

Assessing recovery and functioning in former problem drinkers at different stages of their recovery journeys

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Abstract

Introduction and Aims. Many studies which assess functioning in recovering problem drinkers are limited to early recovery within inpatient or detoxification settings, or focus on relapse rates and treatment outcomes. This study assesses how functioning varies according to recovery stage and abstinence duration. **Design and Methods.** Fifty-three recovering problem drinkers participated from mutual aid groups or snowball recruitment. Cross-sectional interviewer-administered structured questionnaires assessed quality of life (QoL), self-esteem, self-efficacy, psychological and physical health. Participants could also self-complete the questionnaire. **Results.** Those in 'stable recovery' (5 or more years into recovery, $n = 18$) reported higher ratings of: three aspects of QoL—social relationships, psychological health, environment, as well as self-esteem ($P < 0.05$ for all variables) than those in 'early' (up to 5 years into recovery, $n = 35$). Depression was lower in 'stable recovery' ($P = 0.027$). Those in 'stable recovery' were more likely to live in their own home without professional support ($P = 0.010$) and have partners who had never been problem drinkers ($P = 0.024$). Overall, the continuous scores of many functioning variables correlated with abstinence duration indicating a continuous gain in functioning. **Discussion and Conclusions.** Although limited by sampling considerations, this paper shows a gradual growth in functioning over a prolonged recovery process, and provides positive findings that those in recovery may expect to experience improvements in many areas of life as abstinence duration increases. For two aspects of QoL—environment and social relationships—functioning reaches a level above population norms offering hope of moving to a functioning level beyond the pre-morbid state. [Hibbert LJ, Best DW. Assessing recovery and functioning in former problem drinkers at different stages of their recovery journeys. *Drug Alcohol Rev* 2011;30;12–20]

Key words: alcohol, abstinence, current functioning, recovery, quality of life.

Introduction

Defining recovery from problematic substance use attracts much interest within the addictions field. The Betty Ford Institute (BFI) characterised it as 'a voluntarily maintained lifestyle characterised by sobriety, personal health and citizenship'. [1] Subsequently, the UK Drug Policy Commission Recovery Consensus Group contributed a similar definition of: 'voluntarily-sustained control over substance use which maximises health and wellbeing and participation in the rights, roles and responsibilities of society'. [2] Those within the field have also attempted to delineate the recovery process, with White alluding to the individual's need to manage vulnerability to problems and develop a healthy and productive life [3], and Laudet identifying it as a process involving growth and self-change [4].

Final steps in the recovery process have been described as 'active coping' and 'life as it is meant to be lived' [5]. Life satisfaction has been shown to increase over time in recovery [6], with similar findings in patients with schizophrenia and substance dependence [7]. At 3 months into recovery, quality of life (QoL) scores start to increase with relapses impairing scores [8]. In alcohol-dependent inpatients, QoL was higher in those without depression or anxiety at a 6 week follow up compared with those with depression and anxiety, emphasising the diversity of psychosocial wellbeing within the recovery population [9].

Research into psychosocial measures using QoL within recovery remains limited [10,11] despite its identification as being useful in assessing the dimensions of recovery [1]. Many studies to date focus on

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QoL in an alcohol-dependent population at the initial stage of recovery within hospital treatment or detoxification settings [8,12–14].

Psychological health is integral to the recovery process, as anxiety and depression are highly prevalent within problem drinkers [15,16]. High risks for depression are known to exist in women 1–5 years into recovery [17]. Self-esteem significantly increases 1 year after discharge for inpatient alcohol treatment [18], but little is known about longer durations. Psychological health measures, including self-efficacy and psychological distress, have been shown to predict recovery outcomes at 10 years in heroin users [19].

The aims of this study were to explore how functioning levels varied according to two recovery stages identified by the BFI: ‘sustained recovery’ for recovery of up to 5 years and ‘stable recovery’ for those 5 or more years into recovery [1]. Measures of functioning for assessment included QoL, self-esteem, self-efficacy, physical and psychological health. The rationale for the study was to include only individuals who met the first definition—namely sobriety. Our aim was then to use a mixed methods approach to collecting data on recovery and functioning—a series of structured instruments were used to assess the QoL and global health components of recovery, while the qualitative part of the assessment examined the notion of citizenship. We are reporting primarily on recovery growth as measured by quantitative data in this paper.

Method

Design

Cross-sectional interviewer-administered structured questionnaires of recovering problem drinkers were conducted. Participants could also opt to self-complete the questionnaire and return it by post.

Ethics

Ethical approval was provided by the University of Birmingham BMedSc MiS Programme Ethics Committee prior to study commencement.

Participants

Individuals involved with alcohol support services identified mutual aid or alcohol support organisations in Birmingham which was supplemented by an internet search for other alcohol support groups in the city. A total of 11 organisations or groups were identified as providing recovery support for problem drinkers. Groups were contacted by telephone to inform them of the study, to determine whether the group had

members who met the eligibility criteria and whether they would be willing to assist in recruitment. Inclusion criteria were that participants: (i) acknowledged that they were dependent on alcohol at some point in their lives; (ii) had not used alcohol for at least 1 year; and (iii) perceived themselves as being in recovery or recovered. Those excluded were anyone under 18 years and those unable to complete the questionnaire in English to ensure translation did not detract from the scales’ validity and because of practical limitations on time and resources.

Participating groups either distributed leaflets or arranged for the researcher to attend a group meeting to inform members of the study and invite them to participate. Convenience sampling was also used whereby individuals identified or known to the researchers were approached to determine whether they would participate. All participants were asked to inform others in recovery about the study facilitating a snowball recruitment process. Eight groups agreed to assist in recruitment—one declined due to not having eligible members, one group reported a lack of interest by their members and the final group relied solely on convenience and snowball recruitment. Participation was voluntary and based on self-selected recruitment over the 8 week study period between February and April 2009. In other words, we do not have information on refusals as we were only contacted by those willing to take part and our only sampling information is that eight out of 11 groups approached agreed to discuss the project with their members. Informed consent was taken in advance of participation.

Instruments

Relevant sociodemographic data, information about the drinking career, key factors in the recovery process and other problem substances were collected. The instruments used to measure functioning are outlined in Table 1.

Procedure

Telephone or face-to-face interviews took place in the community or university. One researcher conducted all the interviews. Alternatively, participants could self-complete the questionnaire and return it free-post. A £5.00 supermarket voucher was offered to participants as reimbursement for taking the time to participate.

A convenience sample of two recovering problem drinkers piloted the study by telephone. Feedback was positive and suggested improvements related to the self-efficacy scale due to difficulty answering some questions. This was not implemented due to the possibility of detracting from the scales’ psychometric properties.

Table 1. Instruments used to assess functioning

Instrument	Description	Scoring information
Maudsley Addiction Profile (MAP) [20]: physical and psychological health (including depression ideation and anxiety)	Assesses treatment outcomes for those with drug and or alcohol problems [20]. It has demonstrated both reliability and acceptability within the target population [20,21]. Scales have 10 items with 'frequency in the last month' reported on a five point likert scale.	Lower scores denote less frequent experience of that symptom. Range of scores for each scale is 0–40. Marsden <i>et al.</i> [20]—reliability: 0.94; validity 0.81.
World Health Organisation Quality of Life BREF (WHO QoL BREF)[22]: physical health, psychological, social relationships and environment	The WHO QoL-BREF-TR (Turkish version) has previously been used in a population of alcohol dependent subjects [9]. The WHO QoL-BREF consists of 26 items on a 5-point likert scale[22] and has demonstrated psychometric properties of reliability and validity [23].	Higher scores denote a higher QoL. Skevington <i>et al.</i> [23] 'Good to excellent psychometric properties of reliability and performs well in preliminary tests of validity'. Raw scores were transformed to a score between 0 and 100 using WHO QoL BREF guidelines[24] to produce comparable scores with the WHO QoL-100.
Client Evaluation of Self and treatment (CEST)[25] : self-efficacy and self-esteem	Demonstrated to produce meaningful scores [25], with validity and adequate reliability at the patient-level [25].	Scores for each scale are averaged and multiplied by 10 to produce scores between 10 and 50. Higher scores denote higher functioning. Joe <i>et al.</i> [25]—reliability—self-efficacy (0.63), self-esteem (0.7)

Statistical analysis

Data were entered into the Statistical Package for the Social Sciences (SPSS) version 16 (SPSS Inc., Chicago, IL, USA) with 20% dual entered with an error rate of <1% of data fields. Descriptive statistics for demographic and alcohol history data were conducted and bivariate analyses explored differences between the early and stable alcohol recovery groups (see below), using χ^2 or Mann–Whitney *U*-tests for non-parametric data and two-tailed *t*-tests for parametric variables. Independent sample *t*-tests were used for parametric functioning scores or Mann–Whitney *U*-tests if non-parametric. One-sample *t*-tests compared recovery groups with norm scores for QoL [26], and substance-using populations for the Maudsley Addiction Profile (MAP) [20] and Client Evaluation of Self and Treatment (CEST) [27]. Spearman's correlations were conducted for time in recovery against all functioning variables. Stepwise linear regression assessed all functioning variables with abstinence duration as the dependent variable.

Results

Demographics

Fifty-three former problem drinkers participated. Five participants were less than a year abstinent, but were approaching 1 year alcohol-free and expressed a desire

to participate. These were grouped with 'sustained recovery' to form an 'early recovery' group. Recovery groups consisted of 35 in 'early recovery' and 18 in 'stable recovery'. Nineteen (35.8%) participants had face-to-face interviews, 14 (26.4%) had telephone interviews and 20 (37.7%) self-completed the questionnaire. The mean age of the total sample was 48.2 years (range 27–89 years, SD = 13.8). Significant differences existed for mean age between the groups: 42.6 years (SD = 10.7) for 'early recovery' and 58.9 years (SD = 12.9) for 'stable recovery' ($t = -4.87, P < 0.001$). 'Stable recovery' participants were significantly more likely to be living in their own home without professional support than those in 'early recovery' ($Z = -2.59, P = 0.010$) and more frequently reported that their partner had never been a problem drinker (90% vs. 36.4% in 'early recovery', $\chi^2 = 6.39, P = 0.024$). Group demographics are provided in Table 2.

There were no differences by response method in ethnicity, living status or marital status, but those completing the interviews face to face were significantly more likely to be male (18/19, 94.7%, compared with 55% of self-completions and 57.1% of telephone interviews). However, the interview methods were not associated with different recovery stages—65% of the self-completers were in early recovery, 50% of the telephone interviews and 78.9% of the face-to-face interviews ($\chi^2 = 3.03, P = 0.22$).

Table 2. Demographics of 'early recovery' and 'stable recovery'

	Early recovery (<i>n</i> = 35)	Stable recovery (<i>n</i> = 18)	<i>t</i> or χ^2	d.f.	<i>P</i> value
Age (Mean \pm SD)	42.56 (10.71)	58.89 (12.91)	<i>t</i> = -4.87	50	<0.001
Male <i>n</i> (%)	27 (77.1%)	10 (55.6%)	χ^2 = 2.30	1	0.105
White	33 (94.3%)	18 (100%)	χ^2 = 0.05	1	0.543
Asian	1 (2.9%)	0 (0%)	χ^2 = 0.52	1	1.00
Black	1 (2.9%)	0 (0%)	χ^2 = 0.52	1	1.00
Currently with a partner <i>n</i> (%)	11 (31.4%)	10 (55.6%)	χ^2 = 2.89	1	0.089
Partner status: a problem drinker	1 (9.09)	0 (0.00)	<i>t</i> = 0.96	1	1.00
Partner status: never had a problem with drinking	4 (36.36)	9 (90.00)	<i>t</i> = 6.39	1	0.024
Partner status: has been a problem drinker in the past	6 (54.55)	1 (10.00)	<i>t</i> = 4.68	1	0.063
Reported being employed <i>n</i> /valid <i>n</i> (%)	8/34 (23.53%)	8/16 (50.00)	<i>t</i> = 3.50	1	0.061

Table 3. Alcohol history for 'early recovery' and 'stable recovery'

	Early recovery <i>n</i> = 35	Stable recovery <i>n</i> = 18	<i>t</i> or χ^2	d.f.	<i>P</i> value
Age first consumed alcohol (Mean \pm SD)	13.45 (3.37)	14.67 (3.71)	<i>t</i> = -1.18	49	0.242
Age of first daily use (Mean \pm SD)	23.61 (11.08)	29.56 (11.48)	<i>t</i> = -1.72	45	0.092
Age of highest daily use (Mean \pm SD)	35.58 (12.27)	36.28 (11.28)	<i>t</i> = -0.20	49	0.842
Age of first self-attempt at abstinence (Mean \pm SD)	34.84 (13.26)	39.73 (12.57)	<i>t</i> = -1.26	48	0.215
Attended at least one meeting of AA <i>n</i> (%)	31 (88.6%)	18 (100%)	χ^2 = 2.23	1	0.287
Member of AA <i>n</i> /valid <i>n</i> (%)	22/34 (64.7%)	17/18 (94.4%)	χ^2 = 5.55	1	0.021
Attended other alcohol mutual aid groups <i>n</i> (%)	22 (62.9%)	9 (50%)	χ^2 = 0.81	1	0.368
Accessed treatment for drinking <i>n</i> /valid <i>n</i> (%)	23/33 (69.7%)	8/16 (50%)	χ^2 = 1.80	1	0.180
Other problem substance: illicit drugs or opiate painkillers <i>n</i> (%)	17 (48.6%)	5 (27.8%)	χ^2 = 2.12	1	0.146

Alcohol history

Overall, the mean time abstinent for the sample was 6.5 years (\pm 8.8 years) with a range of just under 1 year to 35 years. The mean duration of alcohol abstinence was 1.8 years (SD = 0.94) in 'early recovery', and 15.5 years (SD = 10.12) in 'stable recovery'. Both groups reported similar mean ages for key events in the drinking career (see Table 3) indicating comparability. Although attendance of at least one Alcoholics Anonymous (AA) meeting did not differ between groups, AA membership was higher in 'stable recovery' (94.4% vs. 64.7%, χ^2 = 5.55, *P* = 0.021).

Functioning

High proportions of both groups rated their overall QoL as 'good' or 'very good'; 82.9% of 'early recovery' and 88.9% of 'stable recovery'. In terms of the domains of the World Health Organisation (WHO) QoL scale, physical health satisfaction did not significantly differ, whereas satisfaction with social relations, psychological health and environment (satisfaction with the individual's living environment) was all higher

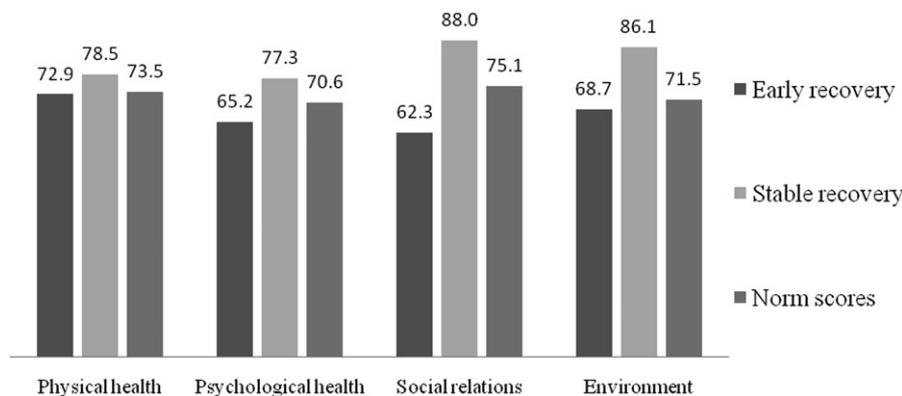
for those in 'stable recovery' (*P* < 0.05 for all variables, see Table 4). Figure 1 shows comparisons of the two recovery groups to QoL norm scores [26], indicating that scores for the psychological health, social relationships and environment domains of QoL were significantly lower than norm scores for those in 'early recovery'; social relationships and environment QoL were significantly higher than norm scores for those in 'stable recovery'.

In psychological wellbeing, depression was significantly lower in 'stable recovery' (*t* = 2.29 *P* = 0.027) and self-esteem levels were higher compared with 'early recovery' (*t* = -2.35 *P* = 0.023) (see Table 5). Anxiety and self-efficacy were reported similarly between the two groups. Substance-using populations in treatment for whom norms had been established with these instruments had significantly worse psychological health, physical health, depression and anxiety levels compared with both recovery groups (see Table 5). No differences existed when comparing a substance-using population with either recovery group for self-efficacy. Self-esteem was higher for both recovery groups than substance users, but was only significantly higher for 'stable recovery' (*P* = 0.002).

Table 4. QoL for 'early recovery' and 'stable recovery' with between-group comparisons and comparisons with norm scores^a

	Norm scores [26]	Early recovery <i>n</i> = 35	Stable recovery <i>n</i> = 18	<i>P</i> value (early recovery vs. norm score)[26]	<i>P</i> value (stable recovery vs. norm score)[26]	<i>t</i>	d.f.	<i>P</i> value (early vs. stable recovery)
Rating of quality of life ^b	—	4.17 (0.76)	4.56 (0.86)	—	—	—	—	0.026
Satisfaction with health ^b	—	3.71 (0.82)	3.83 (1.20)	—	—	—	—	0.344
Physical health (Mean ± SD)	73.5 (18.1)	72.92 (17.01)	78.50 (22.39)	0.843	0.356	-1.01	51	0.315
Psychological health (Mean ± SD)	70.6 (14.0)	65.24 (13.44)	77.32 (15.54)	0.024	0.084	-2.94	51	0.005
Social relations (Mean ± SD)	71.5 (18.2)	62.26 (20.44)	87.99 (15.01)	0.011	<0.001	-4.61	50	<0.001
Environment (Mean ± SD)	75.1 (13.0)	68.70 (15.81)	86.11 (9.95)	0.022	<0.001	-4.25	51	<0.001

t and d.f. refer to comparisons between 'early recovery' and the 'stable recovery' groups. ^aAs reported by Skevington *et al.* [23]. ^b'Rating of quality of life' and 'satisfaction with health' were analysed using Mann-Whitney *U*-tests. QoL, quality of life.

**Figure 1.** Comparisons of 'early recovery' and 'stable recovery' to norm scores for quality of life domains.

Correlations between functioning and abstinence duration

Significant correlations existed between abstinence duration and the functioning variables: overall QoL, and the QoL domain scores around social relationships, environment, psychological health, as well as depression, and anxiety (see Table 6), suggesting an incremental gain in functioning over time rather than a stepwise change according to recovery stage. Furthermore, predictors of abstinence duration with all functioning variables included in a stepwise linear regression model established social relationships as an independent predictor of time since last alcoholic drink ($R^2 = 0.18$, $F = 12.00$, $P = 0.001$). No other variables were significant predictors of abstinence duration in the final regression model.

A second regression analysis was conducted to predict the overall level of QoL—a composite of the four domains of the WHO measure. The variables

included in the analysis were age, gender, whether the individual's partner was a current drinker, 12-step membership, self-esteem, self-efficacy, depression, anxiety and physical health. The model was strongly predictive ($R^2 = 0.68$, $F = 10.07$, $P = 0.000$) with the significant variables being lower anxiety, depression and physical health symptoms, better self-esteem, older age and being female.

Discussion

This is the first UK study to our knowledge which attempts to assess current functioning in problem drinkers who have attained extended periods of abstinence comparing recovery stages on standardised measures. Basic differences exist in functioning between 'early' and 'stable recovery'—a distinction proposed by the BFI. However, there is no indication here that the 5 years of abstinence defined by BFI Consensus Group

Table 5. MAP and CEST functioning according to recovery stage with between-group comparisons and comparisons with substance-using populations

	Substance users [20,27]	Early recovery <i>n</i> = 35	Stable recovery <i>n</i> = 18	First comparison ^a [20,27]	Second comparison ^b [20,27]	<i>t</i>	d.f.	Early vs. stable recovery
Physical health (Mean ± SD)	15.5 (7.3)	8.11 (5.74)	7.33 (6.08)	<0.001	<0.001	0.460	51	0.647
Anxiety (Mean ± SD)	8.5 (4.8)	5.74 (3.55)	4.22 (4.06)	<0.001	<0.001	1.405	51	0.166
Depression (Mean ± SD)	9.3 (5.2)	4.89 (3.90)	2.38 (3.47)	<0.001	<0.001	2.285	51	0.027
Psychological (Mean ± SD)	17.8 (9.0)	10.63 (6.75)	6.61 (7.01)	<0.001	<0.001	2.025	51	0.048
Self-esteem (Mean ± SD)	35.6	37.26 (6.84)	42.03 (7.33)	0.159	0.002	-2.347	51	0.023
Self-efficacy (Mean ± SD)	36.6	36.37 (6.88)	39.03 (8.03)	0.846	0.216	-1.260	51	0.213

t and d.f. refer to comparisons between 'early recovery' and the 'stable recovery' groups. ^aFirst comparison: *P* values for 'Early recovery' vs. substance users. ^bSecond comparison: *P* values for 'stable recovery' vs. substance users. CEST, Client Evaluation of Self and treatment; MAP, Maudsley Addiction Profile.

Table 6. Correlations between functioning variables and abstinence duration

Instrument	Functioning measure	<i>r_s</i>	<i>P</i> value
QoL	Rating of QoL	0.377	0.005
	Physical	0.141	0.312
	Psychological	0.312	0.001
	Social relationships	0.594	<0.001
	Environment	0.629	<0.001
CEST	Self-esteem	0.244	0.079
	Self-efficacy	0.122	0.383
MAP	Physical health	-0.120	0.392
	Psychological health	-0.355	0.009
	Depression	-0.363	0.007
	Anxiety	-0.274	0.047

r_s = Spearman's rank correlation coefficient. CEST, Client Evaluation of Self and treatment; MAP, Maudsley Addiction Profile; QoL, quality of life.

represents a plateau of recovery and the current data would suggest that growth continues considerably beyond this point.

Reported QoL around social relationships were the only independent predictor of time abstinent. Reasons for sustaining abstinence in problem drinkers include moving away from substance-using friends and support from a partner or friends [28]. Time and abstinence are also important for repairing social relationships [29]. It is plausible that the process of forming and repairing friendships with non-substance users and those in recovery is gradual and becomes increasingly central to the ongoing recovery journey, with some of the lasting

and strong relationships being developed as part of mutual aid or other structured recovery supports. Notably, the 'stable recovery' group had greater proportions of AA members and Humphreys *et al.* demonstrated that the number of AA meetings attended in the first 3 years of abstinence predicted a higher quality of relationships at 8 years, possibly explaining higher ratings of QoL around social relationships in this group [30].

'Stable recovery' participants were more likely to report having partners who had never been problem drinkers which may reflect findings elsewhere that alcohol use disorder status in partners was a predictor of recovery outcome at 9 years [31]. Although social relations improved with time, we do not know whether this would be similar within a natural recovery group, as our recruitment was largely drawn from mutual aid groups which have been linked to enhanced friendship networks [32]. Those in 'stable recovery' had higher social relationship scores than general population norms, suggesting the centrality of social functioning to ongoing wellbeing in this group and hope for those in recovery of social support and relationships beyond the pre-morbid state.

Depression and anxiety are highly prevalent comorbidities in alcohol misuse [15,16] and we demonstrated that both recovery groups had significantly lower depression and anxiety levels compared with a current substance-using population, highlighting a generalised recovery process that is predictive of improved psychological wellbeing. Depression has been shown to decrease 3 months after alcohol treatment [33] with the high proportions of those reporting having treatment in

our study likely to have already experienced these cited drops. In problem drinkers attempting recovery, health, self-confidence and finance have been shown to predict depression at various time points [34]. Employment also has positive effects on anxiety and depression in problem drinkers [35], and may partly explain differences alongside integral contributors, including social relationships and life change. However, the key conclusion is that, as with positive measures of functioning, there are gradual improvements in psychological wellbeing that are associated with increased time in recovery.

Low self-esteem often exists in a substance-using population [36] and higher self-esteem in 'stable recovery' suggests a positive change. We found no differences between self-efficacy and substance users or differences according to recovery duration. These are not consistent with findings that the greatest changes in alcohol-related self-efficacy occur between seeking help for alcohol problems and 1 year, and then remain high [37]. Possible explanations for this may relate to contributors, such as age, or may reflect spiritual differences in higher power beliefs intrinsic to AA traditions.

In contrast, QoL environmental scores correlated positively with time in recovery and may represent differences in stability of life structures as a high proportion of the 'stable' group lived in their own home without professional support and, although not significant, greater proportions of those in 'stable recovery' were employed. There is likely to be a complex developmental dynamic between improvements in QoL, the stability of life structures and changes in social networks as people move away from substance-using peers.

Study limitations were difficult to control, particularly in the area of sampling. Three different methods were used for questionnaire completion which, although favourable to participants, may have affected instrument completion and contributed different associated biases, although this did not affect allocation to recovery groups. We also relied on others' published functioning scores for our comparisons with norms and substance users. In recovery studies, there are ongoing issues with sampling [38] and this study also suffers from the problems of convenience sampling with resulting issues about representativeness and generalisability. Notably, the study has nothing to say about the longevity of recovery and only looks at functioning levels in those who characterise themselves as in recovery and define recovery as abstinence, and we do not have individual-based longitudinal changes. The fact that the majority of the sample had significant mutual aid histories and identified themselves as having a lifetime dependence means that the study has little to say about

either the processes of natural recovery or the recovery journeys of harmful or hazardous drinkers.

There are also issues around the arbitrary nature of the inclusion criteria in the study. We specified that individuals should meet the 'sobriety' condition of recovery by having abstained from alcohol for 1 year. It is recognised that this will exclude those who regard themselves as controlled drinkers and the time window is also arbitrary. It also meant that we did not have a control group of active drinkers to compare against, and so we cannot assume that QoL is higher in abstinent than in continuing drinkers from the current study. There is also a relationship with age—both in terms of older participants reporting higher QoL and that they are more likely to be in the 'stable recovery' group, and we would suggest that future prospective research may need to investigate the age effects in maturing out of alcohol problems.

Although we infer improvements in QoL as a function of recovery, we do not have baseline data as this is a cross-sectional study, and it is possible that those in the high functioning group had higher baseline levels of QoL.

Initial difficulties engaging with AA due to their philosophy on having no opinion on outside issues meant that we relied on convenience and snowball recruitment with potential participants accessed through initial known contacts, with it becoming increasingly apparent that large numbers of those contacted were involved with AA groups. This study is hugely influenced by high proportions of those in 'stable recovery' involved in 12-step programs with potential differences compared with non-AA members at longer lengths of sobriety. However, 12-step affiliation has been shown to be a predictor of abstinent recovery and length of recovery [39], and it remains unknown about how many of those in long-term recovery do not have an AA link [38]. Furthermore, our findings could be supported by a longitudinal study of those starting treatment with lifetime follow up, or by a more assertive approach to recruitment to address concerns that those who took part are those most positive in their life changes.

Our study's diverse approach in assessing recovery through recruiting from many different mutual aid groups and analysing a variety of functioning measures allowed appreciation of recovery's dimensions and constituents. Understanding what keeps those who have maintained abstinence in a state of wellbeing has positive implications for those involved in supporting recovering problem drinkers. While our study has methodological limitations, it shows gradual rates of improvement in QoL and psychological wellbeing in recovering drinkers that may also be linked to increases in life stability. Finally, the finding that stably recovering drinkers reported higher levels of QoL for social rela-

tions would suggest that recovery is not simply about removal of symptoms, but may offer a transformative process that enhances and exceeds what is available in 'ordinary' life.

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Authors contributions

Dr David Best conceived the study, assisted in protocol and methodological design and critically reviewed the final study report. Louise Hibbert developed the study protocol, undertook all recruitment, data collection and data analysis and wrote the final report.

References

- [1] Betty Ford Institute Consensus Group. What is recovery? A working definition from the Betty Ford Institute. *J Subst Abuse Treat* 2007;33:221–8.
- [2] The UK Drug Policy Commission Recovery Consensus Group. 2008 A vision of recovery. Available from: <http://www.ukdpc.org.uk/resources/A%20Vision%20of%20Recovery.pdf> (accessed August 2008).
- [3] White WL. Addiction recovery: its definition and conceptual boundaries. *J Subst Abuse Treat* 2007;33:229–41.
- [4] Laudet AB. What does recovery mean to you? Lessons from the recovery experience for research and practice. *J Subst Abuse Treat* 2007;33:243–56.
- [5] Mohatt GV, Rasmus SM, Thomas L, Allen J, Hazel K, Marlatt GA. Risk, resilience, and natural recovery: a model of recovery from alcohol abuse for Alaska Natives. *Addiction* 2008;103:205–15.
- [6] Laudet AB, Morgen K, White WL. The role of social supports, spirituality, religiousness, life meaning and affiliation with 12-Step fellowships in quality of life satisfaction among

- individuals in recovery from alcohol and drug problems. *Alcohol Treat Q* 2006;24:33–73.
- [7] Xie H, McHugo GJ, Helmstetter BS, Drake RE. Three-year recovery outcomes for long-term patients with co-occurring schizophrenic and substance use disorders. *Schizophr Res* 2005;75:337–48.
- [8] Foster JH, Marshall EJ, Peters TJ. Application of a quality of life measure, the life situation survey (LSS), to alcohol-dependent subjects in relapse and remission. *Alcohol Clin Exp Res* 2000;24:1687–92.
- [9] Saatcioglu O, Yapici A, Cakmak D. Quality of life, depression and anxiety in alcohol dependence. *Drug Alcohol Rev* 2008;27:83–90.
- [10] Smith KW, Larson MJ. Quality of life assessments by adult substance abusers receiving publicly funded treatment in Massachusetts. *Am J Drug Alcohol Abuse* 2003;29:323–35.
- [11] Foster JH, Powell JE, Marshall EJ, Peters TJ. Quality of life in alcohol-dependent subjects—a review. *Qual Life Res* 1999;8:255–61.
- [12] Foster JH, Peters TJ, Marshall EJ. Quality of life measures and outcome in alcohol-dependent men and women. *Alcohol* 2000;22:45–52.
- [13] Holcomb WR, Parker JC, Leong GB. Outcomes of inpatients treated on a VA psychiatric unit and a substance abuse treatment unit. *Psychiatr Serv* 1997;48:699–704.
- [14] Morgan TJ, Morgenstern J, Blanchard KA, Labouvie E, Bux DA. Health-related quality of life for adults participating in outpatient substance abuse treatment. *Am J Addict* 2003;12:198–210.
- [15] Wetterling T, Junghanns K. Psychopathology of alcoholics during withdrawal and early abstinence. *Eur Psychiatry* 2000;15:483–8.
- [16] Tomasson K, Vaglum P. A nationwide representative sample of treatment-seeking alcoholics: a study of psychiatric comorbidity. *Acta Psychiatr Scand* 1995;92:378–85.
- [17] Weaver GD, Turner NH, O'Dell KJ. Depressive symptoms, stress, and coping among women recovering from addiction. *J Subst Abuse Treat* 2000;18:161–7.
- [18] Trucco EM, Connery HS, Griffin ML, Greenfield SF. The relationship of self-esteem and self-efficacy to treatment outcomes of alcohol-dependent men and women. *Am J Addict* 2007;16:85–92.
- [19] Hser YI. Predicting long-term stable recovery from heroin addiction: findings from a 33-year follow-up study. *J Addict Dis* 2007;26:51–60.
- [20] Marsden J, Gossop M, Stewart D, *et al.* The Maudsley Addiction Profile (MAP): a brief instrument for assessing treatment outcome. *Addiction* 1998;93:1857–67.
- [21] Marsden J, Nizzoli U, Corbelli C, *et al.* New European instruments for treatment outcome research: reliability of the maudslay addiction profile and treatment perceptions questionnaire in Italy, Spain and Portugal. *Eur Addict Res* 2000;6:115–22.
- [22] World Health Organisation. The World Health Organisation Quality of Life—WHOQOL BREF. 2004 Available from: http://www.who.int/substance_abuse/research_tools/en/english_whoqol.pdf (accessed December 2009).
- [23] Skevington SM, Lotfy M, O'Connell KA. The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. *Qual Life Res* 2004;13:299–310.
- [24] WHO. WHO QOL user manual. 1998 Available from: http://www.who.int/mental_health/evidence/who_qol_user_manual_98.pdf (accessed December 2009).

- [25] Joe GW, Broome KM, Rowan-Szal GA, Simpson DD. Measuring patient attributes and engagement in treatment. *J Subst Abuse Treat* 2002;22:183–96.
- [26] Hawthorne G, Herrman H, Murphy B. Interpreting the WHOQOL-Bref: preliminary population norms and effect sizes. *Soc Indic Res* 2006;77:37–59.
- [27] TCU. Means and norms for client functioning. 2005 Available from: <http://www.ibr.tcu.edu/evidence/CESTNormsTotal25-75.pdf> (accessed May 2009).
- [28] Best D, Ghufuran S, Day E, Ray R, Loring J. Breaking the habit: A retrospective analysis of desistance factors among formerly problematic heroin users. *Drug Alcohol Rev* 2008;27:619–24.
- [29] De Soto CB, O'Donnell WE, De Soto JL. Long-term recovery in alcoholics. *Alcohol Clin Exp Res* 1989;13:693–7.
- [30] Humphreys K, Moos RH, Cohen C. Social and community resources and long-term recovery from treated and untreated alcoholism. *J Stud Alcohol* 1997;58:231–8.
- [31] McAweeney MJ, Zucker RA, Fitzgerald HE, Puttler LI, Wong MM. Individual and partner predictors of recovery from alcohol-use disorder over a nine-year interval: findings from a community sample of alcoholic married men. *J Stud Alcohol* 2005;66:220–8.
- [32] Humphreys K, Mankowski ES, Moos RH, Finney JW. Do enhanced friendship networks and active coping mediate the effect of self-help groups on substance abuse? *Ann Behav Med* 1999;21:54–60.
- [33] Charney DA, Paraherakis AM, Negrete JC, Gill KJ. The impact of depression on the outcome of addictions treatment. *J Subst Abuse Treat* 1998;15:123–30.
- [34] Moos RH, Moos BS. Protective resources and long-term recovery from alcohol use disorders. *Drug Alcohol Depend* 2007;86:46–54.
- [35] Braunstein WB, Powell BJ, McGowan JF, Thoreson RW. Employment factors in outpatient recovery of alcoholics: a multivariate study. *Addict Behav* 1983;8:345–51.
- [36] Charalampous KD, Ford BK, Skinner TJ. Self-esteem in alcoholics and nonalcoholics. *J Stud Alcohol* 1976;37:990–4.
- [37] McKellar J, Ilgen M, Moos BS, Moos R. Predictors of changes in alcohol-related self-efficacy over 16 years. *J Subst Abuse Treat* 2008;35:148–55.
- [38] Best DW, Ghufuran S, Day E, Ray R, Loring J. Breaking the habit: a retrospective analysis of desistance factors among formerly problematic heroin users. *Drug Alcohol Rev* 2008;27:619–24.
- [39] Laudet AB, White WL. Recovery capital as prospective predictor of sustained recovery, life satisfaction, and stress among former poly-substance users. *Subst Use Misuse* 2008;43:27–54.