Table S1: Data extraction of intervention studies

No	Reference	Subject & Design of the study	Intervention group	Control group	Outcome measure (Primary and secondary)	Results (Primary outcome measure)	Effect size
1	(Davis et al., 2003) USA	Veterans with alcohol issues Sample: 73 Design: Randomized control study	n=36 The MI feedback intervention consisted of an interview based on the principles of Motivational Interview. Personalized feedback was provided with graphical information on the types of situations in which they reported common use of substances, self-reported problems and their reported readiness for change.	n=37 No intervention	Diagnosis of substance use Addiction severity	Participants receiving feedback were more likely to schedule appointments at addictions clinic within 60 days of their jail release. Although differences were not statistically significant, more feedback participants attended addictions clinic appointments (47 vs. 32%; ns) and were retained in addictions treatment at 90 days (31 vs. 14%; PB/0.08). Treatment appointments were more likely when intervention occurred near to release. Loss of participants to post release follow-up interviews was 50%, limiting ability to detect significant differences in self-reporting	The effect size was not mentioned in the study
2	(Rowe et al., 2007) USA	Prisoners With Severe Mental Illness and alcohol use Sample: 114 Design: Randomized Clinical trial	n=73 Individual and group treatment with medication management, case management, and jail diversion services in which clinicians assigned to the local criminal court worked with defendants, public prosecutors, and judges to divert defendants with mental illness to mental health treatment	n= 41 Standard services includes jail diversion services, and clinical treatment with jail diversion services.	Severity of addiction	Significantly reduced alcohol use in experimental group. Significant group-by-time interaction, where alcohol use decreased over time in the experimental group and increased in the control group. Drug use and criminal justice charges decreased significantly across assessment periods in both groups	The effect size was not mentioned in the study
3.	(Johnson & Zlotnick, 2008) USA	Sample: 181 Major depressive disorder (MDD) among prisoners Research Design: Randomized control trial	n=91 The therapeutic stance of IPT is active, goal-oriented, semi structured, supportive, positive, present focused, and conducive to skills acquisition. IPT was delivered using 20 group therapy sessions of 90 min each over 10 weeks with four individual (pre-group, mid-group, post-group, and maintenance) sessions.	n=90 TAU participants were offered referrals to prison mental health staff for pharmacological treatment	Symptom severity Suicide ideation Improvement in hopelessness Cost effectiveness	IPT reduced depressive symptoms, hopelessness, and posttraumatic stress disorder symptoms, and increased MDD remission rates relative to prison TAU alone. Cost per patient was $2,054, including IPT training and supervision costs, or $575, excluding these costs. For providers running their second or subsequent IPT group, the additional weekly cost of MDD remission (relative to TAU alone) was $524.	The effect size was not mentioned in the study
4	(M. D. Stein, Caviness, Anderson, Hebert, & Clarke, 2009) USA	Incarcerated women with Alcohol use Sample:245 Design: Randomized control design	n=125 Two brief motivationally focused sessions focused on Motivational Interviewing Principles, the first delivered during incarceration, the second 1 month later after community re-entry.	n=120 Standard care Includes pharmacological training along with follow-up	Screening for Alcohol and substance Time-line follow-back Common problems related to substance use	Intervention effects on abstinent days were statistically significant at 3 months. The percentage of days abstinent was 68% for those randomized to intervention and 57% for controls. At 6 months the effect of the intervention was attenuated and no longer statistically significant.	Odds ratio = 1.96, 95% confidence interval 1.17, 3.30

5	(L. A. R. Stein et al., 2011) USA	Incarcerated adolescents with substance use disorder Sample:162 Research Design: Randomized control	Motivational interviewing n=80 Principles of MI with focus on empathy, not arguing, developing discrepancy, self-efficacy, and personal choice.	Relaxation training n=82 Included progressive muscle relaxation, use of guided imagery, feedback on use of techniques, and general advice to stop risky behaviours related to alcohol and marijuana use.	The risks and consequences of substance use Depression symptom severity	In a 3-month follow-up assessment, MI significantly reduced the risks associated with marijuana use, with a tendency to reduce the risks associated with alcohol use. There was also a tendency for depressive symptoms to be associated with reduced risks after release. Interaction effects were non-significant, indicating no moderating effects of depressed mood on treatment outcome.	Marginal interaction effects were found for joints per day, and follow-up tests are presented. No main effects were found for depressive symptoms
6	(Forsberg et al., 2011) Sweden	Prisoners with drug abuse Sample: 296 Research Design: Randomized Control design	n=85 (First group) n=107 (Second group) The intervention was essentially based on the principles of motivational enhancement. An intervention called Beteende, Samtal, Forandring (BSF) [Behavior, Counseling, Change] developed. In addition to the principles and strategies of the MI, the sequencing and content of the five sessions were based on a trans-theoretical model. Workbooks were also provided to increase the activity of the client and the working alliance. The first group, BSF staff, received no additional peer group supervision and training after the initial 5-day training; these counsellors formed the BSF group. The second group BSF trained counsellors who already had begun peer coaching or who were most willing to start were selected for the BSF+ intervention. The BSF+ group counsellors had regular training meetings every fifth week listening to audio recorded sessions and giving each other positive feedback	n=81 Usual Planning Interventions (UPIs) have been conducted in accordance with the usual working practises, with the exception that content has been structured into five sessions and audio-recorded, and UPI has a practical focus on social circumstances that could lead to relapse and recurrence. Third group is the BSF with UPI intervention..	Addiction severity by using the semi structured interview-schedule	There were no significant differences in alcohol and drug use between the three randomized groups at either baseline or at follow-up. There was a significant difference in length of sentence (n=75) 3.2, p < .05) between inmates that received an intervention session UPI (n = 40) and inmates who did not (n = 41). On the t-test, UPI inmates that received sessions were on average sentenced to 377 days (SD = 240), compared to those who received no intervention (average 584 days; SD = 368).. The analysis showed no differences between groups in the primary and secondary measures. The analysis did not show any significant difference in change in drug use between the groups (F(2, 269) = .03, p = ns). There were no significant differences in change between the groups in the secondary outcome measures: days with illegal activity (F(2, 250) = .61, p = ns); working days (F(2, 264) = .42, p = ns).	The effect size was not mentioned in the study
7	(Johnson & Zlotnick, 2012) **USA**	Major depression among women prisoners with substance use disorder Sample:38	n=19 participants received manualized Inter Personal Therapy(IPT) 60-75 minute group sessions three times per week for 8 weeks plus pre-group, mid group, and post-group individual sessions in prison. Session lengths varied between 60 and 75 min because of time taken to assemble women within the facilities, occasional early prison	n=19 Control condition participants received attention-matched manualized in-prison and post-release psychoeducation,	Screening of substance use Trauma History Depression severity Timeline of follow up	Study treatments were feasible and acceptable; 89% of participants in each condition completed in-prison treatment (missed less than 3 of the 24 group sessions by choice, rather than because of early release, court dates, etc.).	The interaction of treatment with minority status significantly predicted HRSD score at the end of group treatment with a large effect size (Cohen's d ¼ 1.22; 95% CI ¼ 0.45e1.98). The

		Research Design: Randomized control Pilot Study	counts, and other facility logistics. The intervention was provided in a group format.	which described co-occurring mental health and substance use disorders (PSYCHOED).			
8	(van Dam et al., 2013) Netherlands	Inmates with Post traumatic Stress Disorder with substance use disorder. Sample: 34 Research Design: Randomized control Pilot Study	**n=19** Structured Writing Therapy (SWT) was provided consisting of the following three phases: self-confrontation, cognitive reappraisal and sharing/farewell. The self-confrontation phase comprised trauma-focused exposure, and guided patients to write in detail about the most traumatic event(s) they had experienced.	**n=15** Treatment as usual (TAU) consisted of a regular intensive treatment program for SUD based on the principles of cognitive behavioral therapy. The treatment was delivered in a group format, and included coping skill training for alcohol and/or drug abuse, an evidence-based treatment for SUD	Timeline of Follow up Screening of Post-traumatic Stress disorder PTSD Assessment for personality disorder	For the TAU + SWT group a significant decrease in PTSD severity was found from mid-treatment to post-treatment $F(1, 19) = 9.31$, $p = .007$, partial $\eta2 = 0.341$, but not from pre-treatment to mid-treatment $F(1, 19) = 0.67$, $p = .424$, partial $\eta2 = 0.036$, or from post-treatment to follow up $F(1, 19) = 3.01$, $p = .100$, partial $\eta2 = 0.143$. For the TAU group no significant decreases in PTSD symptom severity were found between the measurement points F's $(1, 15) \le 0.924$, p's $\ge .353$, partial $\eta2$'s ≤ 0.62. No significant changes for abstinence were found for TAU from post-treatment to follow-up $F(1, 15) = 0.767$, $p = .396$, partial $\eta2 = 0.052$. Significant decrease in PTSD severity was found from mid-treatment to post-treatment but not from pre-treatment to mid-treatment or from post-treatment to follow up. TAU group no significant decreases in PTSD symptom severity were found between the measurement points.	A main effect for time, $F(3, 34) = 6.37$, $p = .001$, partial $\eta2 = 0.166$, and no main effect for condition $F(1, 34) = 0.01$, $p = .921$, partial $\eta2 = 0$. No significant interaction effect was found between condition and time $F(3, 34) = 1.92$, $p = .132$, partial $\eta2 = 0.059$.
9	(Gold et al., 2014) Norway	Prisoners with Mental health problems Sample: 113 Design: Randomized control trial	n=56 Music Therapy: 2-3 session in a week The intensity and contents of the sessions were flexible, and the music therapist had the freedom to explore parameters such as frequency and duration of sessions, as well as techniques and principles of the therapy.	n=57 Standard care for prisoners	Anxiety and Depression symptom severity Quality of life and life satisfaction	Differences between groups were nonsignificant. Levels of anxiety and depression at baseline were heightened, but only to a subclinical level on average.	Small-to-medium effect size of $d = 0.33$
10	(González-Menéndez et al., 2014) Spain	Polydrug incarcerated Females Sample: 37 Research Design: Randomized control Pilot Study	n=18 Acceptance and Commitment Therapy: The general clinical goals of ACT are to undermine the grip of the literal verbal content of cognition that provokes avoidance behaviour and to construct an alternative context in which behaviour is aligned with one's values.	n=19 CBT with cognitive restructuring. Review of drug use, cravings and high-risk situations; skill instructions; and homework assignment and anticipation and development of a	History of previous treatments for drug abuse, current family situation, and past criminal history. Addiction, Anxiety severity Acceptance and readiness to change Multidrug Urinalysis	18-month follow up, ACT showed greater results than CBT in abstinence rates. The scores on anxiety sensitivity and acceptance differently as a function of the treatment received. In CBT group, reductions were observed in the levels of anxiety sensitivity at post-treatment and at 12- and 18-month follow-up. People who received ACT only presented decreases in the ASI cognitive subscale at 18-month follow-up.	The effect size was not mentioned in the study

				coping plan for high-risk situations.			
11	(Mariamdaran et al., 2014) Malyesia	young prison inmates with the history of aggression and depression. Sample: 144 Research Design: pre-post-test experimental control groups design	Treatment Group n=72 The treatment group was exposed to 15 sessions of Psychoanalysis and Positive Psychology Intervention (PPP) intervention over sixteen days. The intervention used a transference technique to help participants express feeling of love, differed the feeling of hates, Counter-transferring technique to facilitate the feeling of love and hate, Free associate to express any of their feelings in the group, Resistance to identify a client who do not share anything and help them to talk, Gratitude to make the client understand and appreciate	Control group n=72 No interventions were given	Severity of depression Frequency of aggression Ability to change	The study shows significant difference between participants in treatment and control group on the level of aggression (F= 1632.184, P=.000, <.05). It showed that treatment group was effective to reduce aggression level (M=1.58, SD= .232) comparing with control group (M= 3.80, SD= .384). There was a significant difference between participants in treatment and control group on the level of depression (F= 88.094, P=.000, <.05). It showed that treatment group was effective to reduce depression level (M=.572, SD= .279) comparing with control group (M= 2.141, SD= .797). There was a significant difference between participants in treatment and control group on the level of ability change (F= 1195.538, P=.000, <.05).	The effect size was not mentioned in the study
12	(Lanza et al., 2014) Spain	Incarcerated women with current substance use disorder Sample: 50 Design: Randomized control trial	n=19 Acceptance and commitment therapy includes identifying ineffective strategies, control as the problem, cognitive diffusion and mindfulness, acceptance and willingness, and values and commitment along with cognitive-behavioural therapy.	n= 18 Cognitive Behavioural Therapy CBT) attempts to change clients' unhealthy behaviour through cognitive restructuring	Symptom severity of anxiety and addiction Acceptance and Action to change	At post-treatment, CBT was more effective than ACT in reducing anxiety sensitivity; however, at follow-up, ACT was more effective than CBT in reducing drug use (43.8 vs. 26.7%, respectively) and improving mental health (26.4% vs. 19.4%, respectively).	The effect size was not mentioned in the study
13	(Pratt et al., 2015) UK	Male prisoners with suicidal risk Sample: 62 Design: Randomized Control design	n=31 Cognitive–behavioral suicide prevention group received a structured, time-limited psychosocial intervention developed to treat individuals experiencing suicidal ideation and/or behavior. Components were attention broadening Cognitive restructuring, Mood management and behavioral activation Problem-solving training, Improving self-esteem and positive schema.	n=31 TAU group received the usual care and support available to any prisoner identified under the system	Number of episodes of suicidal or self-injurious behaviour (SIB) in the past 6 months Beck Hopelessness Scale (Suicidal ideation Beck Depression Inventory Suicide probability	Participants receiving CBSP therapy achieved a significantly greater reduction in suicidal behaviours with a moderate treatment effect [Cohen's d =−0.72, 95% confidence interval −1.71 to 0.09; baseline mean TAU: 1.39 (S.D. = 3.28) v. CBSP: 1.06 (S.D. = 2.10), 6 months mean TAU: 1.48 (S.D. = 3.23) v. CBSP: 0.58 (S.D. = 1.52)]. Significant improvements were achieved on psychiatric symptomatology and personality dysfunction. Improvements on psychological determinants of suicide were non-significant. More than half of the participants in the CBSP group achieved a clinically significant recovery by the end of therapy.	Moderate treatment effect [Cohen's d =−0.72, 95% confidence interval −1.71 to 0.09; baseline mean TAU: 1.39 (S.D. = 3.28) v. CBSP: 1.06 (S.D. = 2.10), 6 months mean TAU: 1.48 (S.D. = 3.23) v. CBSP: 0.58 (S.D. = 1.52)].
14	(Chen et al., 2016) China	Male Prisoners with depression and anxiety Sample: 200	n=100 In the intervention group the participants randomized to music therapy received 20 sessions of group music therapy twice weekly. Each session lasted for 90 minutes.	n=100 The control group received standard care but no music therapy during the	Becks depression inventory(BDI) to assess depression.	At mid-program, anxiety (STAI) and depression (BDI) scores were significantly lower (STAI-State: p = .006, d = 0.40; STAI-Trait: p = .001, d = 0.49; BDI: p < .001, d = 0.54) and self-esteem (TSBI) score was significantly higher (p	All effect sizes were larger in the post-program than in the mid-program; most effect sizes were from medium to large. In the post-program, large effect sizes were

#	Author	Population / Sample / Design	Intervention	Control	Outcome measures	Results	Effect size
		Design: Randomized control design	The choice of intensity and duration for the intervention were based on the therapist's clinical experience, prison management, and the inmates' average length of sentence, as well as previous findings on dose–effect relationship in music therapy. The choice of type of music has decided by the participant and therapist.	study. Standard care included medical care, monthly mandatory mental health education, and psychological/psychotherapeutic care on a volunteer basis by the prison mental health team.	Rosenberg Self-Esteem Inventory (RSI) to assess self esteem Texas Social Behaviour Inventory (TSBI) State and Trait Anxiety Inventory (STAI) to assess anxiety	= .011, $d = 0.37$) in music therapy than in standard care. At post-program, anxiety (STAI) and depression (BDI) scores were significantly lower (STAI-State: $p < .001$, $d = 0.87$; STAI-Trait: $p < .001$, $d = 1.03$; BDI: $p < .001$, $d = 0.87$) in music therapy; self-esteem (TSBI and RSI) scores were significantly higher in music therapy (RSI: $p < .001$, $d = 0.51$; TSBI: $p = .001$, $d = 0.51$) than in standard care. Participants with lower education showed greater improvement on anxiety (STAI-State and STAI-Trait) at post-test than those with higher education ($p < .003$; $p < .001$). In addition, music therapy indicated greater effects for younger participants ($p = .02$) on self-esteem (RSI) at post-test	found for anxiety (STAI) and depression (BDI) scores, and medium effect sizes were found for self-esteem (RSI and TSBI) scores. In the repeated measures ANOVAs, all Time × Group interactions were significant (BDI: $p < .001$; RSI: $p < .01$; STAI-State: $p < .001$; STAI-Trait: $p < .001$; TSBI: $p < .05$).
15	(Owens & McCrady, 2016) USA	Male incarcerated Drinkers Sample: 40 Design: Randomized control study	n=23 Brief motivational intervention including therapies that incorporate motivational interviewing and other motivational enhancement methods	n=17 Control condition (an educational intervention) participants Two videos about substance use	Screening of substance use Mental Status Examination Readiness and motivation	There were no significant differences in length of sessions; t = 1.196, p N 0.05) or participants' ratings of helpfulness. Compared to pre-incarceration, only the MI group had significant increases in abstinence MI: pre PDA= 22.6%, post=67.3%, t=−4.113, p b 0.01, g=1.303; EI: pre PDA=32.7%, post=65.0%, t= −2.189, p=0.053, g=0.824). Percentage of days only using drug also significantly decreased for the MI group (pre = 49.1%, post = 17.2%, t = 3.025, p b 0.05, g = 0.854), but there were no other significant within-group changes in substance use for either group. No significant group differences, medium to large effect sizes suggest benefits from the motivational intervention in decreasing days of alcohol and drug use and increasing abstinence, and reducing the proportion of heavy drug users or users of any kind in the social network	Medium effect size in post-release treatment engagement between groups that favoured the MI group (g=0.506)
16	(Qiu et al., 2017) China	Prisoners diagnosed with schizophrenia Sample: 120 Design: Randomised control trail	n=60 Go Beyond The Schizophrenia(GBTS) is a 120-min 48 weeks session in group 1 and for 32 weeks in group 2 by a trained art specialists with the supervision of a experienced art therapist. The interventions were provided by small groups .During the first 60 min, participants were asked to draw anything that once impressed them, including but not limited to things such as dreams, colors, animals, and family. No	n= 60 (wait list group: provided same intervention)	state–trait anger expression inventory Beck depression inventory the state–trait anxiety inventory	Eight weeks after intervention(T2), there was a significant difference (a medium or large effect size, ES > 0.50) in the major variables between G1 and G2, and G1 reported significantly lower state anxiety (ES = 0.55, p = .0081), improved socialization with peers (ES = −0.52, though p = .2608) and improved compliance with meds (ES = −0.67, but p = .0842) relative to G2. At T3, G1 reported significantly lower state	Medium or large effect size, ES > 0.50

			limitation for the drawing was set, and participants were encouraged to draw anything they wanted. When the drawings were finished, a focus interview was conducted between the art therapist (or clinical psychologists) and the patient. They would ask patients to introduce their own drawings, such as what it means or what it is. Then, the art therapist would give patients more opportunities to talk about their own life stories and express their worries, happiness, or hope on the basis of the drawings. The art therapist would also give them some advice to enrich their drawing content for the next time (such as color, space, and lines) and encourage them to participate in the next session..		positive and negative symptom scale Art perfomace observation by the staff	anger (ES = 0.59, p = .0303), depression (ES = 0.80, p = .0003), and negative psychiatric symptoms (ES = 0.53, p = .0018) and better compliance with rules (ES = −0.56, p = .0024) and regular sleeping patterns (ES = −0.64, p = .0682) compared with the G2.	
17	(Lennox et al., 2018) UK	Prisoners with common mental health problems Sample: 60 Research Design: Pilot study	n=40 The ENGAGER intervention sets up a pathway of care up to 12 weeks prior to their release and for 3 to 5 months in the community. Components including addressing barriers associated with the transition when leaving prison and re-entering the community, provision of services designed to meet a single diagnostic need (e.g. depression) or social problem (e.g. homelessness)	n=20 Individuals in the TAU group were able to access primary care, mental health and substance misuse services in prison. support from criminal justice and any other third sector organizations in the community.	Symptom severity of anxiety Screening of Post-Traumatic Stress Disorder Past history of mental illness	The average retention rates were 73% at 1 month. and 47% at 3 months follow-up. 90% of participants allocated to the intervention successfully engaged with a practitioner before release and 70% engaged following release. The intervention was delivered to 36 out of the 40 participants (90%) allocated to the intervention.28 of the 36 participants met with their practitioners in the community following their release	The effect size was not mentioned in the study
18	(Johnson et al., 2019) USA	Prisoners with Major depression Sample: 173 Research design: Randomized control trial	n=87 IPT was delivered using 20 group therapy sessions of 90 min each over 10 weeks with four individual (pre-group, mid-group, post group, and maintenance) sessions. The maintenance session occurred approximately 4 weeks after the post group session.	Treatment as usual n=86	Clinical assessment Diagnosis and screening of mental illness Depressive symptom Suicidality Hopelessness Functioning in prison Aggression and social support Intervention cost tracked by multiplying hours spent times cost per hour.	IPT reduced depressive symptoms, hopelessness, and PTSD symptoms, and increased rates of MDD remission relative to prison TAU alone. Cost per patient was $2,054 including costs for IPT training and supervision or $575 without these costs. For providers running their second or subsequent IPT group, cost per additional week in remission from MDD (relative to TAU alone) was $524 ($148 excluding training and supervision costs, which would not be needed for established programs). Changes observed in borderline personality disorder (46% of IPT _ TAU group vs. 31% of TAU alone group; p _ .035), and baseline social support (MSPSS) scores, which were lower in the IPT _ TAU group.	Effect sizes for significant results were small to medium

19	(Lyons et al., 2019) USA	Prisoners with Drug abuse Sample: 150 Research Design: Randomized Control Design	n=88 Each session consisted of a mindfulness meditation exercise and discussion (approx. 40 minutes) and an exercise applying mindfulness to everyday life and high drug relapse risk situations (approx. 30 minutes). Based on input from the focus group and facilitators, each session began with mindful movement/stretching/chair yoga exercises (5 minutes). The session consist of introduction about mindfulness, awareness of triggers and craving, mindfulness in everyday life, mindfulness in high risk situations, the relapse cycle, and self-care, social support and continuing practice.	n=101 Intervention (Mapping-Enhanced Counselling Manuals for Adaptive Treatment for Corrections) which consists of six brief interventions (communication, anger, motivation, criminal thinking, social networks, and HIV/sexual health)	Effectiveness of mindfulness Alcohol craving Post traumatic symptoms	There were no statistically significant differences, in demographic or psychosocial characteristics. The psychosocial measures of anxiety, drug craving, and PTSD at baseline were significantly positively correlated with one another and negatively correlated with mindfulness. PTSD and craving scores declined while mindfulness scores on the Freiburg scale, though not the FFMQ, increased. The analysis revealed that after controlling for the Freiburg mindfulness pre-test, there was a small but significant improvement (p <0.05) in the Freiburg mindfulness score among participants in the mindful meditation condition.	There was no effect size mentioned in the study
20	(Stein 2020) USA	Prisoners with alcohol and marijuana use Sample: 199 Research Design: Randomised control trail	n= 100 The group received motivational interviewing and Cognitive Behaviour Therapy. Two Individual sessions (MI) were 60−90 min each; **MI includes** motivation to change; emphasized personal responsibility for change; with permission, counsellors provided advice and offered a menu of change-options; and counsellors sought to enhance client efficacy 10 group sessions (CBT) were 75 min each, occurred 1–3 times/week. **CBT**, designed to be interactive, covered refusal skills; enhancing social support and communication; problem-solving; dealing with emotions; and coping with high-risk situations and urges The interventions were provided by a trained psychologist.	n=99 **Two session of Relaxation Techniques aimed at** reducing stress helps to reduce desire to use substances, and that RT will assist in reducing stress thereby mitigating substance use. Advice to stop substances was provided. The participants were instructed in progressive muscle relaxation, deep breathing, and in visualizing and describing a peaceful scene with focus on the five senses.	*Composite International Diagnostic Interview short-form* (CIDI-SF; Kessler to understand the severity, type and mode of substance use. Alcohol and marijuana dependence modules *Center for Epidemiological Studies Depression Scale* *Delinquent Activities Scale*	Age correlated significantly across alcohol, marijuana and crime outcomes (p < .05) and was included as a covariate. MI/CBT, percent heavy drinking days at 3 months was 6.95 %, whereas at 6 months, it was 11.10 %. For RT/SET, percent heavy drinking days at 3 months was 4.52 %, whereas at 6 months, it was 4.48 %. Follow-up tests at each time indicate percent heavy drinking days for RT/SET was lower than that for MI/CBT at 6 months (B=0.22, SE=0.09, p= 0.019; 95 % CI [-0.36, 0.41], d=0.40), but not at 3 months (B=0.06, SE=0.78, p= 0.44; 95 % CI [-.092, 0.212], d=0.11). Furthermore, follow-up tests within RT/SET indicate no differences in percent heavy drinking days at 3 months vs. 6 months (B = -0.009, SE=0.055, p= 0.865; 95 % CI [-.118, 0.099], d=0.02), but within MI/CBT percent .heavy drinking days was significantly higher at 6 months as compared to 3 months (B=0.14, SE=0.06, p= 0.033; 95 % CI [0.01, 0.27], d=0.25).MI/CBT, the percent of adolescents involved in alcohol-related predatory aggression at 3 months was 11.3 %, whereas at 6 months, it was 13.0 %. For RT/SET, the percent of adolescents involved in alcohol-related predatory aggression at 3 months was 18.4%, whereas at 6 months, it was 8.3 %. Follow-up tests at each time	Effect sizes averaged across the 150 sets of estimates of the study variables.

				Substance education(SET) based on usual substance abuse intervention provided by the facility, provided an overview of physical, psychological, and social consequences of drugs; twelve-steps and defence mechanisms such as denial; types of risky situations; and resources available		indicate that the proportion engaged in alcohol-related predatory aggression for RT/SET was marginally greater than MI/CBT at 3 months (B = -0.89, SE=0.49, p= 0.072; 95 % CI [-1.86, 0.08], OR=0.41), but not at 6 months (B=0.61, SE=0.59, p= 0.300; 95 % CI [-0.54, 1.76], OR=1.84).	
21	(Taylor et al., 2020) UK	Prisoners with alcohol use Sample: 238 Design of the study: Randomised control trail	n= 119 The group psychological interventions to improve the locus of control over drinking behaviour over 3 weeks.	N= Treatment as usual	locus of control of behaviour (LCB); secondary outcomes included mental state generally (comprehensive psychiatric rating scale/CPRS) and specifically (Beck Depression Inventory/BDI).	LCB scores decreased during the study, but without significant intervention effect [−1.7, 95% confidence interval (CI) = −5.1 to 1.6, P = 0.329]. Change among completers in the control group was from a mean score of 37.4 [standard deviation (SD) = 10.0] to 33.7[SD = 11.7] and in the intervention group from 37.4 (SD = 11.6) to 31.9 (SD = 11.8). Secondary outcomes, including change in mental state, did not differ between arms, but 686 (64%) sessions were lost, most because of 'prison issue	Effect size [−1.7, 95% confidence interval (CI) = −5.1 to 1.6, P = 0.329]

Table S2: Risk of Bias table

SL/No	Reference	Random sequence generation (selection bias)	Allocation concealment (Selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (Detection Bias)	Incomplete outcome data (attrition bias)	Selective reporting (Reporting bias)	Other source of bias
1.	Davis et al., 2003	Low	Low	High	Unclear	Low	Unclear	Unclear
2.	Rowe et al., 2007	Unclear	Unclear	High	Unclear	High	Low	Unclear
3.	Johnson & Zlotnick, 2008	High	High	High	Unclear	Low	Low	High
4.	M. D. Stein et al., 2010	Low	Low	High	Low	Low	Low	Unclear
5.	L. a R. Stein et al., 2011	Low	Low	High	High	Unclear	Low	Unclear
6.	Forsberg et al., 2011	Low	Unclear	High	unclear	Low	Low	Unclear
7.	Johnson & Zlotnick, 2012	Unclear	Low	High	Low	Low	Low	Low
8.	van Dam et al., 2013	Unclear	Unclear	High	High	Low	Low	Low
9.	Gold et al., 2014	Low	Unclear	High	High	High	Low	Low
10.	González-Menéndez et al., 2014	Low	Unclear	High	High	Low	Low	Unclear
11.	Mariamdaran, Madya, & Ishak, 2014	Unclear	Unclear	High	High	High	Low	High
12.	Lanza et al., 2014	Low	Unclear	High	Unclear	Low	Unclear	Low

13.	Pratt et al., 2015	Low	Low	High	Unclear	Low	Unclear	Unclear
14.	Xi-Jing Chen, Niels Hannibal, and Christian Gold, 2015	Low	Low	High	Unclear	Unclear	Low	Low
15.	Owens & McCrady, 2016	Low	Unclear	High	Low	Low	Low	Unclear
16.	Hong-Zhong Qiu1 2016	Unclear	Unclear	High	Unclear	Low	Low	Low
17.	Lennox et al., 2018	Low	Low	High	High	High	High	Unclear
18.	Johnson et al., 2019	High	High	High	High	Low	Low	High
19.	Lyons et al., 2019	Low	Unclear	High	Unclear	Low	Low	High
20.	LAR Stein 2020	Unclear	Unclear	High	Low	Low	Low	Unclear
21.	Taylor 2020	Low	Low	High	Unclear	Low	Low	Low