

promoting access to White Rose research papers



Universities of Leeds, Sheffield and York
<http://eprints.whiterose.ac.uk/>

This is an author produced version of a paper published in **Drug and Alcohol Review**.

White Rose Research Online URL for this paper:

<http://eprints.whiterose.ac.uk/8721/>

Published paper

Schulte, S., Meier, P.S., Stirling, J. and Berry, M. (2008) *Treatment approaches for dual diagnosis clients in England*. *Drug and Alcohol Review*, 27 (6). pp. 650-658. <http://dx.doi.org/10.1080/09595230802392816>

Title

Treatment approaches for dual diagnosis clients in England

Names of authors

Sabrina J. Schulte¹, BA, MA, PhD student; Petra S. Meier², MSc, PhD, Lecturer; John Stirling¹, PhD, Reader; Mike Berry¹, PhD, Lecturer

¹ Department of Psychology, Elizabeth Gaskell Campus, Manchester Metropolitan University, Manchester M13 0JA

² School of Health and Related Research, University of Sheffield, 30 Regent Street, Sheffield, S1 4DA

Author for correspondence

Sabrina Schulte, Manchester Metropolitan University

Department of Psychology, Elizabeth Gaskell Campus, Hathersage Road, M13 0JA

Manchester. E-mail: s.schulte@mmu.ac.uk

Keywords dual diagnosis, co-morbidity, prevalence, treatment approaches, joint working

Total Page Count: 25

Word count (Body Text): 3,073

ABSTRACT

Introduction UK dual diagnosis (co-occurrence of substance use and mental health problems) prevalence data is limited to specific regions and reported rates vary widely. Reliable information on actual service provision for dual diagnosis clients has not been collated. Thus a national survey was carried out to estimate dual diagnosis prevalence in treatment populations and describe the service provision available for this client population in drug/alcohol (DAS) and mental health services (MHS).

Design A questionnaire was sent to managers of 706 DAS and 2374 MHS. Overall, 249 (39%) DAS and 493 (23%) MHS participated in the survey.

Results In both DAS and MHS, around 32% of clients were estimated to have dual diagnosis problems. However, less than 50% of services reported assessing clients for both problem areas. Regarding specific treatment approaches, most services (DAS: 88%, MHS: 87%) indicated working jointly with other agencies. Significantly fewer services used joint protocols (DAS: 55%, MHS: 48%) or shared care arrangements including access to external drug/alcohol or mental health teams (DAS: 47%, MHS: 54%). Only 25% of DAS and 17% of MHS employed dual diagnosis specialists.

Conclusions Dual diagnosis clients constitute a substantial proportion of clients in both DAS and MHS in England. Despite recent policy initiatives, joint working approaches tend to remain unstructured.

INTRODUCTION

Dual diagnosis (co-occurrence of mental health and substance misuse problems) has attracted significant research attention. Whilst most studies in the field stem from the US [e.g. 1-4], there is a growing contribution from other countries including Australia [5], Canada [6], Norway [7] and UK [8-11]. Studies show that dual diagnosis (DD) is frequently associated with poorer treatment outcomes [12-17], and the effectiveness of different treatment approaches has recently come under investigation [18-21].

Prevalence data is often limited to small geographical regions. Due to widely varying rates found, it remains difficult to estimate the actual scale of the problem among treatment populations. In the UK, studies have predominantly focused on the severe mentally ill treated in psychiatric settings [8-9, 22-23] and report DD rates ranging from five to 68%. An overview of studies (Table 1) provides estimates of lifetime and/or current prevalence of substance misuse. The highest prevalence rate (68%) was found in a study which, unlike most other studies, assessed lifetime substance use rather than misuse/dependence. The lowest rate (5%) was found in a study of current non-alcohol substance misuse in psychotic in-patients [24], however other studies report considerably higher current prevalence rates. For instance, Menezes *et al.* [9] reported a current substance misuse rate of 36% in a similar setting. A possible explanation for this discrepancy may be the difference in time-thresholds: In Duke *et al.*'s [24] study 'current' misuse was defined as 'in the previous month' whilst most other studies used a six- to 12-month timeframe. Within studies using the six- to 12-month definition, more homogeneous DD prevalences of between 20 to 33% were reported [25-28].

Insert Table 1

Several studies extended their investigation from mental health settings to drug/alcohol services [27-28] and found that DD relating to severe mental illness also appears to be a problem in addiction services (see Table 2).

Insert Table 2

Further evidence is contributed by studies which include DAS clients with less severe mental illness. For instance, a large UK study [29] found that 20% of drug treatment clients had previously received psychiatric treatment and 15 to 33% indicated high levels of psychiatric symptoms at treatment intake. This study investigated DD in different treatment settings thus minimizing the risk of selection bias. However, compared to other studies the DD prevalence rate is quite low. For instance Weaver and colleagues [30] found that 75% of DAS clients screened positively for at least one psychiatric disorder. Even higher proportions were revealed by another study [31] that demonstrated a preliminary rate of 93% reducing to 83% after full assessment.

Few studies examined DD in MHS with the focus on non-psychotic clients. Overall, prevalence rates ranged from two to 44%, with the highest proportions in community mental health teams [30-32]. A study on clients treated for post-traumatic stress disorder found a very low prevalence of drug abuse disorder (2%, [33]). However, a further 19% of participants reported drinking over recommended limits and another 19% used drugs. This is of importance as previous research has shown that even small amounts of drugs/alcohol can be harmful for the mentally ill [34].

When comparing DD prevalence rates across studies we need to bear in mind methodological differences between studies. In particular, previous reports have highlighted the effect of inconsistent approaches regarding assessment tools, client selection bias, differences in the geographical context and particularly the use of different DD definitions [11, 35-36]. Depending on clinical thresholds, different client populations have been included or excluded; hence samples often represent somewhat different DD subgroups.

It is now widely recognized that DD clients may fall between existing specialist services which tend to focus on treating one or the other problem [37-40]. This has led to different strategies and approaches. For example, US services have been shown to be effective in providing more integrated support for DD clients [41]. In the UK, where service provision is in many respects very different [42], policy guidelines emerged aiming to address treatment shortcomings by improving joint working between agencies [43]. Additionally, a recent UK drug treatment framework [44] explicitly includes treatment options for DD clients. The three major approaches regarding DD treatment are referred to as sequential, parallel and integrated treatment (for detailed information see 43, 45-47). Integrated treatment (focusing on both problem domains simultaneously) is currently favoured as the most promising approach [37, 49-50].

So far, little is known about the extent to which the UK guidelines have been implemented [51]. Furthermore, evidence for the effectiveness for any specific treatment approach is inconsistent [18, 20-21, 52]. In practice, there are likely to be variations of service provision that fall somewhere between integrated and standard treatment, for example due to limited resources to deliver focused treatment [48].

However, our understanding of the DD-related treatment offered across services is inadequate. Therefore, as part of a larger study on DD treatment pathways, a national survey was carried out a) to obtain information about DD prevalence throughout DAS and MHS in England and b) to describe the nature and extent of DD provision currently available.

METHODS

Procedure

A questionnaire was sent to managers of all adult DAS and MHS in England. As treatment delivery was a topic of the survey, DAS providing only information/advice were excluded. DAS were identified by searching electronic databases and existing directories [53-56]. No comprehensive national MHS directory was available. Thus, services were identified from NHS Trust websites and local directories.

Managers were asked to define DD broadly, i.e. to include severe and less severe mental health problems and varying degrees of substance misuse. The survey was sent to 706 DAS and 2374 MHS in early 2006. The services had four weeks to respond. Non-respondents were sent a reminder including an additional questionnaire. All letters contained addressed pre-paid return envelopes.

Instrument

We developed a three-paged questionnaire, which comprised twelve multiple-response questions and four open-ended questions. The first section asked about service type and treatment setting (see Table 3) and was used to split services into two groups: DD+ (accepting DD clients) and DD- (not accepting DD clients). Only

DD+ services completed the remainder of the questionnaire. Information was obtained about the service's total number of clients, proportion of DD clients, DD treatment approaches, and about clients' referral pathways, psychiatric disorders and substance use. Services were also asked about their staff including their qualifications. Four open-ended questions invited managers to express their views about treatment access routes for DD clients, satisfaction with existing joint working arrangements and information exchange between services.

Analyses

Statistical analyses were performed using SPSS [57]. Chi-square tests were applied for categorical data. Additional non-parametric tests were conducted as appropriate. The qualitative part of the questionnaire was analysed using content analysis [58].

Response rate

Drug/alcohol services (DAS)

Twenty-nine services indicated that the survey was not applicable to them. Thirty-nine questionnaires failed to reach services probably due to closure of service or changed location. Thus, 638 services remained and of these 249 (39%) responded.

Mental health services (MHS)

Overall, 131 services returned the questionnaire uncompleted and 53 questionnaires failed to reach the addressee. Thus, 2190 services remained and 493 (23%) completed forms were returned.

Information about agency type was obtained for the 389 DAS and 1686 MHS non-respondents. In both service groups, statutory services were less likely to have

responded than non-statutory ($\chi^2(1)=11.19$, $p<0.01$ and $\chi^2(1)=9.86$, $p<0.01$, respectively).

RESULTS

Sample characteristics

Drug/alcohol services (DAS)

Of the 249 DAS, 75% described themselves as drug & alcohol service, 21% as drug only service and 5% as alcohol only service, see Table 3. Most offered traditional community-based treatment (70%), followed by open access (57%) and residential treatment (44%, several services spanned two categories). Overall, 65 (26%) respondents reported not to accept DD clients (DD-).

Insert Table 3 here

Mental health services (MHS)

Of the 493 MHS, 82% were statutory. Access & crisis services were most common (28%), followed by outpatient clinical services and continuing care services (19% each). Overall, 144 (29%) respondents described themselves as DD-.

Dual diagnosis prevalence

The data in the following sections apply to DD+ only. In DAS, the average number of clients treated in the past year was 640 of which one third (33%) were identified as dually diagnosed. DD prevalence rates did not differ by service types ($\chi^2(2)=1.85$, $p>0.05$).

In MHS, the average number of clients treated was 364 and again one third (32%) were estimated to have co-morbid problems. The highest prevalence of DD was found in secure services (62%), followed by services for mentally ill offenders (45%), continuing care services (34%) and finally accommodation services (24%, $\chi^2(8)=26.68$, $p<0.01$).

Additionally, we asked whether the information provided was based on the respondents' estimates or on service databases. Only a minority reported systematic collation of DD data (DAS: 18%, MHS: 25%, $\chi^2(1)=2.27$, $p>0.05$) with most services relying on estimates.

Dual diagnosis assessments

The answer as to why there is incomplete recording of DD may lie in services' assessment procedures. Less than half of DAS and an even smaller proportion of MHS reported undertaking assessments for both substance use and mental health problems (46% vs. 37%, $\chi^2(1)=3.65$, $p>0.05$).

Inter-agency work

The majority indicated working jointly with other agencies (DAS: 88%, MHS: 87%). However, fewer services used joint protocols (DAS: 55%, MHS: 48%, $\chi^2(1)=2.44$, $p>0.05$) or shared care arrangements including access to external DAS/MHS (DAS: 47%, MHS: 54%, $\chi^2(1)=1.79$, $p>0.05$; see Table 5). Twenty-three percent of DAS and 32% of MHS indicated joint working but *without* having joint protocols or shared care arrangements in place ($\chi^2(1)=0.30$, $p>0.05$). All three approaches were confirmed by

one third of MHS and 37% of DAS ($\chi^2(1)=6.18, p>0.05$). Only few services reported not to use any of them (DAS: 11%, MHS: 10%)

Insert Table 4 here.

There is a marked discrepancy between the reports of 90% of services indicating joint-working and substantially lower proportions of services using all three recommended approaches (DAS: 37%, MHS: 33%). It remains unclear how inter-agency work can be managed without appropriate tools such as shared protocols, and with limited access to other teams.

Further analysis revealed that services were more likely to treat DD clients in a sequential rather than parallel manner. Overall, 49% of DAS reported referring clients with psychiatric problems to a MHS *before* treatment at their own service, and similarly, 55% of MHS ($\chi^2(1)=1.39, p>0.05$) initially referred their clients to DAS. The most common approach was to transfer clients to a DAS/MHS *after* treatment provision at their own service (83% each). However by looking at combinations within services, overlapping patterns were found. That is, 50% of MHS and similar proportions of DAS (46%, $\chi^2(1)=1.01, p>0.05$) indicated to do both, referring DD clients *before and after* treatment at their service, compared to a minority which reported to do neither (DAS: 14%, MHS: 13%, $\chi^2(1)=0.01, p>0.05$).

In contrast, more than half of DAS and almost two thirds of MHS also reported to provide simultaneous treatment for both drug/alcohol and mental health problems through their own team (54% vs. 65%, $\chi^2(1)=5.41, p<0.05$). However, by looking at job qualifications among staff, it emerges that only few services employed DD

specialists (ie professionals with special training/accredited DD expertise, DAS: 25%, MHS: 17%, $\chi^2(1)=4.60$, $p<0.05$). Furthermore, information about mental health qualifications in DAS and addiction qualifications in MHS was obtained. Overall, 51% of DAS had at least one mental health nurse *or* psychologist *or* psychiatrist in their team. In comparison, only 8% of MHS employed at least one drug/alcohol worker.

Descriptive accounts obtained by the open-ended questions echoed obstacles regarding inter-agency work. Most DAS respondents (68%) and 36% of MHS reported that services tend to focus merely on the drug/alcohol *or* the mental health aspect which often results in referring DD clients from one service to another. This set of problems was often described by terms such as 'buck-passing', 'ping-pong effect' and 'chicken-egg debates'. Recognising this, respondents also pointed out that joint working arrangements urgently need to be improved (DAS: 84%, MHS: 50%). Aspects which were most frequently mentioned in this context were joint assessments, joint care plans and joint protocols. Overall there was a great emphasis on the lack of communication between services.

DISCUSSION

For the first time, information about DD prevalence was obtained from DAS and MHS on a national level. The survey demonstrated that co-morbidity appears to be of concern in both service groups as DD problems were identified in about 32% of clients. This figure falls into the mid-range of previous findings in the UK where widely varying estimates ranging from two to 68% in MHS and four to 83% in DAS were reported [22-23, 31, 36, 59-60]. Similarly, our findings fit well with recent non-UK studies, which reported prevalence rates ranging from six to 78% in the US [61-

63], 34 to 51% in Norway [7], 14 to 45% in Canada [6], 29% to 43% in Germany [64] and 27 to 49% in Spain [65] across different treatment settings.

The obtained prevalence rates may be underestimates as our findings suggest that many services may fail to identify DD because no comprehensive assessments are undertaken with new clients. In more than 50% of services clients were not assessed for co-morbid problems and the vast majority of services did not systematically collate data on the level of DD problems in their clientele. Such findings carry important implications in terms of service planning. By not recognising DD problems early, clients' needs may not be appropriately met, possibly resulting in less favorable outcomes including high drop out rates [35, 66].

Overall, the observation that over a quarter of the sample did not accept DD clients echoes the widely discussed problem of treatment exclusion in relation to co-morbid clients, despite guidelines to streamline DD service provision and thereby improve treatment options [44-45].

By looking at the distribution of agency types, it was found that residential DAS appeared to be more likely to exclude DD clients compared to other DAS types and similarly, continuing care MHS seemed to be less likely to treat DD clients.

Residential DAS and continuing care MHS provide long-term treatment with the majority of services requiring clients to be drug free at treatment intake. However, DD clients may face greater obstacles in seeking to achieve abstinence [67] and therefore may often not be accepted at such services. This shortfall of treatment availability stands in contrast to current recommendations to provide long-term support as in DD clients, positive outcomes are less likely to be achieved by brief

interventions [68-69]. Hence such findings may prompt questions about the extent to which service eligibility criteria are tailored towards DD clients.

An interesting picture was generated regarding the current level of inter-agency work. On the one hand, almost 90% of services indicated joint working with other agencies. On the other hand, such liaisons appeared to lack joint protocols and access to other teams in a substantial proportion of the sample. Thus although joint working approaches have been encouraged, practical experience suggests there are still difficulties to be overcome in bringing about collaboration across agencies. Appleby's report [51] pointed out that only a minority of services had implemented local liaisons to enhance DD service provision and this would still appear to be the case as only a third of respondents confirmed arrangements of all three recommended approaches in terms of inter-agency work. However, it is encouraging that in only few services none of the approaches was used. Thus it is likely that liaisons are currently in the development stage, however lacking consistency across services. This observation was further supported by responses to the open-ended questions where the majority of respondents highlighted difficulties in coordinating inter-agency work and underlined the need to improve such liaisons.

Probably as a result of these difficulties, it was found that most respondents treat DD clients sequentially, although this approach was identified as being of less benefit for people with co-morbidity [11].

The recurrent question is how such joint working problems can be best addressed. Whilst current UK policy documents outline frameworks on how to proceed with DD clients, there appear to remain a variety of practical problems. This was also

recognised by the Department of Health prompting the publication of a new policy report [70] to provide further guidance. However this guide focuses on MHS only, whilst further support for DAS appears to be equally relevant.

In addition to difficulties in service provision, DD clients have often been described as being 'the most complex cases' and practitioners report feeling powerless to deal with them [71]. This is important in light of our findings that only a minority of services employed DD specialists (DAS: 25%, MHS: 17%). Instead, services that do provide simultaneous treatment mainly rely on existing staff skills to address both mental health and substance misuse problems.

Given the high vulnerability of co-morbid clients there is a risk that clients do not receive adequate treatment and that at the same time practitioners are overstretched. Therefore it is of great importance to develop strategies to improve joint working, increase the number of staff from both the substance misuse and mental health field across services and/or provide DD training programmes for existing staff [72-74].

Our findings need to be considered in the light of a low response rate, especially from MHS (23%) which is particularly disappointing as the former are to take the lead in DD service provision [43].

Another limitation was that most services relied on estimates of DD prevalence in their caseloads. This carries two important implications: firstly it highlights the need to improve standardised assessment and recording procedures and secondly it weakens data reliability.

There is the possibility of a degree of response style bias associated with social desirability, ie some managers may have avoided highlighting shortfalls in their services. As the survey was addressed to managers rather than practitioners, responses may not always have reflected actual practice. This viewpoint was supported by regional DD leads who expressed doubts about the high rates of joint working, and indicated that results may reflect the managers' expectations of what their services 'ought to do' rather than actual practice (personal conversation, 5/9/2006).

However, the essential strength of the survey is that, for the first time, the same instrument was applied throughout DAS and MHS on a national level. This enables comparisons in a consistent manner between the two settings, which has not hitherto been possible.

ACKNOWLEDGEMENTS

Sincere thanks go to service providers from Manchester Mental Health & Social Care Trust, Bolton, Salford & Trafford Trust and the administrative staff of Manchester Metropolitan University. Funding was provided by Manchester Metropolitan University.

References

- [1] Drake R, Osher F, Wallach M. Alcohol use and abuse in schizophrenia; a prospective community study. *J Nerv Ment Dis* 1989;177: 408-14.
- [2] Regier DA, Farmer, ME, Rae, DS., Locke BZ, Keith SJ, Judd LL & Goodwin FK. Comorbidity of mental disorders with alcohol and other drug abuse: results from the Epidemiologic Catchment Area (ECA) study. *JAMA* 1990, 264: 2511-18.
- [3] Mueser K, Bellack A, & Blanchard J. Comorbidity of schizophrenia and substance abuse. *JCCP* 1992; 60: 845–56.
- [4] Kendler KS, Davis CG, Kessler RC. The familial aggregation of common psychiatric and substance use disorders in the National Comorbidity Survey: a family history *Br J Psychiatry* 1997; 170: 541-48.
- [5] Bartu A, Freeman N, Gawthorne G, Codde J, Holman CDJ. Psychiatric comorbidity in a cohort of heroin and amphetamine users in Perth, Western Australia. *J Subst Use*. 2003; 8: 150-4.
- [6] Margolese HC, Malchy L, Negrete JC, Tempier R, Gill K. Drug and alcohol use among patients with schizophrenia and related psychoses: levels and consequences. *Schizophr Res*. 2004; 67:157-66.
- [7] Bakken K, Landheim AS, Vaglum P. Substance-dependent patients with and without social anxiety disorder: Occurrence and clinical differences: A study of a consecutive sample of alcohol-dependent and poly-substance-dependent patients treated in two counties in Norway. *Drug Alc Dep*. 2005; 80: 321-8.
- [8] Duke P, Pantelis C, Barnes T. South Westminster schizophrenia survey. Alcohol use and its relationship to symptoms, tardive dyskinesia and illness onset. *Br J Psychiatry* 1994; 164: 630-36.
- [9] Menezes P, Johnson S, Thornicroft G, *et al*. Drug and alcohol problems among individuals with severe mental illness in south London. *Br J Psychiatry* 1996; 168: 612-19.
- [10] Crome I. Overview: Psychiatric Comorbidity and Substance Misuse: what are the issues? *Drugs Educ Prev Policy* 1999; 6: 149-50.
- [11] Afuwape S. Where are we with dual diagnosis (substance misuse and mental illness)? A review of the literature. London: Rethink; 2003.
- [12] Drake R, Osher F, Wallach M. Alcohol use and abuse in schizophrenia; a prospective community study. *J Nerv Ment Dis* 1989; 177: 408-14.

- [13] Linszen D, Dingemans P, Lenior M. Cannabis Abuse and the Course of Recent-Onset Schizophrenic Disorders. *Arch Gen Psychiatry* 1994; 51: 273-79.
- [14] Scott H, Johnson S, Menezes P, *et al.* Substance misuse and risk of aggression and offending among the severely mentally ill. *Br J Psychiatry* 1998; 172: 345-50.
- [15] Kamali M, Kelly L, Gervin M, Browne S, Larkin C, O'Callaghan E. The prevalence of comorbid substance misuse and its influence on suicidal ideation among in patients with schizophrenia. *Acta Psychiatr Scand* 2000; 101: 452-56.
- [16] Johnson, J. Cost-effectiveness of mental health services for persons with a dual diagnosis: A literature review and the CCMHCP. *J Subst Abuse Treat* 2000; 18:119-28.
- [17] Drake R & Mueser K. Psychosocial Approaches to Dual Diagnosis. *Schizophr Bull* 2000; 26:105-18.
- [18] Drake R, Mercer-McFadden C, Mueser K, McHugo G, Bond G. Review of Integrated Mental Health and Substance Abuse Treatment for Patients With Dual Disorders. *Schizophr Bull* 1998; 24: 589-608.
- [19] Jeffery DP, Ley A, McLaren S, Siegfried N. Psychosocial treatment programmes for people with both severe mental illness and substance misuse. *The Cochrane Database of Systematic Reviews* 2000, Issue 2. Art. No.: CD001088. DOI: 10.1002/14651858.CD001088.
- [20] Donald M, Dower J, Kavanagh D. Integrated versus non-integrated management and care for clients with co-occurring mental health and substance use disorders: a qualitative systematic review of randomised controlled trials. *Soc Science Med* 2005; 60: 1371-83.
- [21] Tiet Q & Mausbach B. Treatments for Patients With Dual Diagnosis: A Review. *Alcsm Clin Exp. Res* 2007; 31: 513-536.
- [22] Phillips P & Johnson S. Drug and alcohol misuse among in-patients with psychotic illnesses in three inner-London psychiatric units. *Psychiatr Bull* 2003; 27: 217-20.
- [23] Barnes T, Mutsatsa S, Hutton S, Watt H, Joyce E. Comorbid substance use and age at onset of schizophrenia. *Br J Psychiatry* 2006; 188: 237-42
- [24] Duke P, Pantelis C, McPhillips M, Barnes T. Comorbid non-alcohol substance misuse among people with schizophrenia: Epidemiological study in central London. *Br J Psychiatry* 2001; 179: 509-13.
- [25] Holland M. How substance use affects people with mental illness. *Nurs Times* 1999; 95: 46-8.
- [26] Wright S, Gournay K, Glorney E, Thornicroft G. Dual diagnosis in the suburbs: prevalence, need, and in-patient service use. *Soc Psychiatry Psychiatr Epidemiol* 2000; 35: 297-304.

- [27] Graham H, Maslin J, Copello A, *et al.* Drug and alcohol problems amongst individuals with severe mental health problems in an inner city area of the UK. *Soc Psychiatry Psychiatr Epidemiol* 2001; 36: 448-55.
- [28] Virgo N, Bennett G, Higgins D, Bennett L, Thomas P. The prevalence and characteristics of co-occurring serious mental illness (SMI) and substance abuse or dependence in the patients of Adult Mental Health and Addictions Services in eastern Dorset. *J Ment Health* 2001; 10: 175-88.
- [29] Marsden J, Gossop M, Stewart D, Rolfe A, Farrell M. Psychiatric symptoms among clients seeking treatment for drug dependence: Intake data from the National Treatment Outcome Research Study. *Br J Psychiatry* 2000; 176: 285-89.
- [30] Weaver T, Hickman M, Rutter D, Ward J, Stimson G, Renton A. The prevalence and management of co-morbid substance misuse and mental illness: results of a screening survey in substance misuse and mental health treatment populations. *Drug Alc Rev* 2001; 20: 407-16.
- [31] Strathdee G, Manning V, Best D *et al.* Dual diagnosis in a Primary Care Group (PCG): A step-by-step epidemiological needs assessment and design of a training and service response model. London: Department of Health; 2002.
- [32] Ley A, Jeffrey D, Ruiz J, McLaren S, Gillespie C. Underdetection of comorbid drug use in acute psychiatric admission. *Psychiatr Bull* 2002; 26: 248-51.
- [33] TARRIER N. & SOMMERFIELD C. Alcohol and substance use in civilian chronic PTSD patients seeking psychological treatment. *J Subst Use* 2003; 8: 197-204.
- [34] Mueser K, Drake R, Wallach M. Dual diagnosis: A review of etiological theories. *Addict Behav* 1998; 23: 717-34.
- [35] MacGregor S. Messages and findings from the Department of Health drugs misuse research initiative: final overview report. *Drugs Educ Prev Policy* 2005; 12: 1-136.
- [36] Crawford V, Crome I, Clancy C. Co-existing Problems of Mental Health and Substance Misuse (Dual Diagnosis): a literature review. *Drugs Educ Prev Policy* 2003; 10: 1-74.
- [37] Graham H, Copello A, Birchwood M, *et al.* Service innovations: Coexisting severe mental health and substance use problems: developing integrated services in the UK. *Psychiatr Bull* 2003; 27: 183-86.
- [38] Gonzales J. & Insel T. The conundrum of co-occurring mental and substance use disorders: Opportunities for research. *Biol Psychiatry* 2004; 56: 723-25.

- [39] Kay-Lambkin F, Baker A. & Lewin T. The 'co-morbidity roundabout': a framework to guide assessment and intervention strategies and engineer change among people with co-morbid problems. *Drug Alc Rev* 2004; 23: 407-23.
- [40] Lowe A. & Abou-Saleh M. The British experience of dual diagnosis in the national health service. *Acta Neuropsychiatr* 2004; 16: 41-6.
- [41] Minkoff, K. An Integrated Model for the Management of Co-occurring Psychiatric and Substance Disorders in Managed-Care Systems. *Dis Manage Health Outcomes* 2000; 8: 251-57.
- [42] Health Advisory Service. Substance misuse and mental health co-morbidity (dual diagnosis). Standards for mental health services. London: Health Advisory Service; 2001.
- [43] Department of Health. Mental Health Policy Implementation Guide: Dual Diagnosis Good Practice Guide. London: Department of Health; 2002.
- [44] National Treatment Agency of Substance Misuse. Models of care for the treatment of drug misusers. Part 2: Full reference report. London: National Treatment Agency for Substance Misuse; 2002.
- [45] Barreira P, Espey B, Fishbein R, Moran D, Flannery R. Linking substance abuse and serious mental illness service delivery systems: Initiating a statewide collaborative. *J Behavior Health Serv Res* 2000; 27: 107-13.
- [46] Grella C. & Gilmore J. Improving service delivery to the dually diagnosed in Los Angeles County. *J Subst Abuse Treat* 2002; 23: 115-22.
- [47] Gil-Rivas V. & Grella C. Addictions Services Treatment Services and Service Delivery Models for Dually Diagnosed Clients: Variations Across Mental Health and Substance Abuse Providers. *Commun Ment Health J* 2005; 41: 251-66.
- [48] Moggi F, Ouimette P, Moos R, Finney J. Dual diagnosis patients in substance abuse treatment: relationship of general coping and substance-specific coping to 1-year outcomes. *Addiction* 1999; 94: 1805-16.
- [49] Drake R, Morse G, Brunette M, Torrey W. Evolving U.S. service model for patients with severe mental illness and co-occurring substance use disorder. *Acta Neuropsychiatr* 2004; 16: 36-40.
- [50] Martino S, Carroll K, Nich C, Rounsaville B. A randomized controlled pilot study of motivational interviewing for patients with psychotic and drug use disorders. *Addiction* 2006; 101: 1479-92.
- [51] Appleby L. The National Service Framework for Mental Health – Five Years On. London: Department of Health; 2004.

- [52] Ley A, Jeffery D, McLaren S, Siegfried N. Treatment programmes for people with both severe mental illness and substance misuse. *Cochrane Database of Systematic Reviews* 36(2):CD001088; 2006.
- [53] <http://drugscope.soutron.com/helpfinder.asp> accessed on 05/12/05
- [54] Drugscope. Drug problems: Where to get help. Directory of services. London: DrugScope; 2002.
- [55] <http://talktofrank.com/home.html.aspx> accessed on 05/12/05
- [56] Day E, Ison J, Keaney F, Buntwal N, Strang J. A national survey of inpatient drug treatment services in England. London: National Treatment Agency; 2005.
- [57] SPSS for Windows, Version 12.0.1. Chicago, IL: SPSS; 2001.
- [58] Weber R. Basic Content Analysis, 2nd ed. Newbury Park, CA; 1990.
- [59] Mathers D, Ghodse A, Caan A, Scott S. Cannabis use in a large sample of acute psychiatric admissions. *Br J Addict* 1991; 86: 779-84.
- [60] Weaver T, Madden P, Charles V, *et al.* Comorbidity of substance misuse and mental illness in community mental health and substance misuse services. *Br J Psychiatry* 2003; 183: 304-13.
- [61] Kidorf M, Disney ER, King VL, Neufeld K, Beilenson BL, Brooner RK. Prevalence of psychiatric and substance use disorders in opioid abusers in a community syringe exchange program. *Drug Alcohol Depend* 2004; 74: 115-22.
- [62] Bauer MS, Altshuler L, Evans DR, Beresford T, Williford TE, Hauger R. Prevalence and distinct correlates of anxiety, substance, and combined comorbidity in a multi-site public sector sample with bipolar disorder. *J Aff Dis* 2005; 85: 301-15.
- [63] Rush AJ, Zimmermann M, Wisniewski SR, *et al.* Comorbid psychiatric disorders in depressed outpatients: Demographic and clinical features. *J Aff Dis* 2005; 87: 43-45.
- [64] Soyka M, Albus M, Immler B, Kathmann N, Hippus H. Psychopathology in dual-diagnosis and nonaddicted schizophrenics: are there differences? *Eur J Health Econom* 2002; 3: 114-20.
- [65] Gual A. Dual diagnosis in Spain. *Drug Alc Rev* 2007; 26: 65-71.
- [66] Hides L, Dawe S, Young R. & Kavanagh D. The reliability and validity of the Severity of Dependence Scale for detecting cannabis dependence in psychosis. *Addiction* 2007; 102: 35-40.
- [67] Phillips P. The mad, the bad and the dangerous - harm reduction in dual diagnosis. *Int J Drug Policy* 1998; 9: 345-49.
- [68] Brown V, Melchior L, Huba G. Level of burden among women diagnosed with severe mental illness and substance abuse. *J Psychoactive Drugs* 1999; 31: 31-40.

- [69] Moos R, Finney J, Federman E, Suchinsky R. Specialty mental health care improves patients' outcomes: Findings from a nationwide program to monitor the quality of care for patients with substance use disorders. *J Stud Alc* 2000; 61: 704-13.
- [70] Department of Health. Dual diagnosis in mental health inpatient and day hospital settings. London: Department of Health; 2006.
- [71] Deans C. & Soar R. Caring for clients with dual diagnosis in rural communities in Australia: the experience of mental health professionals. *J Psychiatr Ment Health Nurs* 2005; 12: 268-74.
- [72] Maslin J, Graham H, Cawley M, *et al.* Combined severe mental health and substance use problems: What are the training and support needs of staff working with this client group? *J Ment Health* 2001 10: 131-40.
- [73] Mears A, Clancy C, Banerjee S, Crome I, Agbo-Quaye S. Co-existing Problems of Mental Disorder and Substance Misuse (Dual Diagnosis): A Training Needs Analysis. Final Report to the Department of Health. London: Royal College of Psychiatrists' Research Unit; 2001.
- [74] Richmond I. & Foster J. Negative attitudes towards people with co-morbid mental health and substance misusers problems: An investigation of mental health professionals. *J Ment Health* 2003; 12: 393-03.

Table 1: Overview DD prevalence studies across mental health treatment settings in England

Author (year)	Location	N ¹	Problem areas	DD prevalence	Prevalence timeframe
Mathers <i>et al.</i> (1991)	London	640	Alcohol problems and mental illness	28%	Lifetime
Duke <i>et al.</i> (1994)	Westminster	271	Alcohol problems and SMI only ²	22%	Lifetime
Menezes <i>et al.</i> (1996)	London	171	Drug/alcohol problems and SMI only	36%	Previous 12 months
Holland (1999)	Manchester	225	Drug/alcohol problems and SMI only	27%	Previous 6 months
Wright <i>et al.</i> (2000)	London	40	Drug/alcohol problems and SMI only	33%	Previous 6 months
Graham <i>et al.</i> (2001)	Birmingham	1369 ³	Drug/alcohol dependence and SMI only	20%	Previous 12 months
Virgo <i>et al.</i> (2001)	Dorset	708	Drug/alcohol abuse and SMI only	18%	Previous 6 months
Weaver <i>et al.</i> (2003)	4 inner-city areas	282	Drug/alcohol problems and mental illness	44%	Previous 12 months
Duke <i>et al.</i> (2001)	Westminster	265	Non-alcohol misuse and SMI only	5% / 22%	Previous month / lifetime
Strathdee <i>et al.</i> (2002)	London	323	} Drug/alcohol problems and mental illness	20%	} Previous 12 months
		59		43%	
		29		56%	
Ley <i>et al.</i> (2002)	Devon	112	Drug use and mental illness	23%	At time of assessment only
Phillips <i>et al.</i> (2003)	London	264	Drug/alcohol misuse and SMI only	49%	Previous 6 months
Tarrier <i>et al.</i> (2003)	North West	120	Alcohol abuse disorder and PTSD only	7%	At time of assessment
			Hazardous alcohol use and PTSD only	19%	
			Drug abuse disorder and PTSD only	2%	
			Hazardous drug use and PTSD only	19%	
Barnes <i>et al.</i> (2006)	London	152	Alcohol misuse and SMI only	27%	Lifetime
			Substance use and SMI only	35% / 68%	Previous month / lifetime

¹ Study population

² Refers to whether or not a study focused on clients with severe mental illnesses only (SMI only)

³ The number provided represents the whole study sample including clients recruited from substance misuse services

Table 2: Overview DD prevalence studies across drug/alcohol treatment settings in England

Author (year)	Location	N ¹	Problem areas	DD prevalence	Prevalence timeframe
Marsden <i>et al.</i> (2000)	Across England	1075	Drug/alcohol problems and psychiatric treatment	20%	Previous 24 months
Weaver <i>et al.</i> (2003)	4 inner-city areas	278	Drug/alcohol problems and mental illness	75%	Previous 12 months
Virgo <i>et al.</i> (2001)	Dorset	313	Drug/alcohol abuse and SMI only ²	22% / 12%	Previous 6 months / lifetime
Graham <i>et al.</i> (2001)	Birmingham	1369 ³	Drug/alcohol dependence and SMI only	4%	Previous 12 months
Strathdee <i>et al.</i> (2002)	London	74	Drug/alcohol problems and mental illness	83%	Previous 12 months

¹ Study population

² Refers to whether or not a study focused on clients with severe mental illnesses only (SMI only)

³ The number provided represents the whole study sample including clients recruited from mental health services

Table 3: Service profiles and percentage of services offering the following treatments (n, %)

Drug/alcohol services				
	DD+ (n=184)	DD- (n=65)	All services (N=249)	χ^2
Statutory	62 (40%)	8 (16%)	70 (34%)	9.35**
Non-statutory	94 (60%)	42 (84%)	136 (66%)	9.35**
Drug & alcohol service	130 (73%)	50 (79%)	180 (75%)	0.94
Drug only service	37 (21%)	13 (21%)	50 (21%)	0.00
Alcohol only service	11 (6%)	N/A	11 (5%)	4.06*
Open access treatment	117 (63%)	25 (39%)	142 (57%)	12.04**
Community- based treatment	152 (82%)	22 (34%)	174 (70%)	53.07**
Residential treatment	65 (35%)	44 (68%)	109 (44%)	20.73**
Mental health services				
	DD+ (n=349)	DD- (n=144)	All services (N=493)	χ^2
Statutory	288 (88%)	76 (66%)	364 (82%)	26.55**
Non-statutory	41 (12%)	39 (34%)	81 (18%)	26.04**
Access & crisis service	121 (35%)	14 (10%)	135 (28%)	28.74**
Secure service	20 (6%)	5 (4%)	25 (5%)	0.82
Therapy service	47 (14%)	33 (25%)	80 (17%)	8.48**
Service for mentally ill offenders	33 (10%)	2 (2%)	35 (7%)	9.25**
Accommodation service	15 (4%)	6 (5%)	21 (4%)	0.01
Clinical service – inpatient	60 (17%)	12 (9%)	72 (15%)	5.33*
Clinical service – outpatient	70 (20%)	19 (14%)	89 (19%)	2.34
Continuing care service	54 (16%)	37 (28%)	91 (19%)	9.06**
Home care service	27 (8%)	7 (5%)	34 (7%)	0.98
Carers' service	17 (5%)	2 (2%)	19 (4%)	2.97

* p<0.05 (2-tailed)

** p<0.01 (2-tailed)

Table 4: Inter-agency work across DAS and MHS (n, %)

	DAS	MHS	χ^2
Joint working with other agencies	155 (88%)	281 (88%)	0.03
Joint protocols	92 (55%)	149 (48%)	2.44
Access to external teams	81 (47%)	165 (54%)	1.79
Client referral <i>before</i> treatment	84 (49%)	176 (55%)	1.39
Client referral <i>after</i> treatment	142 (83%)	263 (83%)	0.01
Simultaneous treatment by own staff	92 (54%)	206 (65%)	5.17*

* p<0.05 (2-tailed)

** p<0.01 (2-tailed)