect effect of the therapeutic alliance and alcohol abstinence self-efficacy on alcohol use and alcohol-related problems in Project MATCH. *Alcoholism: Clinical and Experimental Research*, 39(3): 504-513. <https://doi.org/10.1111/acer.12649>

**Marsden, J., Farrell, M., Bradbury, C., Dale-Perera, A., Eastwood, B., Roxburgh, M., & Taylor, S.** (2008). Development of the treatment outcomes profile. *Addiction*, 103(9): 1450-1460. <https://doi.org/10.1111/j.1360-0443.2008.02284.x>

**McGaffin, B. J., Deane, F. P., Kelly, P. J., & Ciarrochi, J.** (2015). Flourishing, languishing and moderate mental health: Prevalence and change in mental health during recovery from drug and alcohol problems. *Addiction Research & Theory*, 23(5): 351-360. <https://doi.org/10.3109/16066359.2015.1019346>

**McHugh, R. K., Hearon, B. A., & Otto, M. W.** (2010). Cognitive-behavioral therapy for substance use disorders. *The Psychiatric Clinics of North America*, 33(3): 511-525. <https://doi.org/10.1016/j.psc.2010.04.012>

**Miller, W.** (1983). Motivational interviewing with problem drinkers. *Behavioural Psychotherapy*, 11: 147-172. <http://dx.doi.org/10.1017/S0141347300006583>

**Monk, C. A., Boehm-Davis, D. A., & Trafton, J. G.** (2002). The attentional costs of interrupting task performance at various stages. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 46: 1824-1828.

**Monk, C. A., Trafton, J. G., & Boehm-Davis, D. A.** (2008). The effect of interruption duration and demand on resuming suspended goals. *Journal of Experimental Psychology: Applied*, 14(4): 299.



- Mukaka, M., White, S. A., Terlouw, D. J., Mwapasa, V., Kalilani-Phiri, L., & Faragher, E. B.** (2016). Is using multiple imputation better than complete case analysis for estimating a prevalence (risk) difference in randomized controlled trials when binary outcome observations are missing? *Trials*, 17(341): 1-12. <https://doi.org/10.1186/s13063-016-1473-3>
- NDTMS.** (2016). *Adult statistics from the National Drug Treatment Monitoring System*. [http://www.nta.nhs.uk/uploads/adult-statistics-from-the-national-drug-treatment-monitoring-system-2015-2016\[0\].pdf](http://www.nta.nhs.uk/uploads/adult-statistics-from-the-national-drug-treatment-monitoring-system-2015-2016[0].pdf)
- NDTMS.** (2017). *Adult substance misuse statistics from the National Drug Treatment Monitoring System* (1 April 2016 to 31 March 2017; p. 74). [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/658056/Adult-statistics-from-the-national-drug-treatment-monitoring-system-2016-2017.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/658056/Adult-statistics-from-the-national-drug-treatment-monitoring-system-2016-2017.pdf)
- NDTMS.** (2019). *Statistics on Alcohol, England 2019*.
- Neff, K. D., Kirkpatrick, K. L., & Rude, S. S.** (2007). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality*, 41(1): 139-154. <https://doi.org/10.1016/j.jrp.2006.03.004>
- NICE.** (2007). *Drug misuse in over 16s: Psychosocial interventions*. <https://www.nice.org.uk/guidance/cg51/chapter/1-Guidance>
- NICE.** (2010). 7 Glossary | Alcohol-use disorders: Prevention | Guidance | NICE. *NICE*. <https://www.nice.org.uk/guidance/ph24/chapter/7-Glossary#hazardous-drinking-increasing-risk-drinking>
- NICE.** (2011). Introduction | Alcohol-use disorders: Diagnosis, assessment and management of harmful drinking (high-risk drinking) and alcohol dependence | Guidance | NICE. *NICE*. <https://www.nice.org.uk/guidance/cg115/chapter/introduction>
- NICE.** (2019). NICE Guidance [CorporatePage]. NICE. *NICE*. <https://www.nice.org.uk/guidance>
- Northrup, T. F., Greer, T. L., Walker, R., Rethorst, C. D., Warden, D., Stotts, A. L., & Trivedi, M. H.** (2017). An ounce of prevention: A pre-randomization protocol to improve retention in substance use disorder clinical trials. *Addictive Behaviors*, 64: 137-142. <https://doi.org/10.1016/j.addbeh.2016.08.040>
- Obhi, S. S., & Haggard, P.** (2004). Free will and free won't. *American Scientist*, 92(4): 358-365.
- Office for National Statistics.** (2019). *Population estimates for the UK, England and Wales, Scotland and Northern Ireland, provisional*. <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2019>
- Parker, P.** (2013). *Research findings | The Rediscovery Process*. <http://trplife.com/success-stories/research-findings/>
- Parker, P.** (2019). Association between impulsivity and flourishing in Substance Use Disorders (SUD): Bridging the gap between pathology focused psychology and positive psychology? *European Journal of Applied Positive Psychology*, 3(3), 1-9. <https://www.nationalwellbeingsservice.org/volumes/volume-3-2019/volume-3-article-3/>
- Parker, P., Aston, J., & Finch, F.** (2018). Understanding the Lightning Process approach to CFS/ME; a review of the disease process and the approach. *Journal of Experiential Psychotherapy*, 21(2), 8. [https://jep.ro/images/pdf/cuprins\\_reviste/82\\_art\\_2.pdf](https://jep.ro/images/pdf/cuprins_reviste/82_art_2.pdf)
- Parker, P., Banbury, S., & Chandler, C.** (2018). The utility of measuring flourishing in substance and alcohol use disorders research: A systematic review. *European Journal of Applied Positive Psychology*, 2(5): 1-13. <http://www.nationalwellbeingsservice.org/volumes/volume-2-2018/volume-2-article-5/>
- Peele, S.** (2016). People control their addictions: No matter how much the "chronic" brain disease model of addiction indicates otherwise, we know that people can quit addictions—with special reference to harm reduction and mindfulness. *Addictive Behaviors Reports*, 4: 97-101. <https://doi.org/10.1016/j.abrep.2016.05.003>
- Petry, N. M.** (2011). Contingency management: What it is and why psychiatrists should want to use it. *The Psychiatrist*, 35(5): 161-163. <https://doi.org/10.1192/pb.bp.110.031831>
- Powers, M. B., Vedel, E., & Emmelkamp, P. M. G.** (2008). Behavioral couples therapy (BCT) for alcohol and drug use disorders: A meta-analysis. *Clinical Psychology Review*, 28(6): 952-962. <https://doi.org/10.1016/j.cpr.2008.02.002>
- Quoidbach, J., Berry, E. V., Hansenne, M., & Mikolajczak, M.** (2010). Positive emotion regulation and well-being: Comparing the impact of eight savoring and dampening strategies. *Personality and Individual Differences*, 49(5): 368-373. <https://doi.org/10.1016/j.paid.2010.03.048>
- Reynolds, A., Keough, M. T., & O'Connor, R. M.** (2015). Is being mindful associated with reduced risk for internally-motivated drinking and alcohol use among undergraduates? *Addictive Behaviors*, 42: 222-226. <https://doi.org/10.1016/j.addbeh.2014.11.027>
- Röhrig, B., du Prel, J.-B., Wachtlin, D., Kwicien, R., & Blettner, M.** (2010). Sample size calculation in clinical trials. *Deutsches Ärzteblatt International*, 107(31-32): 552-556. <https://doi.org/10.3238/arztebl.2010.0552>
- Schotanus-Dijkstra, M., Pieterse, M. E., Drossaert, C. H. C., Westerhof, G. J., Graaf, R. de, Have, M. ten, Walburg, J. A., & Bohlmeijer, E. T.** (2016). What factors are associated with flourishing? Results from a large representative national sample. *Journal of Happiness Studies*, 17(4): 1351-1370. <https://doi.org/10.1007/s10902-015-9647-3>
- Schotanus-Dijkstra, M., ten Have, M., Lamers, S. M. A., de Graaf, R., & Bohlmeijer, E. T.** (2016). The longitudinal relationship between

flourishing mental health and incident mood, anxiety and substance use disorders. *The European Journal of Public Health*, 27(3): 563-568. <https://doi.org/10.1093/eurpub/ckw202>

**Schulz, K. F., Altman, D. G., & Moher, D.** (2010). CONSORT 2010 Statement: Updated guidelines for reporting parallel group randomised trials. *British Medical Journal*, 340: c332. <https://doi.org/10.1136/bmj.c332>

**Speer, M. E., Bhanji, J. P., & Delgado, M. R.** (2014). Savoring the past: Positive memories evoke value representations in the striatum. *Neuron*, 84(4): 847-856. <https://doi.org/10.1016/j.neuron.2014.09.028>

**Speer, M. E., & Delgado, M. R.** (2017). Reminiscing about positive memories buffers acute stress responses. *Nature Human Behaviour*, 1(5): s41562-017-0093-017. <https://doi.org/10.1038/s41562-017-0093>

**Substance Abuse and Mental Health Services Administration (US).** (2004). *Chapter 3: Approaches to Therapy*. <https://www.ncbi.nlm.nih.gov/books/NBK64259/>

**Tomassini, A., Struglia, F., Spaziani, D., Pacifico, R., Stratta, P., & Rossi, A.** (2012). Decision making, impulsivity, and personality traits in alcohol-dependent subjects. *The American Journal on Addictions*, 21(3): 263-267. <https://doi.org/10.1111/j.1521-0391.2012.00225.x>

**Toneatto, T.** (1999). Metacognition and substance use. *Addictive Behaviors*, 24(2): 167-174.

**Toneatto, T.** (2003). A metacognitive therapy for anxiety disorders: Buddhist psychology applied. *Cognitive and Behavioral Practice*, 9(1): 72-78.

**UKATT Research Team.** (2005). Effectiveness of treatment for alcohol problems: Findings of the randomised UK alcohol treatment trial (UKATT). *British Medical Journal*, 351: 541-543. <https://doi.org/10.1136/bmj.331.7516.541>

**Westbrook, J. I., Coiera, E., Dunsmuir, W. T., Brown, B. M., Kelk, N., Paoloni, R., & Tran, C.** (2010). The impact of interruptions on clinical task completion. *Quality and Safety in Health Care*, 19(4): 284-289.

**Winhusen, T., Lewis, D., Adinoff, B., Brigham, G., Kropp, F., Donovan, D. M., Seamans, C. L., Hodgkins, C. C., DiCenzo, J. C., Botero, C. L., Jones, D. R., & Somoza, E.** (2013). Impulsivity is associated with treatment non-completion in cocaine- and methamphetamine-dependent patients but differs in nature as a function of stimulant-dependence diagnosis. *Journal of Substance Abuse Treatment*, 44(5): 541-547. <https://doi.org/10.1016/j.jsat.2012.12.005>