

Excessive alcohol consumption is associated with reduced quality of life among methadone patients

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ABSTRACT

Aim To evaluate the impact of excessive alcohol consumption on the health-related quality of life of patients receiving methadone treatment for opioid dependence. **Design** A cross-sectional survey. **Participants** One hundred and ninety-two patients attending out-patient methadone clinics in the south-east of England, United Kingdom. **Measurements** Quality of life (QoL) was assessed using the Medical Outcomes Study: General Health Survey, Short Form (SF-12). Alcohol consumption was assessed using the Alcohol Use Disorders Identification Test (AUDIT). **Findings** Approximately one-third of the sample (57/192) were AUDIT-positive (score ≥ 8) and 20 of the 135 AUDIT-negative patients reported past history of alcohol problems. AUDIT-positive patients were less satisfied with their methadone dose than AUDIT-negative patients ($P = 0.002$), despite having a higher dose. AUDIT-positive patients reported more physical ($P = 0.020$) and psychological ($P = 0.034$) health problems and poorer QoL ($P = 0.008$) with an estimated effect size of 0.46. Lower QoL scores for AUDIT-positive patients affected both 'physical' ($P = 0.009$) and 'psychological' ($P = 0.012$) health domains with poor role functioning ('role limitation' due to physical health, $P < 0.001$ and to emotional health, $P = 0.009$), social functioning ($P = 0.015$) and self-perceived general health ($P = 0.029$). **Conclusion** Excessive alcohol consumption may be associated with a distinctive pattern of QoL impairment in methadone patients. In addition to advising methadone patients regarding their alcohol consumption, comprehensive care plans should seek to restore normal personal, family and social role functioning through the provision of appropriate health and social care.

Keywords Alcohol problems, Alcohol Use Disorders Identification Test, methadone treatment, quality of life, role functioning.

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INTRODUCTION

Approximately one-third of patients in methadone treatment programmes (MTP) consume excessive amounts of alcohol [1]. While excessive drinking is known to have adverse health and social consequences in the general population [2], the nature of these outcomes have not been documented adequately among individuals with comorbid opioid dependence [3,4]. Unlike clinician assessment of patient's health or drug use, quality of life (QoL) is an outcome measure based on an individual's perception of his/her health and daily functioning [5]. QoL is being recognized increasingly as a more accurate measure of the health and social benefits resulting from treatment of drug and alcohol problems [6,7].

Only a handful of studies have examined the QoL of opioid-dependent patients [7–11]. Relative to the general population, the QoL of heroin-dependent patients is poor at treatment entry but substantial improvement occurs between the first and third month of methadone treatment, before cessation of heroin use or criminal behaviour [12]. Improvement in QoL lasts for at least 3 years, reinforcing the importance of retaining patients in treatment for long periods [13]. However, varying degrees of health and social problems persist among MTP patients [14,15]. Excessive drinking is associated with poor QoL in the general population [16–18]. This suggests that MTP patients with comorbid alcohol problems might have greater level of QoL impairment. We report the results of a cross-sectional

study designed to assess the impact of excessive drinking on the QoL of patients prescribed methadone in a suburban/rural out-patient setting.

METHODS

Participants

Subjects were consecutive attendees aged 18 years or older and stabilized on methadone maintenance or slow-reduction treatment for at least 1 month. Ethical approval and informed consent were obtained. The study questionnaire was completed by participants assisted, when needed, by an independent 'adviser'.

Measurements

QoL was assessed using the 12-item General Health Survey, Short-Form, SF-12 [19]. The SF-12 reproduces more than 90% of the variance in the scores of SF-36, the most frequently cited QoL measure [19,20]. The syntax file produced one 'summary-QoL' score, two 'domain' scores ('physical' and 'psychological' health) and eight 'scale' scores ('physical functioning', 'role physical', 'bodily pain', 'general health', 'vitality', 'social functioning', 'role emotional' and 'mental health') for each patient. The scores ranged from 0 to 100, with higher scores indicating better functioning or better QoL. Alcohol consumption was assessed using the 10-item AUDIT questionnaire [21]. Drug use was assessed using the substance use section of the Maudsley Addiction Profile, MAP [22]. Health problems and past history of alcohol problems were indicated by 'yes' or 'no' responses.

Classification of the participants

History of previous alcohol problems is associated with poor QoL [18]. Thus, using the recommended cut-off score (≥ 8) for a positive AUDIT test [21], participants were classified into three groups: those who scored ≥ 8 ('AUDIT-pos' group), those who scored ≤ 7 and had past history of alcohol problems ('Past-alc' group) and those who scored ≤ 7 and reported never having alcohol problems ('AUDIT-neg' group).

Statistical analyses

Normally distributed variables were described with means, standard deviations (SD) and confidence intervals (CI). Groups were compared using mean differences, odds ratios (OR), confidence intervals (CI), χ^2 or independent *t*-test. QoL dimensions—health problems, homelessness and unemployment—were not used as covariants in the regression analysis. Effect size was calculated as adjusted mean difference in summary-QoL scores divided by the SD for the whole sample. Significance was designated at 95% ($P < 0.05$).

RESULTS

Of the 205 patients approached, 192 (93.7%) completed the study questionnaire. There were 57 patients in the AUDIT-pos group (29.7%), 20 in the Past-alc group (10.4%) and 115 in the AUDIT-neg group (59.9%).

Socio-demographic data

The participants were predominantly male (70.3%), white European (97.9%) and unemployed (73.0%). There were no significant differences in the mean age \pm SD (95% CI) of the groups: AUDIT-pos 32.7 ± 8.9 (30.4, 35.0); Past-alc 35.9 ± 10.2 (31.4, 40.4); AUDIT-neg 32.6 ± 8.2 (31.1, 34.1). Compared with AUDIT-neg patients, AUDIT-pos patients were more likely to be male ($P = 0.040$), homeless ($P < 0.001$) and unemployed ($P = 0.003$, Table 1).

Methadone treatment

Methadone doses ranged from 2 to 105 mg/day with a mean \pm SD (95% CI) of 38 ± 16 (35, 40) for the whole sample, 41 ± 15 (37, 45) for AUDIT-pos, 42 ± 16 (35, 49) for Past-alc and 36 ± 17 (33, 38) for AUDIT-neg groups. In spite of the higher doses, AUDIT-pos and Past-alc patients were less satisfied with their dose than AUDIT-neg patients ($P = 0.002$ and $P = 0.030$, respectively).

Drug use

Half of the subjects (49.4%) had used heroin in the preceding 14 days. Nearly two-thirds (60.7%) had used cannabis and approximately one-quarter reported benzodiazepines or cocaine use (28.6% and 21.5%, respectively), with no significant differences between the groups (Table 1).

Tobacco smoking

The majority (96.2%) smoked cigarettes/hand-rolled tobacco with a mean \pm SD (95% CI) of 19 ± 9.2 (17, 21) cigarettes/day for AUDIT-pos patients and 14 ± 8.3 (13, 16) for AUDIT-neg patients (mean difference 4.6; 95% CI 1.8, 7.3; $P = 0.001$). There were no significant differences in the proportion of smokers or the self-perceived effects of smoking on health (Table 1).

Self-perceived physical and psychological health problems

AUDIT-pos patients reported more physical ($P = 0.020$) and psychological ($P = 0.034$) health problems, anxiety/panic attacks ($P = 0.029$) and fits/seizures ($P = 0.013$) than AUDIT-neg patients (Table 2). Low mood and hepatitis C were more common in Past-alc patients ($P = 0.015$ and 0.044, respectively).

Table 1 Socio-demographic data, illicit drug and tobacco use for 192 methadone patients classified according to alcohol consumption.

	AUDIT-pos group (n = 57) n (%)	Past-alc group (n = 20) n (%)	AUDIT-neg group (n = 115) n (%)	AUDIT-pos group versus AUDIT-neg group			
				χ^2	OR	95% CI	P (two-tailed)
Gender							
Male	45 (78.9)	17 (85.0)	73 (63.5)	4.2	2.2	1.0–4.5	0.040*
Housing[†]							
Homeless	19 (33.3)	1 (5.0)	6 (5.2)	24.3	9.1	3.4–24.4	<0.001*
Employment							
Unemployed (n = 189)	52 (92.9)	15 (78.9)	84 (73.7)	8.6	4.6	1.5–13.9	0.003*
Ethnicity							
White European	55 (96.5)	20 (100)	113 (98.3)	0.5	0.5	0.1–3.5	0.469
Time in treatment							
> 1 year	25 (43.9)	10 (50.0)	60 (52.2)	1.1	1.4	0.7–2.6	0.305
Drug use							
Heroin (n = 191)	30 (53.6)	10 (50.0)	55 (47.8)	0.5	1.3	0.7–2.4	0.481
Benzodiazepines (n = 189)	20 (35.7)	5 (26.3)	29 (25.4)	1.9	1.6	0.8–3.2	0.164
Cocaine (n = 191)	16 (28.6)	2 (10.0)	23 (20.0)	1.6	1.6	0.8–3.3	0.210
Cannabis (n = 191)	40 (71.4)	11 (55.0)	65 (56.5)	3.5	1.9	0.9–3.8	0.060
Tobacco smoking							
Smoker (n = 189)	55 (98.2)	20 (100.0)	107 (94.7)	1.2	3.1	0.4–26.3	0.279
Perceived adverse effects of smoking on health (n = 182)							
None	1 (1.8)	1 (5.0)	9 (8.0)				
A little	31 (55.4)	10 (50.0)	44 (38.9)				
Quite a lot	23 (41.1)	9 (45.0)	54 (47.8)	5.0	–	–	0.084

P = unadjusted P-value (simple association). *Significant difference between AUDIT-pos and AUDIT-neg groups. †Significant difference between AUDIT-pos and Past-alc groups (OR 9.5, 95% CI 1.2–76.4, P = 0.013). The number (n) of subjects for variables with some missing data is shown in parenthesis next to the variable name.

Table 2 Self-reports of physical and psychological health problems in the preceding 3-month period according to alcohol consumption.

	AUDIT-pos group (n = 57)		Past-alc group (n = 20)		AUDIT-neg group (n = 115)		AUDIT-pos group versus AUDIT-neg group		
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	OR	95% CI	
Psychological health									
One or more psychological health problems	31 (54.4)	11 (55.0)	43 (37.4)	2.0	1.0–3.8	0.034*			
Anxiety/panic attacks (n = 182)	20 (35.1)	4 (22.2)	21 (19.6)	2.2	1.1–4.6	0.029*			
Fits/seizures/epilepsy (n = 184)	8 (14.3)	–	4 (3.7)	4.4	1.3–15.2	0.013*			
Low mood (n = 188)†	25 (43.9)	11 (57.9)	33 (29.5)	1.9	1.0–3.6	0.062			
Self-harm/suicide attempt (n = 185)	4 (7.0)	1 (5.3)	3 (2.8)	2.7	0.6–12.4	0.194			
Physical health									
One or more physical health problems	33 (57.9)	12 (60.0)	45 (39.1)	2.1	1.1–4.1	0.020*			
Hepatitis C seropositive (n = 124)†	14 (36.8)	7 (50.0)	17 (23.6)	1.9	0.8–4.4	0.142			
Hepatitis B seropositive (n = 120)	4 (10.8)	1 (7.1)	3 (4.3)	2.7	0.6–12.6	0.202			
Breathing/chest									
Problems (n = 186)	20 (35.1)	7 (36.8)	28 (25.5)	1.6	0.8–3.2	0.192			
Deep vein thrombosis (DVT, n = 184)	4 (7.1)	1 (5.3)	1 (0.9)	8.3	0.9–76.0	0.027*			

P = unadjusted P-value (simple association). *Significant difference between AUDIT-pos and AUDIT-neg groups. †Significant difference between Past-alc and AUDIT-neg groups (low mood: OR 3.3, 95% CI 1.2–8.9, P = 0.015; Hepatitis C: OR 3.2, 95% CI 1.0–10.5, P = 0.044). The number (n) of subjects for variables with some missing data is shown in parenthesis next to the variable name. Missing data for Hepatitis C and Hepatitis B include patients who have not been tested.

Table 3 Mean QoL scores according to alcohol consumption with group comparisons.

SF-12 QoL measure	Mean QoL score		AUDIT-pos versus AUDIT-neg groups			Past-alc versus AUDIT-neg groups			
	AUDIT-pos group (n = 57)	Past-alc group (n = 20)	AUDIT-neg group (n = 115)	Mean difference	95% CI	P (2-tailed)	Mean difference	95% CI	P (two-tailed)
Summary score									
Mean \pm SD (95% CI)	50.6 \pm 21.6 (44.8–56.5)	48.4 \pm 20.6 (38.9–57.9)	61.0 \pm 23.2 (56.6–65.3)	10.4	2.8–18.0	0.008*	12.5	1.0–24.1	0.033*
Domain scores									
Physical health	53.4	46.9	64.3	11.0	2.7–19.3	0.009*	17.4	5.0–29.9	0.006*
Psychological health	47.0	49.7	57.3	10.3	2.3–18.2	0.012*	7.6	(-) 4.7–19.9	0.223
Physical health scales									
Physical functioning	71.5	66.3	75.0	3.5	(-) 7.0–14.0	0.510	8.8	(-) 7.5–25.0	0.289
Role limitation (due to physical health)	43.8	37.5	69.7	26.0	11.9–40.1	< 0.001*	32.2	11.7–52.8	0.002*
Bodily pain	69.3	51.3	74.8	5.4	(-) 4.7–15.6	0.287	23.5	8.1–38.9	0.003*
General health	28.5	32.5	36.1	7.6	0.8–14.4	0.029*	3.6	(-) 6.7–13.9	0.493
Psychological health scales									
Mental health	48.8	49.5	53.0	4.2	(-) 3.4–11.8	0.276	3.4	(-) 7.8–14.8	0.543
Role limitation (due to emotional problems)	45.3	52.8	63.3	18.0	4.6–31.7	0.009*	10.5	(-) 10.4–31.4	0.321
Vitality	41.8	33.0	45.1	3.3	(-) 5.2–11.8	0.440	12.1	(-) 1.2–25.3	0.074
Social functioning	53.5	60.0	65.6	12.1	2.4–21.8	0.015*	5.6	(-) 9.2–20.4	0.449

P = unadjusted P-value (simple association). *Significant differences between groups as indicated.

SF-12 QoL scores

Summary-QoL scores ranged from 10 to 96 with a mean \pm SD (95% CI) of 56 ± 23 (53, 60) for the whole sample and lower scores for AUDIT-pos than AUDIT-neg patients (mean difference 10.4; 95% CI 2.8, 18.0; $P = 0.008$; Table 3). The difference persisted following regression analysis considering covariants—gender, methadone dose and number of cigarettes smoked (adjusted mean difference 10.8; 95% CI 2.9, 18.7; $P = 0.008$). Effect size for the negative impact of excessive drinking on QoL was 0.46 (small effect size = 0.2–0.49, moderate effect size = 0.5–0.79).

Table 3 shows that QoL impairment in AUDIT-pos patients affected physical ($P = 0.009$) and psychological ($P = 0.012$) health, role functioning (role limitation due to physical health, $P < 0.001$; and to emotional health, $P = 0.009$), social functioning ($P = 0.015$) and self-perceived general health ($P = 0.029$). Past-alc patients also had significantly lower QoL scores than AUDIT-neg patients (mean difference 12.5; 95% CI 1.0, 24.1; $P = 0.033$) with poor role functioning ($P = 0.002$) and more bodily pain ($P = 0.003$).

DISCUSSION

The average QoL score of 56 for our sample of methadone patients falls within the score of 67 or less, which defines a state of poor health [23]. As a score of 100 represents the best possible state of health and functioning, this finding confirms previous reports of persistent health and social problems among MTP patients [14,15]. We found a small adjusted effect size of 0.46 for the negative impact of excessive drinking on QoL, with role functioning being particularly affected. Problem drinkers without concurrent opioid dependence also have low role functioning scores [17]. Attention to comorbid drinking problems might improve the QoL of MTP patients, as has been observed in the general population [24].

Previous QoL studies have relied on either a diagnostic tool [18] or the AUDIT questionnaire [24] for alcohol problem identification. The AUDIT was chosen for this study because it is brief, suitable for self-completion and detects a broad range of drinking problems [21]. We found an AUDIT-positive status to be associated with male gender, poor housing, unemployment, self-reports of physical and psychological health problems and low scores in the physical health, psychological health and social functioning components of QoL. Methadone patients with past history of alcohol problems also had poor QoL and more bodily pain. Alcohol-related injuries and alcohol-induced health and social problems may have life-long implications, especially among individuals who are hepatitis C-positive [18,25].

AUDIT-positive patients in our study were less satisfied with their methadone scripts despite being prescribed higher doses. Chronic alcohol consumption increases methadone metabolism [26], but in the acute phase alcohol interacts with methadone to increase overdose risk [27,28]. The average dose of 38 mg in this study was below the 60–120 mg recommended for maintenance treatment [29,30]. Our results showed aggregated data for methadone maintenance and slow-reduction patients. Many studies have shown a positive association between higher methadone doses and improved outcomes [31,32]. Future research should aim to evaluate the relationship between methadone dosage and QoL.

In conclusion, our results support previous evidence suggesting that all the treatment needs of methadone patients, particularly those who drink excessively, are not being met [33]. Methadone treatment programmes need to adopt policies that ensure early identification of comorbid alcohol problems and stepped-care interventions covering the full range of alcohol problems. Supplementary services are also needed for the complex needs of those reporting housing, employment and other social problems. By identifying important issues in a patient's life, QoL assessment can facilitate intervention efforts. Feedback of QoL scores may also be used along with laboratory results to motivate patients to change their drinking behaviour within the context of brief, solution-focused interventions.

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