

Mental health problems in young people with experiences of homelessness and the relationship with health service use: a follow-up study



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ABSTRACT

Background Homeless young people represent one of the most vulnerable and underserved populations.

Objective To assess the prevalence of psychiatric disorder and comorbidity among a UK sample, and examine the longitudinal relationship between psychiatric conditions and different types of health service use.

Methods 90 young people with experiences of homelessness were interviewed using a full psychiatric assessment. Participants were followed up 8–12 months later and completed an interview that included information about recent health service use (mental health, emergency room, general practitioner, hospital for physical problems, drug or alcohol services).

Findings The prevalence of psychiatric disorder (88% current; 93% lifetime) and psychiatric comorbidity (73%) was high and that of mental health service use low in comparison (31%). Mood disorders, psychosis and suicide risk were significantly associated with mental health service use (OR 5.21, 95% CI 1.64 to 16.58; OR 10.0, CI 1.58 to 94.58; OR 6.25, CI 1.82 to 21.43, respectively). Emergency department use was predicted by mood disorders (OR 5.19, CI 1.68 to 16.0), psychosis (OR 7.33, CI 1.24 to 43.29), anxiety disorder (OR 2.88, CI 1.04 to 7.97), high-suicide risk (OR 3.42, CI 1.86 to 13.67) and comorbidity (OR 1.41, CI 1.05 to 1.90).

Discussion and clinical implications The prevalence of psychiatric disorders in homeless young people was high and considerably higher than that reported for this age group in the general population. There is a need for improved uptake of services delivering longer term treatment of psychiatric problems among vulnerable groups of socially excluded young people.

BACKGROUND

The mental health risks to young people who experience homelessness have been documented.^{1–3} Rates of conduct disorder, post-traumatic stress disorder (PTSD), major depression and substance misuse issues are particularly high.⁴ Two studies examining the prevalence of psychiatric disorder in the UK young homeless samples have identified rates of 68.2% and 62%, respectively.^{4 5} This group is also characterised by poor physical health including injuries and illness.^{6–9} There are structural barriers to health service access for currently homeless people, including financial difficulties and lack of accessible community services.^{10 11} Experiencing a mental health condition in the past year is also predictive of emergency department use.¹¹ The symptoms associated with psychiatric conditions affect behaviour and cognitive functioning, and these can impact on how and when people access services.^{12 13} Lack of social support, experiences of abuse or repeated separations from caregivers (eg, multiple foster care placements) may compound their ability to access appropriate services.¹⁴ We are aware of two UK-based review papers^{2 15} that have examined access to health services by homeless people; however, research on young homeless people, specifically, is lacking. A brief systematic review of the literature examining the relationship between mental health and health service use among young homeless people is reported here below and included in a box, for clarity purposes (see [box 1](#)).

OBJECTIVE

This paper had two main aims: to investigate the prevalence of psychiatric disorders among a sample

of young people living in the UK with experiences of homelessness and to examine the relationship between specific forms of mental health issues and health and mental health service use at follow-up. We hypothesised that (1) mental health problems would be positively associated with access to health services (particularly emergency departments) and (2) psychiatric comorbidity with increased use of health services.

METHODS

Participants were recruited via Llamau, a youth homelessness charity covering the Southern part of the country of Wales, UK (<http://www.llamau.org.uk>). At the interview, all participants were legally defined as homeless and were residing in temporary supported accommodation. Young people can be referred to the charity if they present as homeless to the local authority. In line with the United Nations definition of ‘Youth’,¹⁶ participants were eligible for the study if they were aged between 16 and 24 years of age. The study was advertised in all of the charity’s supported accommodation projects via posters and leaflets. Initial recruitment took part between January 2011 and January 2012. All interviews were conducted on the premises of the charity—either at the central offices or in meeting rooms at the charity’s temporary accommodation. A prospective, longitudinal design was used with 8–12 months between two interview-based assessments. As many young people as possible were traced and re-interviewed at the second time period. Contact was maintained between interviews via a newsletter, birthday cards and a close relative and/or friend whom they would remain in contact with

Box 1 Systematic review of the literature examining the relationship between mental health and health service use among young homeless people.

This systematic review was designed and reported according to the PRISMA statement.³³ An electronic search (update: April 2014) was undertaken using Web of Science, PubMed and PsycINFO, using the keywords young OR youth AND homeless AND mental health AND health service use OR mental health service use.

Data abstraction: References found during the electronic search were screened by reading the abstracts. Articles found to be directly relevant to the predetermined keywords were then read in full, while articles not related to the research questions were excluded. The original search identified 25 non-repeated articles. After screening, 20 articles were excluded because the papers were either not focused on homeless young people or the relationship between mental health and service use. Finally, five relevant articles were included in the present review.^{34–38}

Summary results: None of the studies specifically examined the relationship between different mental health problems and service use. However, a number of studies examined how a number of factors, including mental health influenced health and mental health service use among this population (see supplementary table 1 in the webappendix for details). Antisocial personality disorder (OR 4.28, 95% CI 1.15 to 15.95) and substance-related disorders were associated (OR 3.33, 95% CI 1.07 to 10.36) with mental health service use along with a number of other non-mental health factors such as a larger support network (OR 1.34, 95% CI 1.07 to 1.68).³⁵ Solorio *et al*³⁷ found that perceived emotional distress was associated with service use but only when a young person was in contact with support services (OR 3.9, 95% CI 2.2 to 6.7). Similarly, Berdahl *et al*³⁴ identified that mental distress was likely to be more common among young people who made contact with mental health services after becoming homeless as opposed to before. Buckner and Bassuk³⁶ found that homeless youths and non-homeless youths were less likely to be in contact with health and mental health services if they had multiple mental health needs. Taylor *et al* examined the characteristics of homeless youth referred to a mental health service. Young people reported multiple needs including drug use, experience of abuse, self-harm and prolonged mental health problems since childhood.³⁸

Comment: The findings of this brief systematic review suggest that mental health problems as well as other life experiences and characteristics are associated with service use. The importance of support to access services is highlighted.^{34–35} However, none of the studies examined the relationship between mental health and physical health service use or drug/alcohol service use. Although some specific forms of disorder and complex needs have been linked to mental health service use,^{35–38} none of the studies explored the relationship between specific psychiatric disorders and service use.

throughout the study period. Follow-up interviews took place wherever it was most convenient—either at the young person's home, on the charity's premises, on the premises of other supporting organisations or in a prison setting if required. Participants who took part at both time points were compared to those who we were unable to trace and only took part at the initial assessment. Ethical approval was obtained via the Cardiff University School of Medicine Ethics Committee. Full written consent was gained prior to the interviews. Structured interviews were conducted by trained researchers. Questions were read to the participants to circumvent problems associated with poor literacy levels. As a reward for participation in the study, participants did not receive cash, but were given a £20 High Street Voucher. The procedure remained the same at follow-up.

Mental health status was assessed using the MINI PLUS Neuropsychiatric Interview 5.0.¹⁷ Data were collected on the prevalence of current psychiatric disorders; these were then placed into groups according to Diagnostic and Statistical Manual IV disorder categories: mood disorders, anxiety disorders, psychotic disorders, drug/alcohol abuse, drug/alcohol dependence and eating disorders.¹⁸ All interviews were taped and scoring of mental health problems was conducted in consultation with a psychiatrist. Risk of suicide was categorised as low, moderate or high according to the MINI Plus. Comorbidity score was calculated by counting the number of current psychiatric disorders present. PTSD was also measured using the Impact of Events Scale Revised.¹⁹ Conduct disorder and personality disorders were assessed using the Personality Diagnostic Questionnaire.²⁰ Participants were asked at baseline and at follow-up if they had used a number of specific mental health services and how often. These services included taking mental health medication, accessing a community

mental health team, outpatient psychiatric services and inpatient psychiatric services. Fixed time periods of 3 months and 6 months were used in order to be able to compare participants over the same time period (see online supplementary table S2 in the webappendix for sample questions).

Statistical analysis

Analysis was conducted using SPSS V20.²¹ For the across time analysis assessing the relationship between psychiatric diagnosis and service use, logistic regression analysis was used to assess the predictive value of disorder category in relation to health service use at follow-up. The number of comorbid disorder categories was also used as a predictor variable.

FINDINGS

At the initial assessment in 2011, 121 young people with experiences of homelessness were interviewed. Ninety participants were traced at follow-up and re-interviewed (74.4% retention); they form the study sample. Out of 121 participants who were originally recruited, 10 refused to take part a second time (four due to lack of time and six because of lack of interest); we were unable to organise interviews for seven participants despite a minimum of four attempts; nine further participants had moved away and not passed on new contact details; finally, five participants were not eligible for the follow-up period as they took part at an early pilot stage of the initial interviews and therefore were outside of the allowed follow-up period. The clinical and demographical characteristics of both the original cohort of 121 participants and the group of people who completed the follow-up interview (n=90) are shown in table 1. No significant differences were found between the two groups in terms of age, sex, ethnicity or sexuality. The mean age of the participants who took

part at both time points was 17.7 years and 51.1% (n=46) were under the age of 18.

Table 2 presents the prevalence of current mental health problems among the sample at initial assessment (n=90) and the prevalence among the general population from the UK Adult Psychiatric Morbidity Survey 2007 (n=560).²² The overall prevalence of any psychiatric disorders within the young homeless sample was very high at 87.8% for the current disorder (n=79). Over 70% of the sample (73.3%, n=66) met the criteria for two or more current psychiatric conditions.

Table 3 shows the number of participants accessing services at follow-up. Over half of the sample had visited their general practitioner (GP) in the previous 3 months (60%) while a high proportion had also accessed hospital services (42.2%) in the past 3 months. Approximately 10% had used drug and alcohol services. Almost a third (31.1%) had accessed mental health services and a quarter had visited an emergency department (24.4%) in the past 6 months.

There were a number of statistically significant associations between mental health disorder categories at baseline and health service use at follow-up (see online table 4). Mood disorders, psychosis and suicide risk were associated with an increased use of mental health service (OR 5.21, 95% CI 1.64 to 16.58; OR 10.0, 95% CI 1.58 to 94.54; OR 6.25, 95% CI 1.82 to 21.43). Emergency service use was also positively associated with mood disorders (OR 5.19, 95% CI 1.68 to 16.0), psychosis (OR 7.33, 95% CI 1.24 to 43.29), anxiety disorder (OR 2.88, 95% CI 1.04 to 7.97) and comorbidity (OR 1.41, 95% CI 1.05 to 1.90). GP service use was predicted by PTSD (OR 2.80, 95% CI 1.08 to 7.25) and suicide risk (OR 4.57, 95% CI 1.60 to 13.06). Of the young people who visited a GP, 13% (n=7) reported the reason for the visit as

Table 2 Prevalence of current psychiatric disorder categories among the study sample (n=90) and prevalence among the general population from the UK Adult Psychiatric Morbidity Survey 2007 (n=560)²³

Disorder category	N (%)	Prevalence among age-matched general population* (%)
Any current disorder	79 (87.8)	32.3
Comorbid disorder	66 (73.3)	12.4
History of conduct disorder	50 (55.6)	NA
Suicide risk	46 (51.1)	7 (suicidal thoughts in past year) 1.7 (suicide attempts)
Anxiety disorders	44 (48.9)	3.6
Substance dependence	38 (42.2)	11.2
PTSD	32 (35.6)	4.7
Substance abuse	22 (24.4)	6.8 (alcohol only)
Mood disorders	17 (18.9)	2.2
Personality disorder	17 (18.9)	NA
Psychotic disorder	6 (6.7)	0.2
Eating disorder	5 (5.6)	13.1 (Any eating disorder BMI not accounted for)

*Prevalence among the general population taken from the Adult Psychiatric Morbidity Survey, Prevalence of psychiatric disorder in the past week among housed 16–24-year-olds UK.²³ PTSD, post-traumatic stress disorder.

depression or the need to access antidepressants. Substance dependence and psychosis were associated with increased drug and alcohol service use at follow-up (OR 13.60, 95% CI 1.62 to 114.12 and OR 13.0, 95% CI 2.14 to 78.87).

These results (see online table 4) indicate that those with mental health issues are more likely to access a range of services including mental health and physical health services. The reasons for accessing the various services were recorded only for the most recent visit and were available for 76% (n=68) of the sample. In a post hoc analysis, no differences were found in terms of age (under 18 or 18 and over) with regard to levels of psychiatric disorder or service use.

DISCUSSION AND CLINICAL IMPLICATIONS

The prevalence of current psychiatric disorder in this sample of young people with experiences of homelessness was high (87.8%). This is considerably higher than the 32.3% reported for this age group in the general population.²³ A number of conditions were particularly prevalent including PTSD, alcohol dependence, substance dependence and anxiety. This is the first study to examine links between psychiatric disorder and service use in young homeless people across time. The identification of high rates of psychiatric disorder indicates a high level of need for appropriate mental health services. However, the findings also show that few of the participants were accessing any form of mental healthcare: despite 87.8% of the sample meeting criteria for a psychiatric condition, only 31.1% had accessed any form of mental health service. It is noteworthy that few young people were accessing

Table 1 Sample characteristics

Variable	Sample with time 1 and time 2 information (n=90) N (%)	Sample with Time 1 information only (n=121) N (%)
Gender		
Female	50 (55.6)	68 (56.2)
Male	40 (44.4)	53 (43.8)
Race		
White	84 (93.3)	112 (93.0)
Black African, Caribbean	2 (2.2)	2 (1.7)
Asian	1 (1.1)	1 (0.8)
White and Black African	1 (1.1)	1 (0.8)
Caribbean	1 (1.1)	1 (0.8)
White and Asian	1 (1.1)	1 (0.8)
Other dual heritage	0	0
Sexual orientation		
Heterosexual	79 (87.8)	107 (88.4)
Homosexual	5 (5.6)	6 (5.0)
Bisexual	6 (6.7)	8 (6.6)

Table 3 Number of patients and service use in the past 3–6 months prior to follow-up (n=90)

Service type	Number of patients (%)	Median frequency of visits for those who used the service (range)
Mental health service	28 (31.1)	4 (1–22)
General practitioner	54 (60.0)	3 (1–24)
Emergency department	22 (24.4)	3 (1–20)
Hospital services for physical problems	38 (42.2)	2 (1–17)
Drug and alcohol services	9 (10.0)	3 (1–12)

Emergency department and mental health service use occurring in the past 6 months. General practitioner, hospital service, and drug and alcohol service use occurring in the past 3 months.

support for drug and alcohol issues (10%) despite the high rate of alcohol (28.9%) and drug dependence (28.9%). Appropriate mental health service use can improve quality of life and prevent the need to access emergency or crisis services.

Mental illness is thought to not only increase risk for first incidence of homelessness, but also to make completing tasks necessary to cope with and move on from homelessness more difficult.^{22–24} Some researchers have examined the benefits of ‘housing first’ models of rehabilitation and noted mental health improvements when housing is provided.²⁵ However, there is also evidence to suggest that once homelessness has been resolved, mental health problems remain elevated.²⁶ One study has indicated that after a period of 4 years since rehousing, high levels of mental illness persisted in a group of formerly homeless young people.³ The prevalence rates identified in this study exceed the rates previously reported among young homeless people in the UK,^{8,9} but are consistent with findings from other countries.⁶ The difference may reflect that we used a more comprehensive measure of psychiatric disorders than the previous work did. Previous studies in the UK either did not use a full psychiatric assessment or did not measure the same number of psychiatric conditions as we did using the MINI Plus.¹⁷

Many of the participants were using alcohol regularly in a way that can be harmful to health but did not meet the criteria for dependence on alcohol. This group may have had less need for hospital services, at least in the short term. This was somewhat surprising as injuries that occur when intoxicated tend to be common, but this finding is supported by research that suggests that drug and alcohol issues are associated with low levels of perceived functional disability.¹² In addition, dependence criteria for alcohol are less well suited for diagnosing young people. For example, questions on tolerance to alcohol may be confused with binge drinking.²⁷

In addition to the presence of individual psychiatric conditions, we also assessed whether the number of mental health diagnoses could predict use of health and mental health services at follow-up. As hypothesised, a number of mental health problems were associated with increased use

of health and mental health services, particularly suicide risk, mood disorders and psychosis. Comorbidity was related only to use of the emergency department. The rate of psychiatric comorbidity among the sample was 73.3% compared to 12.4% in the general population. This is most likely related to the greater functional disability and symptom severity associated with comorbid conditions that may increase the likelihood of injury that requires emergency treatment.²⁸

Access to care may become more difficult with age because of complex needs and the division in services.²⁹ None of the participants were accessing Child and Adolescent Mental Health Services, although 51% were under the age of 18 years. Many of the participants were unable to access child and adolescent mental health services because they were not in full-time education. Accessing adult services can be more difficult because the threshold for a disorder to receive treatment is often higher. This gap in service provision is disproportionately more likely to affect young homeless people compared to young people still living at home and in formal education and is a cause for concern.³⁰ This may also explain why there was a relatively frequent use of GP and hospital services compared to use of mental health services. Finally, many of this group met the criteria for two or more conditions. Although the symptoms of each individual condition may not meet the criteria for access to a particular service, when a number of low-level conditions are combined, the effect can be very debilitating and may require extensive support. This support is not often provided.³¹

Limitations

Given the transient and chaotic nature of the lives of some of the participants, the second interviews were conducted over a 4-month period. This may have led to variation in the number of services used between participants followed up at 8 months and those followed up at 12 months. However, the duration of follow-up interviews should not have had a major impact on the pattern of derived results because service use was measured over the same time period for each participant. A number of participants were lost from the study at follow-up. Although only those who completed both initial interview and follow-up were included in this study and there were no significant differences in mental health and service use at the initial interview, there may have been differences in service use at follow-up. Another factor that probably affected the pattern of results is that the participating young people were residing in temporary supported accommodation at the time of the initial interview. Service users are strongly supported to register with a local GP surgery as part of the support provided by the charity. This support may have increased their likelihood of using this service and, of course, the GP service may then refer them to other services that we assessed. Therefore, our estimates of service uptake may represent an

optimistic estimate of service use compared to the total population of young homeless people in the UK (including those who sleep rough).

As the majority of the sample was white British, the findings of this study may not generalise to other ethnic or cultural groups. However, the rates of mental illness appear to be similar to those found in more diverse populations such as in London where most previous homelessness research has taken place.⁸ There was a low incidence of some psychiatric conditions and low levels of access to some forms of services. For some tests of logistic regression, this produced wide CIs, and therefore these results should be interpreted cautiously. A final caveat of the research is that it relies on the participant's recall of services they have used over a 3–6-month period. Research on agreement between young homeless people and case managers on contact with services indicates low levels of agreement for certain forms of service use, particularly counselling and substance misuse services.³² Young homeless people often lose and regain contact with different housing and health services, particularly once they have moved on from supported accommodation. Self-report was the only method that allowed us to track service use for those people who located to a different area or service provider.

In conclusion, the present study highlights once more that there is a need for improved uptake of services delivering longer term treatment of psychiatric problems among vulnerable groups of socially excluded young people.

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Competing interests None.

REFERENCES

1. **Ensign J**, Gittelsohn J. Health and access to care: perspectives of homeless youth in Baltimore City, USA. *Soc Sci Med* 1998;**47**:2087–99.
2. **Fitzpatrick S**, Kemp P, Klinker S. *Single homelessness: an overview of research in Britain*. Joseph Rowntree Foundation, 2000.
3. **Martijn C**, Sharpe L. Pathways to youth homelessness. *Soc Sci Med* 2006;**62**:1–12.
4. **Craig TKJ**, Hodson S. Homeless youth in London: II. Accommodation, employment and health outcomes at 1 year. *Psychol Med* 2000;**30**:187–94.
5. **Taylor H**, Stuttaford M, Broad B, *et al*. Why a 'roof' is not enough: the characteristics of young homeless people referred to a designated Mental Health Service. *J Mental Health* 2006;**15**:491–501.
6. **Hodgson KJ**, Shelton KH, van den Bree MBM, *et al*. Psychopathology in young people experiencing homelessness: a systematic review. *Am J Public Health* 2013;**103**:24–37.
7. **Padgett DK**, Struening EL. Victimization and traumatic injuries among the homeless: associations with alcohol, drug, and mental problems. *Am J Orthopsychiatry* 1992;**62**:525–34.
8. **Bines W**. *The health of single homeless people*. Centre for housing policy. University of York, 1994.
9. **Depaul UK**. Making it matter: improving the health of young homeless people. Depaul UK, 2012. <http://www.depauluk.org/uploads/documents/120330-booklet-final.pdf>
10. **Homeless Link**. *Statistics on homeless young people*. Joseph Rowntree Foundation, 2001.
11. **Kushel M**. Factors associated with the health care utilization of homeless persons. *JAMA* 2001;**285**:200–6.

12. **Bijl RV**, Ravelli A. Current and residual functional disability associated with psychopathology: findings from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Psychol Med* 2000;**30**:657–68.
13. **Borowsky SJ**, Rubenstein LV, Meredith LS, *et al*. Who is at risk of nondetection of mental health problems in primary care? *J Gen Intern Med* 2000;**15**:381–8.
14. **Fazel S**, Khosla V, Doll H, *et al*. The prevalence of mental disorders among the homeless in western countries: systematic review and meta-regression analysis. *PLoS Med* 2008;**5**:225.
15. **Quilgars D**, Pleace N. *Delivering health care to homeless people: an effectiveness review*. Centre for housing policy. University of York, 2003.
16. **United Nations**. *Young people's transitions to adulthood: progress and challenges*. In: *World Youth Report*. 2007. <http://social.un.org/index/WorldYouthReport/2007.aspx> (accessed 1 Jun 2012).
17. **Sheehan D**, Shytle D, Milo K, *et al*. MINI International Neuropsychiatric Interview for Children and Adolescents English Version 5.0. 2006.
18. **American Psychiatric Association**. *Diagnostic and statistical manual of mental disorders*. 4th edn. text rev. Washington, DC, 2000.
19. **Weiss DS**, Marmar CR. *The impact of event scale-revised*. London, UK: Guilford Press, 1997.
20. **Hyler S**. *PDQ-4+ personality questionnaire*. New York: New York State Psychiatric State, 1994.
21. **SPSS Inc**. *PASW Statistics for Windows, Version 20.0*. Chicago: SPSS Inc, 2010.
22. **Shelton KH**, Taylor PJ, Bonner A, *et al*. Risk factors for homelessness: evidence from a population-based study. *Psychiatr Serv* 2009;**60**:465–72.
23. **National Centre for Social Research and the Department of Health Sciences University Leicester**. *Adult psychiatric morbidity: results of a household survey*. NHS Information Centre for Health and Social Care, 2007.
24. **Rhodes JE**, Jason LA. A social stress model of substance-abuse. *J Consult Clin Psychol* 1990;**58**:395–401.
25. **Karim K**, Tischler V, Gregory P, *et al*. Homeless children and parents: short-term mental health outcome. *Int J Soc Psychiatry* 2006;**52**:447–58.
26. **Vostanis P**, Grattan E, Cumella S. Mental health problems among homeless children and families: longitudinal study. *BMJ* 1998;**316**:899–902.
27. **Caetano R**, Babor TF. Diagnosis of alcohol dependence in epidemiological surveys: an epidemic of youthful alcohol dependence or a case of measurement error? *Addiction* 2006;**101**:111–14.
28. **Kessler R**. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Arc Gen Psychiatry* 2005;**62**:593–602.
29. **Singh SP**, Evans N, Sireling L, *et al*. Mind the gap: the interface between child and adult mental health services. *Psychiatr Bull* 2005;**29**:292–4.
30. **Groundswell**. Homeless People's Commission Full Report. Joseph Rowntree Foundation, 2012.
31. **Banerjee S**, Clancy C, Crome L. *Coexisting problems of mental disorder and substance misuse*. UK: Royal College of Psychiatrists Research Unit. Department of Health, 2002.
32. **Caslyn RJ**, Morse GA, Klinkenberg G, *et al*. Reliability and validity of self-report data of homeless mentally ill individuals. *Eval Program Plann* 1997;**20**:47–54.
33. **Moher D**, Liberati A, Tetzlaff J, *et al*. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med* 2009;**6**:e1000097.
34. **Berdahl TA**, Hoyt D, Whitbeck L. Predictors of first mental health service utilization among homeless and runaway adolescents. *J Adolesc Health* 2005;**37**:145–54.
35. **Bonin JP**, Fournier L, Blais R. Predictors of mental health service utilization by people using resources for homeless people in Canada. *Psychiatr Serv* 2007;**58**:936–41.
36. **Buckner JC**, Bassuk EL. Mental disorders and service utilization among youths from homeless and low-income housed families. *J Am Acad Child Adolesc Psychiatry* 1997;**36**:890–900.
37. **Solorio M**, Milburn N, Anderson RM, *et al*. Emotional distress and mental health service use among urban homeless adolescents. *J Behav Health Serv Res* 2006;**33**:381–93.
38. **Taylor H**, Stuttaford M, Broad B, *et al*. Why a 'roof' is not enough: the characteristics of young homeless people referred to a designated Mental Health Service. *J Mental Health* 2006;**15**:491–501.