International Journal of Language & Communication Disorders

INT J LANG COMMUN DISORD, XXXX 2020,
VOL. 00, NO. 0, 1–19

# Research Report

# The speech, language and communication needs of rough sleepers in London

Leigh Andrews and Nicola Botting

Language and Communication Science, City University of London, London, UK

(*Received September 2019; accepted August 2020*)

**Abstract**

*Background:* There is very little awareness of the speech, language and communication needs (SLCN) of rough sleepers. The small amount of documentation that does exist involves a wider group of homeless adults (not just rough sleepers), and reports that communication needs are an area of concern.
*Aims:* To investigate: (1) the reported prevalence of SLCN amongst UK nationals recorded on the Combined Homeless and Information Network (CHAIN) as sleeping on the streets of London; (2) whether rough sleepers with reported SLCN differ from those without; and (3) what factors best predict patterns of rough sleeping and accommodation stays.
*Methods & Procedures:* A data set of 513 participants was provided by CHAIN, which contained information relating to all new rough sleepers and people with long-term histories of rough sleeping (UK nationals only) recorded by street outreach teams in London between 1 April and 30 June 2013. Also included was data about UK nationals provided with support by the Homelessness and Brain Injury Project. The data set contained information including basic demographics, communication skills, health and social care needs, and institutional background and extended to a 5-year period.
*Outcomes & Results:* (1) SLCN data were often not recorded with data available for only 62% of individuals on the CHAIN databases. However, for those with SLCN data, the prevalence of SLCN was significantly higher than for the general population (17.1%; $p < 0.001$). (2) There were no significant differences between those with and without SLCN on additional risk factors, quarters rough sleeping, accommodation stays or staff-recorded alerts. (3) There was a positive correlation between rough sleeping and additional risk factors for those with SLCN ($r = 0.32$, $p < 0.001$) and for those without ($r = 0.25$, $p < 0.001$). Regression analysis indicated that additional risk factors were more predictive than SLCN in explaining the number of quarters rough sleeping and accommodation stays.
*Conclusions & Implications:* SLCN are highly prevalent amongst rough sleepers and significantly greater than for the UK general population. SLCN are not clearly related to rough sleeping behaviour, but the presence of additional risk factors is highly significant in this regard. Homelessness organizations should provide training for staff in SLCN in order to promote better recording of SLCN, inclusive communication and appropriate support to people who are homeless. Further research is also needed to understand better the communication needs of rough sleepers.

*Keywords:* speech, language and communication needs (SLCN), homelessness, rough sleepers.

**What this study adds**

*What is already known on the subject*

- There is very little literature concerning the SLCN of rough sleepers, but that which exists suggests that communication needs are an area of concern. There is relatively little awareness of SLCN in practice in this field.

Address correspondence to: Nicola Botting, Language and Communication Science, City University of London, EC1V 0HB, London, UK; e-mail: nicola.botting.1@city.ac.uk




ISSN 1368-2822 print/ISSN 1460-6984 online © 2020 The Authors. *International Journal of Language & Communication Disorders* published by John Wiley & Sons Ltd on behalf of Royal College of Speech and Language Therapists
DOI: 10.1111/1460-6984.12572

*What this paper adds to existing knowledge*

- This study is the first to provide information on SLCN recording in this population. It reports large-scale prevalence data on SLCN in rough sleepers, showing a significantly higher risk in this group. Unexpectedly, SLCN did not clearly relate to patterns of rough sleeping and accommodation, but this may be due to the relatively crude data available in routine practice.

*What are the potential or actual clinical implications of this work?*

- Wider awareness and training on SLCN in the homelessness sector is needed coupled with more systematic and objective assessment of communication in rough sleepers.

## Introduction

The term 'homeless' describes individuals with a variety of housing difficulties, from complete lack of shelter to unsafe conditions in the home (Somerville 2013). The most visible face of homelessness—people sleeping on the streets—prompts concern each winter amongst the media, politicians and general public. This type of homelessness is often referred to in support services as 'rough sleeping' (Homeless Link 2018a). It describes an individual who sleeps overnight on the streets and other publicly accessible spaces (e.g., bus shelters) as part of their daily living. London has the highest number of rough sleepers in the UK (Homeless Link 2018a), and concerted government action in the form of the Rough Sleeping Initiative began in the capital in 1990. The new Labour government of 1997 created the Rough Sleepers' Unit (RSU) and tasked it to deliver a two-thirds reduction in rough sleeping by 2002 (Cebulla *et al*. 2009). The target was reached 6 months early and remained stable for a while, but since 2010, the number of people sleeping rough in London has increased by 165% (Wilson and Barton 2019), causing further debate about the nature of the problem and how to solve it.

This paper provides background information on current responses to rough sleeping by government and third-sector organizations, as well as explanation of how rough sleeping is measured and monitored over time. It then reviews key characteristics of the rough sleeping population, and the relevance of speech, language and communication needs (SLCN) in this context before reviewing the clinical literature. Finally, data collected about the SLCN of rough sleepers are analysed and discussed with recommendations for further action.

Currently, central government provides funding to local authorities in London who commission outreach services delivered by charitable organizations. Outreach teams walk the streets and search public spaces to locate rough sleepers in their borough, assess their needs, provide support to find accommodation and access appropriate services, for example, a general practitioner or drug and alcohol treatment (Mayor of London 2018a, Ministry of Housing Communities and Local Government 2018a). Additionally, charitable organizations run 'homeless hostels', temporary accommodation with single rooms, 24-h staffing, and the provision of advice and support (Homeless Link 2018b). The aim of most hostels is to help former rough sleepers maintain this accommodation for an appropriate duration and work towards recovery and independent living (Homeless Link 2018b). Evictions and abandonments from this type of accommodation are undesirable with nearly half those evicted returning to the street to sleep and those most likely to be evicted experiencing problems with drug and alcohol use and their mental health. Those sleeping rough for longer periods repeatedly leave hostels indicating instability rather than recovery (Twinch 2010). Professional qualifications and training in clinical disciplines is not generally required for these staffing roles (Flanagan 2002, National Careers Service 2019).

## The Combined Homelessness and Information Network (CHAIN)

In the late 1990s, the RSU funded growth of outreach and associated services across London (Cloke *et al*. 2011). The CHAIN database was developed in the year 2000 to increase coordination and reduce duplication across services. That is, services for rough sleepers can use the database to see and track an individual's history of rough sleeping, prison stays, accommodation stays etc., and thus coordinate care and support across several centres, even when that individual is new to a particular provision (Cebulla *et al*. 2009). CHAIN is now commissioned by the Mayor of London and is used by many organizations that support people sleeping rough. Organizations that serve the homeless community in London can register with CHAIN not only to access and contribute to the database but also to access the other network benefits such as professional guidelines, seminars and training. This data set, which consists of

over 100 different fields, is reviewed by local authorities, central government and charities to analyse rough sleeping in the capital and plan service delivery (St Mungo's 2019). Outreach teams use CHAIN to record the personal data, demographic details, and health and social information of the rough sleepers they locate. Importantly, there is currently no objective scoring in place for many of these variables—staff members are simply asked to make a judgement about needs.

There is a subset of individuals recorded on CHAIN referred to as 'the 205 cohort'. This group was created in 2009 by the London Delivery Board (Teixeira 2010). The board was chaired by the Greater London Authority (GLA) and composed of senior staff from inner London local authority homelessness teams and charities commissioned by them to address rough sleeping. The cohort initially comprised 205 people considered to be entrenched rough sleepers because according to the original report they had 'slept rough for 5 or more years and/or were seen sleeping rough more than 50 times over that period'. The 205 group was intensively targeted by outreach teams and provided with flexible access to services in an effort to reduce harm caused by rough sleeping (Teixeira 2010). CHAIN holds considerable amounts of data on these individuals as a result of the frequency of contact between them, outreach and other services such as accommodation, health and social care provision.

The ability of CHAIN to communicate important information about people sleeping rough is used to reduce harm, for example, via the 'alert' system (Batty 2018). A CHAIN-registered organization can alert CHAIN to incidents involving serious threats or actual violence by a rough sleeper that takes place within their setting. CHAIN then provides basic information about the incident to organizations using the system so that safety plans can be developed should the individual present to those services. Organizations are only alerted about high-risk incidents in order that they can decide whether to exclude an individual or put necessary support in place. This helps both to protect service-user privacy (minor incidents and personal fallouts are not recorded) and to avoid CHAIN organization staff becoming desensitized and overwhelmed by risk alerts (because incidents are frequent in this population and if they were all counted as 'alerts' it would limit the usefulness of this system). CHAIN contains data fields for outreach teams to record the reading, spoken and written language abilities of the people they find. Where this information is recorded, it is based on an informal assessment of ability by the staff member in contact with the individual, or self-reported by the person sleeping rough. Street outreach teams are not clinically trained in speech and language therapy.

## Communication and rough sleeping

In clinical practice, it would appear that there is a large overlap between factors affecting groups at risk of rough sleeping and those with a range of SLCN. There are several elements to communication, and the term 'speech, language and communication needs (SLCN)' is used by speech and language therapists (SLTs) to capture this range of abilities along with presenting needs (RCSLT 2013). Speech refers to the ability to speak clearly and fluently via phonological and articulatory mechanisms (O'Hare and Bremner, 2016). Language is the ability to express oneself and understand others through appropriate words, sentences and stories (Murray and Chapey 2001, Tomasello 2008). Communication means social skills including relevancy, taking turns, gestures and seeing another's viewpoint (Grice 1975). The Royal College of Speech and Language Therapists (RCSLT) states that communication also includes reading, spoken and written-language abilities (RCSLT 2013). Evidence suggests that the association between oral and written language is strong throughout development and increases with age (see Oakhill and Cain 2007 for a full discussion). Adolescents with literacy difficulties often have (undetected) oral language impairments (Myers and Botting 2008). In addition, various forms of verbal memory (especially non-word repetition; Coady and Evans 2008) are now established as important markers of SLCN. Thus, for the purposes of this study, communication is viewed as a cross-modality skill, and we have considered evidence that addresses verbal memory and literacy as well as spoken language.

However, there is limited information or evidence about the SLCN of rough sleepers specifically (see the review below). The *Unhealthy State of Homelessness Report* produced by Homeless Link (2014) surveyed 2500 people experiencing homelessness, but communication needs were not explored. The Centre for Homelessness Impact (2018) produced 'The Effectiveness Map' which reviewed literature about interventions in homelessness work. The broad category of 'Communication' is an intervention that was reviewed; however, in this context, it was equated with public information campaigns and health promotion, not SLCN. This absence of communication data is of interest because all interventions used by organizations working with rough sleepers rely on communication skills for their delivery and interaction. Homeless Link (2017) outlines four such approaches: psychologically informed environments, trauma informed care, strengths-based practice and co-production. The common factor amongst these is the creation of rapport and understanding between staff and service users requiring good communication. Although the NHS has created specialized health services for rough sleepers in relation to mental

health (Central and North West London NHS Foundation Trust Joint Homelessness Team) psychology (South London and Maudsley NHS Foundation Trust Psychology in Hostels Project), dentistry, podiatry, nursing (Homeless Health Nurses) and tuberculosis screening (University College London Hospitals NHS Foundation Trust Find and Treat Service), speech and language therapy is absent from the list.

Norbury *et al.* (2016) undertook a population study of children with persistent SLCN of any kind and found the prevalence to be 9.92%; this rate is generally accepted as an estimate for use with the adult population due the persistent nature of the SLCN considered by Norbury *et al.*, although there are no epidemiological studies of adults. Good speech, language and communication abilities enable people to develop emotional wellbeing and social relationships, manage their affairs and achieve in learning and work (Beard 2018). At the same time, SLCN is known to associate with factors recorded in the CHAIN database as being highly relevant to the rough sleeping population, namely mental health difficulties (Botting *et al.* 2016), brain injury (Struchen *et al.* 2008) and time spent in prison (Bryan 2004) or care (McCool and Stevens 2011). Thus, the presence of SLCN is another risk factor that associates with other, better known issues within the homeless population, but which has not to date been well documented. The background literature on the association between these factors and SLCN will now be considered in more detail.[1]

### *Mental health*

About 50% of rough sleepers recorded on CHAIN are considered by their outreach team to have, or self-report, a mental health need (Mayor of London 2015). According to St. Mungo's report to NICE (2016), 38% have diagnosed depression/anxiety, 16% schizophrenia, 9% personality disorder and 6% bipolar disorder. Keigher and Greenblatt (1992) found in a large purposive sample of individuals with emergency housing needs, that homelessness was also predicted by dementia, among other things. Although finding directly comparable data is difficult, John *et al.* (2016) report the prevalence of common mental disorders in the UK general adult population as between 15% and 30%. SLCN are also associated with a range of mental health conditions: evidence supports SLCN as a marker for diagnosis of schizophrenia (Clegg *et al.* 2007, Muralidharan *et al.* 2018); there are increased rates of depression and anxiety amongst adolescents with SLCN that sustains into adulthood (Botting *et al.* 2016); and SLCN are evident in individuals with dementia (Bailey *et al.* 2019). Rees *et al.* (2019: 1) conclude that the links between SLCN and mental health needs are 'complex and bidirectional', with mental health problems increased in people with SLCN, and these in turn affecting health inequalities. Psychiatric healthcare was one service reported to be accessed by rough sleepers in the North West London NHS (2013) report—this is not unexpected when CHAIN data reveal rates of mental health difficulties amongst rough sleepers at 50% (Mayor of London 2015). Homelessness organizations often structure services to include specific mental health projects, for example, St Mungo's highlight 'A focus on Mental Health' on its website (St Mungo's 2018), and Thames Reach has specific projects for people with severe and enduring mental health difficulties (Thames Reach 2018).

### *Brain injury*

A second factor of interest when considering SLCN in rough sleepers is traumatic brain injury (TBI). Oddy *et al.* (2012) found TBI rates for people who were homeless were double that of the general population (48% versus 21%). In other groups, SLCN that are associated with TBI contribute to poor psychosocial outcomes (Struchen *et al.* 2008), and this may be an important factor for rough sleepers, too. Other forms of acquired brain injury (ABI) such as stroke may have considerable impact on communication abilities—one of these is stroke where one-third of survivors are diagnosed with aphasia (Stroke Association 2018). Another form of ABI is alcohol-related brain damage (ARBD), which has been estimated at 1.5% prevalence in the general population (Wilson *et al.* 2012), but is 14 times higher in homeless hostel-dwellers (Gilchrist and Morrison 2005). Approximately 40% of rough sleepers are ascribed or report problematic alcohol use (Mayor of London 2018b).

### *Offenders*

The prison population is known to have high levels of SLCN: The Offender Learning and Skill Service (OLASS) reported that 46% of adult prisoners had literacy skills equivalent to $\leq$ 11 years old (OLASS 2015). Bryan (2004) found between 60% and 90% of the young offender population experienced SLCN. Furthermore, Hopkins *et al.* (2018) found a positive association between SLCN and juvenile offending even when socioeconomic factors and gender were accounted for. Approximately 35% of people recorded on CHAIN have spent time in prison (Mayor of London 2018b) compared with 0.002% of the general population in gaol in England and Wales at any one time (Sturge 2018). With prison stays a common experience amongst rough sleepers, it may be that SLCN is particularly relevant to this group.

*Care history*

Another factor of relevance to both rough sleeping and SLCN is care history. CHAIN data reveal that 10% of people recorded have a care background (Mayor of London 2018b) compared with <1% of the general population (Department for Education 2016). McCool and Stevens (2011) found severe, pervasive and unsuspected SLCN in children in residential care. Studies of neurological development of children raised in institutional settings show that they have reduced attention and poorer emotional regulation (more anger and anxiety issues) and error monitoring (judging appropriateness of their own actions; Bick and Nelson 2016). Research in Australia found factors driving homelessness amongst care leavers included anger issues and lack of educational goals (Clare *et al.* 2017). Some people who have slept rough identify that traumatic childhood events, including leaving the family home to feel safer, was the start of their journey into homelessness, and others state that accessing help from statutory agencies was too difficult if they had problems understanding the process (St Mungo's 2013). Whether any of these difficulties were associated with spoken language or literacy is not reported in the cited evidence. However, a link between care leavers and SLCN has been established (McCool and Stevens 2011).

## Systematic search of the literature

A literature search was carried out in April 2019 using EBSCOhost and searching CINAHL, Communication Source, MEDLINE and PSYCHinfo. There were three searches, which revealed five relevant papers, and a further three were obtained via manual search (figure 1 and table 1).

Initially, we attempted to search only for research pertaining to rough sleepers. Thus, the first search used the terms 'rough sleep*' OR 'homeless*' AND 'communication', both to be found in the abstract. This identified 504 records, which, after limiting to peer-reviewed academic journals in English published between 2008 and 2018, left 134 records. However, once those records that did not contain research about clinical communication in adults who were homeless were removed, this left no relevant records at all.

A second wider search was then completed to encompass research on all homeless populations, using different terms: 'homeless OR homelessness OR unsheltered OR unstably housed' was used to include various descriptions of homelessness, and 'speech or language or communication' was inserted to extract clinical papers. Both terms were required in the abstract. The papers from this stage were then filtered using inclusion criteria that they must be peer-reviewed academic journals, written in English and published between 2008 and 2018. This resulted in 29 articles. After applying our final inclusion criteria that the research must involve the clinical communication of adults who were homeless, two papers remained: a case-controlled study by Parker and Albrecht (2012) and a systematic review by Burra *et al.* (2009).

A final search was conducted to capture psychology-based papers using the same 'homeless OR homelessness OR unsheltered OR unstably housed' term, but adding 'verbal memory', both to be present in the abstract. As noted above, verbal memory was included because of the relative dearth of SLCN research for this group, and because of wide-ranging evidence that verbal memory is a marker for SLCN (Coady and Evans 2008). Applying the same inclusion criteria as above, this search provided three more papers: a randomized clinical trial by Jakubovski *et al.* (2015); a systematic review by Ennis *et al.* (2015); and research by Saperstein (2014) age-matching participants to a normative population. A further three papers were found via manual search: a systematic review on inclusive health provision by Luchenski *et al.* (2018), which included rough sleepers as a key population; a report by North West London NHS (2013); and a paper by McMicken (2014). This led to a total of eight papers, which are summarized in table 1.

Although there is a dearth of literature, our review revealed a range of study types in the eight papers from strong evidence (systematic reviews) to much weaker descriptive reports. There was a good deal of methodological information missing from some of these papers. There were two systematic reviews focusing on homelessness papers that also included some measure of language or verbal memory. Ennis *et al.* (2015) found 11 studies on homelessness that met the inclusion criteria of their synthesis, four of which were rated as good quality (including control groups; using validated tools). Nine of these studies tested verbal memory and abilities. Ennis *et al.* considered that five studies found a departure from normal verbal memory function with scores in the low average to average range (Caplan *et al.* 2006; Cotman and Sandman 1997, Schutt *et al.* 2007, Seidman *et al.* 1997, 2003). Additionally, Bousman *et al.* (2010) showed 36% of participants with impaired recall and 40% with impaired learning. Solliday-McRoy *et al.* (2004) showed deficits in new verbal learning abilities and immediate recall were probable in 69% and 59% of their sample, respectively. Further, 62% had probable deficits in delayed verbal recall, and 39% in delayed verbal recognition. Similar findings of SLCN amongst people who were homeless were presented in the systematic review by Burra *et al.* (2009). They found 22 studies, four of which were of good quality, exploring cognitive deficits in adults

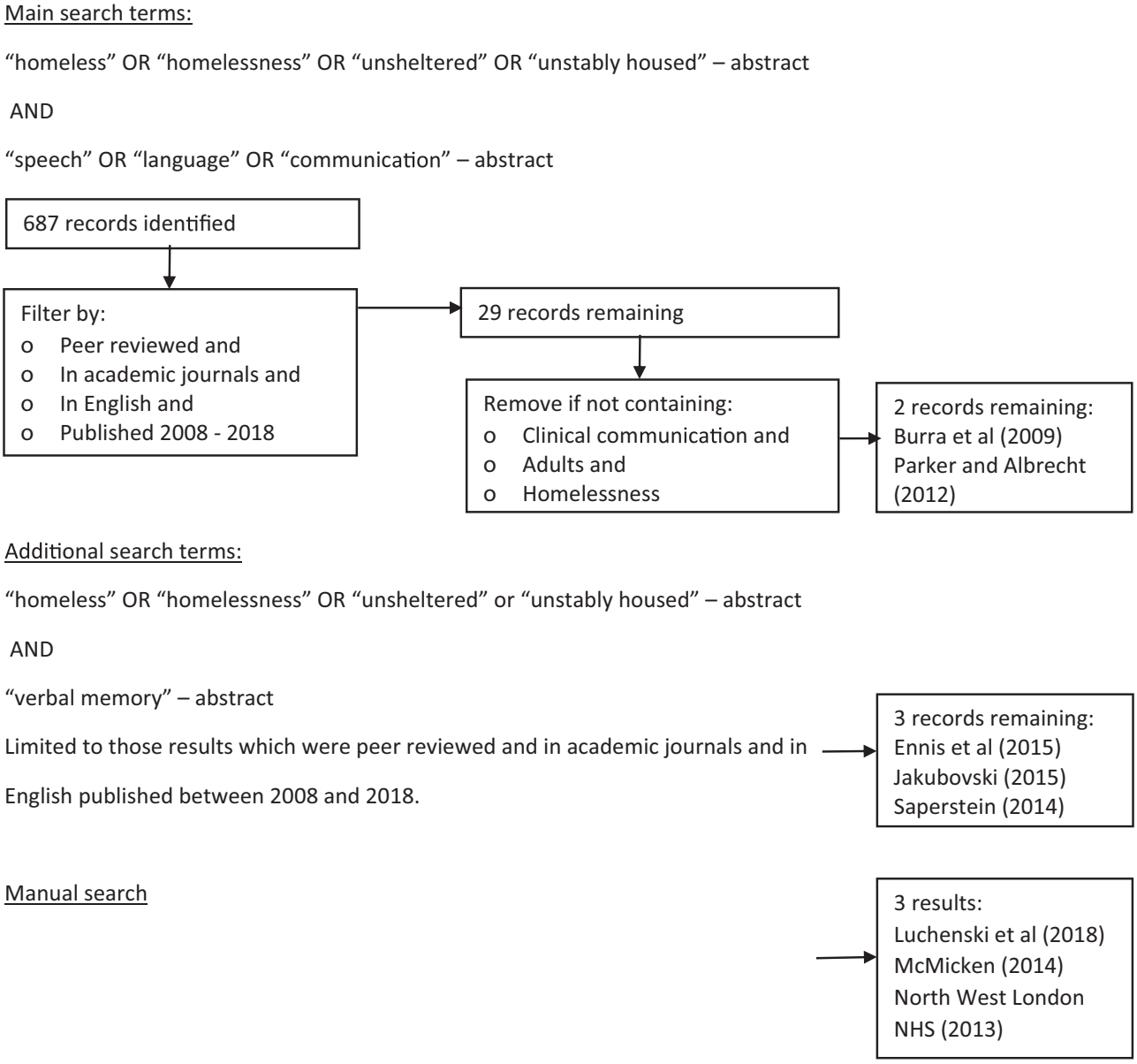


Figure 1. Search process for review.

who were homeless using neuropsychological tests or screening tests. This showed that verbal memory (as well as attention and speed of processing) was lower in the group that were homeless compared with the normative population. For example, Bremner *et al.* (1996) found 80% of the sample studied achieved scores at the ≤50th percentile on the Adult Memory Information and Processing Battery—this is significantly below the performance expected in the general population. The authors concluded that verbal memory deficits may be a risk factor for causing and maintaining homelessness and negatively impact on the effectiveness of care, support and treatment programmes. The authors did find in one study (Gonzalez *et al.* 2001) that language scores of the participants were in the typical range, but this paper had analysed data from 'higher functioning homeless persons' and may characterize a somewhat different group (Gonzalez *et al.* 2001: 1).

As part of an extensive assessment battery, a further study by Saperstein *et al.* (2014), which tested the effectiveness of a programme designed to enable employment in formerly homeless adults, also included verbal tasks. They found performance on verbal memory and working memory tests was 70% lower compared with those of an aged-match normative population. The authors highlight the critical role of these skills in enabling people experiencing homelessness to participate in rehabilitation programmes.

**Table 1. Papers resulting from literature review**

| References | Study type | Methods | Comments on homelessness content | Sample size | Gender | Mean age (years) | Relevant assessment instruments | Overall quality rating 0–7[a] | Relevance rating 0–5 |
|---|---|---|---|---|---|---|---|---|---|
| Ennis *et al.* (2015) | Systematic review | Database and manual search. Papers on homelessness were validated with a neuropsychological tool to measure memory. Those tools that did not measure memory uniquely, e.g., Mini Mental State Examination, were excluded leaving 11 papers in total, nine of which assessed verbal memory and abilities | Focused directly on homeless people: in contact with homelessness services; or at homeless shelter; residential programme. Anyone who was ever homeless | n.a. | n.a. | n.a. | Validated measures of verbal memory and abilities: Wechsler Memory Scale; Hopkins Verbal Learning Test—Revised; Rey Auditory Verbal Learning Test; California Verbal Learning Test; and Repeatable Battery for the Assessment of Neuropsychological Status | 7 | 5 |
| Burra *et al.* (2009) | Systematic review | Database search. Published in English, reported results of tests for cognitive dysfunction in homeless people aged ≥ 18 years old | Focused directly on homeless people. No uniform homelessness definition applied | n.a. | n.a. | n.a. | Standardized cognitive tests and screening measures. Attention and speed of processing: Mini-Mental State Examination; Trails A and B; Wechsler Adult Intelligence Scale—Revised; Auditory Continuous Performance Test; Adult Memory and Processing battery; and Test of Variables of Attention. Verbal memory: California Verbal Learning Test; and Rey Auditory Verbal Learning Test | 7 | 5 |

Continued

**Table 1. Continued**

| References | Study type | Methods | Comments on homelessness content | Sample size | Gender | Mean age (years) | Relevant assessment instruments | Overall quality rating 0–7[a] | Relevance rating 0–5 |
|---|---|---|---|---|---|---|---|---|---|
| Luchenski *et al.* (2018) | Systematic review with the narrative synthesis method applied in light of a range of interventions | Database search for systematic reviews with and without meta-analysis of any intervention that directly affects health targeted at 'inclusion health populations' including people with experience of homelessness, drug use, imprisonment and sex work between 2005 and 2015 in high-income countries. A total of 77 studies included. Engagement workshop with 16 experts by experience of social exclusion | Homelessness included as one group of vulnerable people | n.a. | n.a. | n.a. | Mix of outcome measures including improvement in psychiatric symptoms, substance use disorders, length of stay in hospital and treatment adherence | 5 | 3 |
| Saperstein *et al.* (2014) | Trial using age-matched controls | 18–22-year-old English speakers referred by residential programme staff | Time-limited residential programme providing employment support for homeless youth | 67 | 51.5% male | 20.46 | 17 standardized tests including: Wechsler Test of Adult Reading; Wechsler Memory Scale—IV and California Verbal Learning Test; Weschler Adult Intelligence Scale—III; and Delis Kaplan Executive Function System | 5 | 5 |

Continued

**Table 1. Continued**

| References | Study type | Methods | Comments on homelessness content | Sample size | Gender | Mean age (years) | Relevant assessment instruments | Overall quality rating 0–7[a] | Relevance rating 0–5 |
|---|---|---|---|---|---|---|---|---|---|
| Parker and Albrecht (2012) | Case-controlled study | Non-randomized sample from the homeless registry in the local area, at least 18 years old with spoken English fluency | Sleeping in a place not meant for human habitation or a shelter for at least 1 year or four episodes of homelessness in last 3 years | 60 | 55 male, 15 female | 46 (median) | Self-report | 2 | 5 |
| Jakubovski *et al.* (2015) | Secondary analysis of a randomized clinical trial (double-blind) | 18–65 years old. General trial samples with diagnosis of chronic schizophrenia—some of whom were homeless. Able to take oral medication | Homelessness and verbal memory were used as factors in a wider trial | 1460 | 74% male | 40.6 | Neurocognitive tests including verbal memory | 4 | 2 |
| McMiken (2014) | Report | No information | Large urban rehabilitation mission for homeless men and women with a history of substance misuse | No information | No information | No information | No information | 1 | 5 |
| North West London NHS (2013) | Report including a literature review and qualitative analysis | Local rough sleeping data from CHAIN were matched to NHS numbers and interactions with the NHS were analysed | Current and former rough sleepers recorded on CHAIN | 933 | No information | No information | Self-report | 1 | 5 |

Note: [a]Based on the EBM Quality of Evidence Pyramid (Glover *et al.* 2006).

The role of SLCN and verbal skills when accessing services was also raised in other papers included in our search. In a synthesis of systematic reviews focused on a wide range of interventions and outcome measures, Luchenski *et al.* (2018) selected 77 papers from Cochrane Reviews, systematic reviews of randomized controlled trials, systematic reviews of observational studies and arranged an engagement workshop attended by 16 people with experience of social exclusion including homelessness. In combination with the engagement workshop, which the authors used to help interpret the synthesis, they concluded that SLCN prevented access to healthcare. At the workshop, people with a lived experience of rough sleeping judged this the second most important barrier to looking after their health after lack of accommodation. One individual commented: 'Health care is a right and everyone should have a voice' (Luchenski *et al.* 2018: 274). This is consistent with a report by North West London NHS (2013), which reviewed the healthcare utilization by 993 rough sleepers registered with a general practitioner in the catchment area. A total of 20 different medical, psychiatric and allied health disciplines were accessed, and difficulty with communication was a barrier reported by rough sleepers when trying to access healthcare. In light of this, it is particularly surprising that speech and language therapy was absent from the list of services accessed by the cohort during outpatient appointments. Nevertheless, it should be noted that while this latter report included a large number of participants, it was generally descriptive and as such represents lower quality evidence—for example, it is not clear whether speech and language therapy was included in the design and not accessed, or if it was not included as a potential service.

Parker and Albrecht (2012) performed a case-controlled study of individuals who did and did not successfully apply for and maintain accommodation provided as part of the 'Housing First' approach. Housing First is a service model that focuses on engaging with people with long histories of rough sleeping and complex needs as well as additional risk factors such as history of prison or care. It considers the provision of accommodation a human right and provides this to the client first along with intensive and personalized support (Homeless Link 2016). Parker and Albrecht (2012) found 22.22% of those who remained homeless reported 'language barriers' when trying to use support services. Language was defined as the ability of the service provider to communicate effectively. None of the participants successfully accommodated in the Housing First model reported language as a barrier to services. All participants in this study were native English speakers, and there were no statistically significant differences between participants on the basis of age, ethnicity, gender, education and income. This is a particularly important finding for the UK capital because there are currently nine Housing First projects in London and the Mayor of London has called on the government to provide more resources for a pan-London scheme (Mayor of London 2018a). An evaluation of Housing First services in England reports positive outcomes for the approach in 80–90% of cases (Bretherton and Pleace 2015). Parker and Albrecht (2012) may have identified that SLCN is an important factor for some of the those for whom Housing First is ineffective.

Research by Jakubovski *et al.* (2015), which showed a link between mental health and homelessness, is of interest here. Although this study is a secondary analysis of a wider trial involving treatment outcomes for people diagnosed with schizophrenia and prescribed antipsychotic medication, it included both homelessness and verbal memory as predictors of outcome. Data in this research were drawn from the Clinical Antipsychotic Trails of Intervention and Effectiveness Trail (CATIE), a randomized control trial in the United States. Findings showed that two of the most consistent predictors of poor treatment outcome were low scores on verbal memory tests and experience of homelessness. The findings from CATIE raise verbal memory as a potential factor in understanding outcomes for people who are homeless with mental health difficulties, and while these tests probably tap into several different skills including cognitive abilities, low scores on these tests are established as a marker for more generalized language difficulties as reported in the wider literature (see Coady and Evans 2008 for a review).

The only paper found written from a speech and language therapy perspective was brief and descriptive rather than of experimental design, and so represents low-quality evidence. However, given the lack of available evidence, it may be important to note that it also reported that speech and language therapy can be of positive value to people who have been homeless, experiencing problematic substance use, and in contact with the criminal justice system (McMicken 2014).

## The present study

The review of literature presented here highlights three key issues: the limited information about the SLCN of homeless people (and lack of evidence for rough sleepers specifically); the number of common factors associated with both SLCN and rough sleeping; and the possible impact of SLCN on accessing other services such as accommodation, treatment and rehabilitation programmes. Furthermore, we discussed evidence that people experiencing rough sleeping report language barriers when they seek help. The aim of the current paper is therefore to investigate the limited data available

concerning this specific group, who are the focus of the CHAIN database, and will consider the following research questions:

- Question 1: What is the reported prevalence of SLCN amongst UK nationals recorded on CHAIN as sleeping on the streets of London and how does it compare with that of the UK general population?
- Question 2: Do CHAIN participants with reported SLCN differ from those without on their level of additional risk factors, the number of quarters they are seen rough sleeping, the number of accommodation stays they experience and the total number of alerts raised by staff in relation to them?
- Question 3: What factors best predict patterns of rough sleeping and accommodation?

## Method

### *Design and data source*

The study was a secondary quantitative analysis of service data routinely collected by organizations working to address rough sleeping and which was subsequently recorded on CHAIN. Consent for the data to be used for research purposes at [City, University of London] University was obtained by charitable and statutory organizations during the course of their work with people sleeping rough and before entry on CHAIN. The data were released following a formal request by the researchers and completion of standard documentation CHAIN uses for this purpose. All data released were anonymous, but participants had all given informed written consent to allow university researchers to access the database. The study was then approved by the LCS PR ethics committee at [City, University of London] University. Only UK nationals were included in the data set to minimize the risk that SLCN may be present due to English being spoken as an additional language.

### *Participants*

The data sample contained 513 individuals comprised of three cohorts. Cohort 1 comprised all UK nationals first seen sleeping rough in London between 1 April and 30 June 2013 ($n = 405$, 78.9%). Cohort 2 comprised all UK nationals who were part of the 205 cohort and seen sleeping rough in London between 1 April and 30 June 2013 ($n = 96$, 18.7%). Cohort 3 contained all UK nationals who had contact with the Homelessness and Brain Injury Project ($n = 12$, 2.3%). This Project was delivered between 1 July 2017 and 30 June 2018 and provided information and guidance to organizations working with people with experience of rough sleeping who were suspected or known to have ABI. Data about the age and gender of participants were available and are reported in the Results section. Table 2 summarizes the distribution of additional risk factors for each cohort.

### *Database content and measures*

CHAIN is a live system updated regularly by organizations as new or additional information comes to light. CHAIN surveys the data to remove duplicates, check consent and deal with errors. All data provided for this study covered a period from the date of the first entry on or after 1 April 2013 to the date of the final entry or 30 June 2018, whichever was earliest. Data included a range of demographic information, rough sleeping and accommodation history, institutional care, health and social needs, reading, writing and spoken language abilities, number of alerts (high-risk incidents noted and recorded by staff members, which are then shared with the staffing community for safeguarding purposes), date of the last contact, and, where known, the date of death.

CHAIN contains data fields for homelessness staff to record the reading, writing and spoken language abilities of the people they support. Where recorded, this is based on an informal assessment of ability by the staff member in contact with the individual, or self-reported by the person sleeping rough. Street outreach teams are not clinically trained in speech and language therapy. However, the reading, writing and spoken language abilities of Cohort 3 (known or suspected ABI) were completed by the first author as part of her routine work with CHAIN before beginning the study.

The ratings of reading, written and spoken language as well as those relating to mental health are clinical judgements made by homelessness workers. No objective scoring systems are currently in place for these CHAIN variables, and no systematic observations are in place. This means that ratings for writing and reading are naturally lower than for spoken language, since workers may not observe the former in usual practice (see also below for how this was addressed in coding). We acknowledge that ideally there would be details for how each scoring of a homeless client was determined, but at present, guidelines do not exist for the keyworkers using CHAIN. We discuss this limitation fully below.

### *Data coding and missing data*

Prison or care history was coded 0 = no, and 1 = yes; and mental health needs were coded 0 = none, 1 = low, 2 = medium, and 3 = high. Reading, writing

**Table 2. Distribution of risk factors across the cohorts**

| | *n* | Mental health need present | ABI known or suspected | Prison history | Institutionalized care history |
|---|---|---|---|---|---|
| Cohort 1 (new rough sleepers) | 405 | 186 | 0 | 132 | 41 |
| Cohort 2 ('205' status) | 96 | 67 | 0 | 53 | 20 |
| Cohort 3 (known or suspected ABI) | 12 | 8 | 12 | 5 | 3 |
| Total | 513 | 200 | 12 | 190 | 64 |

Note: ABI, acquired brain injury.

and spoken language difficulties were coded 0 = none, 1 = medium, and 2 = high. As mentioned above, these scores represent clinical judgements made by staff members who encounter the homeless person and may be updated by other staff who later observe difficulties.

This study considered SLCN as a broad construct, and therefore reading, writing and spoken language abilities were combined into a binary variable. Individuals with some support need in *any* category were allocated the code 1. Therefore, this variable represents those with *any* SLCN compared with those with no SLCN.

Because the ratings above were made during routine interactions, which may not have included literacy activities, there is a large amount of missing data for reading and writing; any individual with a rating of 0 for spoken language was assumed to have no reading or writing difficulties even if these fields were left blank by staff in homelessness services. Thus, we have reported a cautious estimate of prevalence. Individuals in whom all three fields were blank were recorded as missing data.

A scale variable of Additional Risk was also created. This scale collated data from mental health needs (0–3), prison (0/1) or care history (0/1), known ABI (0/1) and 205 cohort membership (long-term rough sleepers; 0/1). This created a possible score ranging from a minimum of 0 (no need) to 7 (pervasive needs). Finally, this Additional Risk variable was also then used to create a category variable, grouping participants into those with high, medium and low levels of risk.

Importantly, a higher number of accommodation stays is a less favourable outcome because this represents lack of accommodation stability, and likely exclusion from accommodation settings.

## Results

### *Descriptive data on participants*

Data were available for the age and gender of all participants ($n = 513$, 100%). There were 455 (88.7%) men and 58 (11.3%) women with ages ranging from 22 to 83 years and a mean age of 46.14 (12.14) years, which is broadly in line with the latest CHAIN annual report (Mayor of London 2018b).

The mean level of Additional Risk Factors was 2 (SD = 1.43) (data available for $n = 421$, 82.06%). The mean number of Quarters Rough Sleeping (data available for $n = 509$, 99.22%) was 2.95 (SD = 3.66). The mean number of accommodation stays was 2.12 (1.74) ($n = 325$, 63.35%). Data were available for all participants ($n = 513$, 100%) in relation to alerts with a mean of 0.12 (SD = 0.57) (table 3).

However, one of the key findings of this project was the lower frequency with which SLCN data were recorded, with only 322/513 (62.8%) individuals having any records in this domain; see Question 1 results below for further details.

Because Cohort 2 (205 group) was expected to have particular characteristics, independent *t*-tests comparing mean levels of Additional Risk Factors and Quarters Rough Sleeping between those with and without '205' status were performed. Those in Cohort 2 ($n = 96$) had a higher level of Additional Risk Factors (mean = 3.16; SD = 1.22) compared with those not in Cohort 2 ($n = 325$; mean = 1.66; SD = 1.307; $t(165.153) = 10.44$, $p < 0.001$), and a higher number of Quarters Rough Sleeping (mean = 7.78; SD = 5.29 versus mean = 1.83; SD = 1.83 for non-Cohort 2 participants ($n = 413$); $t(100.36) = 10.88$, $p < 0.001$).

### *Question 1: Recording and prevalence of SLCN amongst rough sleepers*

Descriptive data regarding the recording and prevalence of SLCN in the CHAIN data set are presented. A one-sample Chi-square test was performed to investigate any significant difference between the prevalence of SLCN in the UK adult general population compared with the presence of SLCN amongst all participants in this study.

As noted above, a key finding was the amount of unrecorded information on SLCN for all cohorts. In Cohort 1, data about SLCN were missing for 143/405 (35.3%) participants; for Cohort 2, data were missing for 45/96 (46.9%) participants; and in Cohort 3, data were missing for 3/12 (25.0%) participants. It is therefore important to note that these data represent only recorded instances of SLCN.

**Table 3. Descriptive information for all participants relating to additional risk factors, rough sleeping, accommodation stays and alerts**

| | Mean (SD) | Median (range) | *n* (% of participants with recorded data of this type) |
|---|---|---|---|
| Additional risk factors | 2.00 (1.43) | 2 (0–6) | 421 (82.06%) |
| Quarters seen rough sleeping | 2.95 (3.66) | 1 (1–20) | 509 (99.22%) |
| Accommodation stays | 2.12 (1.74) | 1 (1–14) | 325 (63.35%) |
| Alerts | 0.12 (0.57) | 0 (0–6) | 513 (100%) |

**Table 4. Results of *t*-tests for the whole sample in relation to levels of additional risk, rough sleeping, accommodation stays and total alerts**

| | Group | Mean (SD) | *n* | *t*-value | d.f. | *p* | *d* |
|---|---|---|---|---|---|---|---|
| Additional risk factors | SLCN | 2.08 (1.34) | 49 | –0.77 | 284 | 0.442 | 0.12 |
| | No SLCN | 1.91 (1.43) | 237 | | | | |
| Quarters rough sleeping | SLCN | 3.26 (3.59) | 54 | –0.68 | 320 | 0.498 | 0.10 |
| | No SLCN | 2.89 (3.63) | 268 | | | | |
| Accommodation stays | SLCN | 2.43 (1.72) | 44 | –1.22 | 221 | 0.224 | 0.20 |
| | No SLCN | 2.09 (1.62) | 179 | | | | |
| Alerts | SLCN | .25 (.78) | 55 | –1.66 | 323 | 0.098 | 0.21 |
| | No SLCN | .11 (.56) | 270 | | | | |

Of the 262 with SLCN data in Cohort 1, 42 (16.0%) had SLCN; in Cohort 2, 8/51 (15.7%) with data available were recorded a having SLCN. Finally, Cohort 3 who had been identified as having known or suspected ABI unsurprisingly had the highest prevalence of SLCN (5/9; 55.6%).

Overall, of the 322 individuals with SLCN data, 55 (17.1%) were recorded as having SLCN. This presents an over-representation when considering the assumed[2] prevalence of SLCN in the UK general adult population of 9.92% (Norbury *et al.* 2016). A one-sample Chi-square test confirmed that this represented a significant difference in prevalence ($\chi^2(1) = 24.2$; $p < 0.001$).

### *Question 2: Differences between rough sleepers with and without SLCN*

A Kolmogorov–Smirnov test of normality was significant ($p < 0.001$) for length of time rough sleeping, accommodation stays and total alerts data indicating all these variables are non-normally distributed. However, since parametric tests of statistical analysis are considered valid where data sets contain a large random sample (Lix *et al.* 1996; Lumley *et al.* 2002), independent *t*-tests were performed to compare means between various groupings on the data set. Levene's test for homogeneity of variance was non-significant in all cases.

Individuals with SLCN were no more likely to have a higher number of Additional Risk Factors, Quarters Rough Sleeping, Accommodation Stays and number of Alerts (see table 4 for details).

### *Question 3: What factors predict patterns of rough sleeping and accommodation?*

Tests of correlation were also performed to investigate relationships between Additional Risk and Quarters Rough Sleeping in those recorded as having SLCN, and then in those recorded as not having a SLCN.

Correlations were performed between Additional Risk Factors and Quarters Rough Sleeping in those recorded as having SLCN, and in those recorded as not having SLCN as separate groups. For the group without SLCN, there was a small positive correlation between the Quarters Rough Sleeping and Additional Risk Factors ($r = 0.25$, $p < 0.001$), and for those recorded as having SLCN, this correlation was moderate ($r = 0.32$, $p < 0.001$), but both showed a similar pattern and therefore groups were combined for the regression analyses and Group was included as a predictor variable without moderation terms being included.

Multi-collinearity was acceptable across all variables (all variance inflation factor (VIFs) < 1.01). We chose a stepwise approach to investigate whether SLCN had any unique variance in the context of other competing predictors. Because age and gender are known factors for SLCN (Norbury *et al.* 2016) as well as for homelessness (Hagen 1987), these were (force-) entered into a first step as control variables.

Two separate regression analyses were performed with Quarters Rough Sleeping and Accommodation Stays as the respective dependent variables. For each, age and gender were entered into Step 1. In Step 2, SLCN (0/1) and Additional Risk Factors (0–7) were entered in a stepwise method. For the number of Accommodation

Stays, Additional Risk Factors ($\beta = 0.29$) was the only significant predictor. Age ($\beta = 0.03$), gender ($\beta = -0.02$) were forced to enter but were not significant. SLCN ($\beta = 0.08$) was not significant and did not feature in the final model. The final model was significant and explained 7% of the variance (adjusted $r^2 = 0.07$; $F(3,201) = 5.9$, $p = 0.001$).

For Quarters Rough Sleeping, a similar pattern emerged with the final model explaining 10% of the variance (adjusted $r^2 = 0.10$; $F(3,276) = 11.4$, $p = 0.001$). Age ($\beta = 0.19$) and Gender ($\beta = 0.07$) were again entered into a first step, and explained 3.6%, while Additional Risk Factors added the remaining 7.4% ($\beta = 0.26$). SLCN was not significant ($\beta = 0.03$) and did not feature in the final model.

Given the predictive power of Additional Risk Factors, two further regressions were completed to unpick this factor, whereby Step 2 consisted of the individual factors included in Additional Risk. That is, Mental Health rating, Care-leaver status, Prison-leaver status and Total Alerts were included into the stepwise element of the analysis. For Accommodation Stays, Total Alerts was the only significant predictor ($\beta = 0.26$) explaining 5.3% of the variance in the final model (adjusted $r^2 = 0.053$; $F(3,196) = 4.6$, $p = 0.004$). For Quarters Rough Sleeping, Total Alerts was again a significant predictor, along with age (both $\beta = 0.19$). Together, these factors explained 6.6% of the variance in the final model (adjusted $r^2 = 0.066$; $F(3,262) = 7.1$, $p < 0.001$). Removing Total Alerts from the factor list did not result in further significant contributions to the model by any of the other predictor variables.

## Discussion

This study is one of the first to assess the literature and available data on communication needs amongst people who are homeless. The results show a very limited evidence base for this area, and indicate that, in practice, SLCN is recorded much less frequently than other risk domains. Where it is recorded, rates of SLCN are significantly higher in this group than the general population. Although the presence of SLCN did not appear to relate significantly to rough sleeping behaviour patterns or accommodation stays directly, with additional risk factors such as mental health showing slightly more predictive power, we did note a subtle consistent pattern of higher need across areas of risk in the database, which may warrant further investigation.

### *Recording and prevalence of SLCN in rough sleepers*

This study is the first to provide evidence on the prevalence of SLCN of people sleeping rough in the UK. Prevalence rates are considerably higher than those of the UK general population, but lower than the range of 60–90% prevalence of SLCN reported amongst UK young offenders (Bryan 2004). The prevalence of SLCN amongst rough sleepers matches concerns rough sleepers express themselves about communication difficulties in accessing healthcare (Luchenski *et al.* 2018). Recent NHS utilization records show that while 993 rough sleepers in North West London regularly use a range of medical, psychiatric and allied health services, speech and language therapy services are not accessed at all by this vulnerable client group (North West London NHS 2013). The RCSLT has made efforts to educate the youth justice sector about SLCN and encourage commissioning of speech and language therapy for young offenders (Parliament, House of Commons Justice Committee 2012) and a review article by Snow (2019) concludes that SLT services could strengthen the evidence base and lobby government to fund SLT services for young offenders. However, as yet, no such initiatives on homelessness are available. The homelessness sector may be able to learn lessons from SLT services operating within the youth justice field to support the development and provision of speech and language therapy to the rough sleeping population.

Only 62.8% of the participants in this database had recorded information regarding SLCN, and these data were mostly a subjective judgement of spoken language and literacy. The amount of missing data on SLCN may reflect the fact that staff without clinical training do not feel confident in their assessment of these areas and leave the fields blank. Alternatively, it may be that upon meeting a new rough sleeper a limited amount of information and time is available to outreach staff to draw a conclusion about SLCN, and so they leave these sections (especially reading and writing) unrecorded. For Cohort 3 who had been identified as having ABI, the SLCN data were completed by the first author as part of her routine work with CHAIN before beginning the study, and here information was much more complete at 75% of participants. This may not only reflect the clinical training of this author, but also because people in this cohort had been identified with ABI, which is in turn associated with higher risk of SLCN (Douglas et al 2019). The prevalence of SLCN found in this study amongst Cohort 2 ('205' status) is unexpected because it is in line with that of Cohort 1. Cohort 2 consists of people with extensive histories of rough sleeping, high levels of additional risk and high frequency contact with homelessness services (Teixeira 2010), so we might have expected higher rates of SLCN recorded for this group. However, the reading, writing and spoken language fields on CHAIN were not created at set-up for this database (Canadine 2018) but at a later time point. Although homelessness staff will have had repeated contact with individuals since the start of the database,

they may not have considered 'going back into' CHAIN records to populate '205' client data in the newer reading, writing and spoken language fields following their creation. Nevertheless, the finding that Cohort 2 does not have increased rates of SLCN compared with Cohort 1 despite being flagged as having more persistent problems was surprising given the communication barriers to services highlighted by people who are long-term homeless (Luchenski *et al.* 2018; Parker and Albrecht 2012) and harm caused by long and repeated periods of rough sleeping (Leng 2017).

### *Links between SLCN and other factors in rough sleepers*

A major question for this study is whether the presence of SLCN as recorded by staff relates to rough-sleeping behaviour or the level of accommodation stays. We were interested to find that this factor did not emerge as a significant predictor in this way. Despite this finding, it is important to note two issues. First, there was a non-significant trend for individuals with SLCN to be rated as having more risk factors across all measures. For statistical purposes, there is no straightforward way of combining these into a single scale, but in future research this possible additive effect might be worth investigating. Second, the ratings in the CHAIN database are only an estimation of need. This may result in either an underestimate of SLCN, because reading and writing were often not recorded, and because the ratings represent a brief clinical judgement by untrained staff rather than any formal assessment or an overestimate because untrained staff might mistakenly record behaviours associated with pain, hunger or addiction as SLCN. Having said this, the term 'SLCN' does not in itself imply a disorder—rather it indicates a communication need, at the point of observation, for whatever reason. There is an urgent need for further research that includes direct language testing of rough sleepers to ascertain the type of SLCN (e.g., expressive/receptive difficulties; acquired or developmental) and severity of language difficulty and how these relate to other factors such as those recorded in CHAIN (e.g., prison stays; mental health needs). This focus on SLCN would be a new perspective for the homelessness sector, which is generally unaware of any additional risk posed by SLCN that might be a driver for long-term rough sleeping for some people (Diaz 2006; Richardson 2017). There have been concerns within the homelessness sector that as the needs of rough sleepers are better identified, it becomes increasingly difficult for staff to develop and maintain knowledge in all these areas (Homeless Link 2018c). Given that staff are generally untrained and SLCN is not a disorder per se, the development of an informal communication screening tool would be a useful next step. In addition, providing outreach staff with knowledge of SLCN and alternative communication methods may help to increase the efficiency and accuracy of needs assessment upon initial contact with rough sleepers and could even alter rough sleeping behaviour in the long term.

The current data provide important new indications that additional risk factors such as 'alerts' are associated (albeit weakly) with increased rough sleeping and less stable accommodation patterns. Whilst this may not come as any surprise to those working in the homelessness sector, this study is the first to document this using a large-scale database. In the general population, needs such as brain injury, mental health, prison and care history are associated with SLCN (Botting *et al.* 2016; Bryan 2004; McCool and Stevens 2011; Struchen *et al.* 2008). It seems possible that homelessness staff members have noticed and recorded alerts and other additional risks but have been unaware of SLCN. Thus, behaviour causing alerts and the additional risk factor variable may have acted as a proxy for communication needs to some extent.

## Limitations

The limited recording of SLCN is an important finding from this study and may mean that the actual prevalence of communication needs has been either under- or overestimated. We acknowledge that the CHAIN database only holds relatively crude information about such factors, and that ratings from 0 to 3 are not ideal when describing the complex communication needs that have been reported in this review of the literature. These ratings have the potential to oversimplify risk, or lead to biased or inaccurate recordings of people who come into contact with homeless services, especially since language and literacy cannot really be separated in the database. A key message from this study is that further guidance, or an informal checklist, should be available to key workers to improve the accuracy of SLCN reporting. In addition, not all accommodation providers use CHAIN to record their work and some accommodation provision was excluded by CHAIN when collating the data, for example, night shelters and severe-weather beds. This may have affected the results relating to accommodation stays. Moreover, CHAIN can only be completed with data that staff members are able to gather. Several factors can affect the ability of staff to obtain information from rough sleepers. For example, changes to funding may result in less staff conducting outreach shifts and less contact with people sleeping rough; street outreach workers assess people as they wake, who may be in pain, hungry or experiencing withdrawal symptoms (Lloyd 2015). This may

affect a person's presentation, the conclusions staff draw and therefore the records on CHAIN.

There is clearly a need for more direct assessment of the rough sleeping population, in both research and practice; however, for many reasons, this represents a complex and burdensome task for staff and participants. Assessing people on the streets, in hostel or day centre environments can be challenging and involve factors beyond the control of staff and participants, for example, environmental distractions, interference from third parties. One alternative possibility is that staff completing CHAIN databases could be trained to more sensitively recognize SLCN in people who they serve in order to give a more accurate picture of the prevalence of SLCN and their role in rough sleeping behaviours. They could also attempt to observe more systematically reading and writing behaviours, separately from spoken language, although this carries the risk of overburdening the services, or making the homeless individuals uncomfortable. Evidence from different populations also suggests that language and literacy skills are highly overlapping and represent similar functional skills, with most people who have literacy difficulties also experiencing oral communication issues (Myers and Botting 2008).

Given these limitations, it is important to note that our research therefore represents a first attempt to document and analyse whatever data are currently being collected in frontline services, in the hope that this will prompt more systematic and informed ratings in future within the feasible parameters of the settings.

### *Clinical implications and recommendations*

The NHS Long Term Plan makes a commitment to decrease health inequalities experienced by rough sleepers (NHS England 2019). Aldridge *et al.* (2019) highlight that one-third of deaths of rough sleepers are from treatable causes, and rough sleepers report communication barriers when attempting to access services (Luchenski *et al.* 2018, Parker and Albrecht 2012). Furthermore, studies highlight that SLCN may impact on the ability of homeless service users to benefit from rehabilitation and treatment programmes (Burra *et al.* 2009; Saperstein *et al.* 2014). Given the lower level of completion for SLCN fields on CHAIN, but the higher prevalence of SLCN across all cohorts in this study where data existed, it is recommended that CHAIN makes completion of the relevant fields compulsory and supports this with professional SLT input as well as improved training for all staff. It is further recommended that the Mayor of London directs GLA-commissioned services working with '205' and 'living on the streets' cohorts to add these data as a matter of urgency.

As noted above, homelessness charity staff members require training in SLCN along with guidance to support their assessment of SLCN when completing CHAIN. This will provide more consistent data to understand better the SLCN of people experiencing street homelessness. Importantly, rough sleepers themselves clearly identify communication as a barrier with support services (Luchenski *et al.* 2018, Parker and Albrecht 2012), and therefore, homelessness organizations should co-design training with service users to ensure the relevant communication abilities, needs and priorities of people sleeping rough or living in hostels are addressed, and use information provided by rough sleepers about their own communication needs.

Another implication from our data is that day centres and hostels for people experiencing homelessness would benefit from reviewing written documentation provided to people using their services in light of the high rates of SLCN found in this study. In particular, consent forms, accommodation agreements, warning and eviction letters should be evaluated for their use of clear English and potential for 'translation' into easy read formats. It is crucial that homelessness organizations are confident that the rights and responsibilities contained within these important documents are understood by service users. The communication rights of people with disabilities, impairments or sensory difficulties accessing health and social care services are enshrined in law through the Accessible Information Standard (2015). The homelessness sector is not bound by this law, but increasing its own understanding of the Standard may help homelessness services ensure that people who are homeless with SLCN are provided with appropriate access to, and information from, health and social care services.

Homelessness services are involved in assessing the capacity of rough sleepers and hostel dwellers to make decisions about their care, support and accommodation. The Mental Capacity Act 2005 outlines the tests that must be applied when staff members assess capacity. Several these tests involve the use of language skills, for example, understanding information relevant to the decision. Currently, homelessness staff may not adequately appreciate the role of language in such assessments, potentially leading to inappropriate decisions about capacity.

Whilst the profession of speech and language therapy appears absent from health services provided to rough sleepers (North West London NHS 2013), there may be valuable insights from SLTs working within youth justice settings as to how to advocate for, design and sustain SLT services within homelessness settings. The RCSLT could support SLTs with an interest in these fields to make contact and begin sharing ideas and best practice.

This research was a secondary analysis of routinely collected quantitative data with the attendant

challenges of missing data and data obtained in 'live' environments. It is recommended that the Ministry for Housing Communities and Local Government support further research into the area of SLCN and homelessness as per the Rough Sleeping Strategy Delivery Plan (Ministry for Housing Communities and Local Government 2018b). This research should include the direct assessment of people with a lived experience of rough sleeping and SLCN, as well as the views of homelessness staff and SLTs to obtain a more accurate picture of the preliminary findings observed and reported in this study.

## Acknowledgements

The dissertation would not have been possible without CHAIN data and thanks to the CHAIN team for their suggestions and time. The authors are grateful for the flexibility shown by Senate House Library in providing L.A. a quiet space for study. Finally, thanks to Outreach Joe who debated the merits of this work with L.A. for some months—let us hope it assists in ending homelessness.

## Notes

1. We acknowledge that the presence of neurodevelopmental disorders (other than language difficulties) may also be associated with rough sleeping and SLCN. However, as details of these are not recorded in the CHAIN database, they are not discussed fully here.
2. Norbury *et al*. (2016) reported prevalence at school entry and we have extrapolated this to the adult population, since to our knowledge no epidemiological prevalence data exist for adults.

## References

Aldridge, R. W., Menezes, D., Lewer, D. et al, 2019, Causes of death among homeless people: a population-based cross-sectional study of linked hospitalisation and mortality data in England. [Version 1; peer review: 2 approved]. *Wellcome Open Res*, **4**, 49. (available at: https://doi.org/10.12688/wellcomeopenres.15151.1) (accessed on: 3 May 2019).

Bailey, C., Dooley, J. and McCabe, R. 2019, 'How do they want to know?' Doctors' perspectives on making and communicating a diagnosis of dementia. *Dementia*, **18**, (**7–8**), 3004–3022.

Batty, J., 2018, (Personal communication) Email to Leigh Andrews, 10 October 2018.

Beard, A., 2018, Speech, language and communication: a public health issues across the life course. *Paediatrics and Child Health*, **28**, (**3**), 126–131.

Bick, J. and Nelson, C. A., 2016, Early adverse experiences and the developing brain. *American College of Neuropsychopharmacology*, **41**, 177–196.

Botting, N., Toseeb, U., Pickles, A. R. and Conti-Ramsden, G., 2016, Depression and anxiety change from adolescence to adulthood in individuals with and without language impairment. *PLoS One*, **11**, (**7**) e.0156678.

Bousman, C. A., Twamley, E. W., Vella, L., Gale, M., Norman, S. B., Judd, P., Everall, I. P. and Heaton, R. K., 2010, Homelessness and neuropsychological impairment: preliminary analysis of adults entering outpatient psychiatric treatment. *Journal of Nervous and Mental Disease*, **198**, (**11**), 790–794.

Bremner, A. J., Duke, P. J., Nelson, H. E., Pantelis, C. and Barnes, T. R., 1996, Cognitive function and duration of rooflessness in entrants to a hostel for homeless men. *British Journal of Psychiatry*, **169**, 434–439.

Bretherton, J. and Pleace, N., 2015, *Housing First in England: An Evaluation of Nine Services*. York: Centre for Housing Policy

Bryan, K., 2004, 'Prevalence of speech and language difficulties in young offenders.' *International Journal of Language and Communication Disorders*, **39**, 391–400.

Burra, T. A., Stergiopoulos, V. and Rourke, S. B., 2009, A systematic review of cognitive deficits in homeless adults: implications for service delivery.' *The Canadian Journal of Psychiatry*, **54**, (**2**), 123–133.

Canadine, I., 2018, (Personal communication) Email to Leigh Andrews, 8 October 2018.

Caplan, B., Schutt, R. K., Turner, W. M., Goldfinger, S. M. and Seidman, L. J., 2006, Change in neurocognition by housing type and substance abuse among formerly seriously mentally ill persons. *Schizophrenia Research*, **831**, (**1**), 77–86.

Cebulla, A., Rice, B., Tomaszewski, W. and Hough, J., 2009, *Profiling London's Rough Sleepers: A Longitudinal Analysis of CHAIN Data*, London: St Mungo's.

Centre for Homelessness Impact, 2018, *The Effectiveness Map* [Online]. (available at: https://global-uploads.webflow.com/59f07e67422cdf0001904c14/5aea3a8feb6f2594f99576c8_evidence-and-gap-maps-on-homelessness_2018.pdf) (accessed on 23 April 2019).

Clare, M., Anderson, B., Bodenham, M. and Clare, B., 2017, Leaving care and at risk of homelessness: the LIFT project. *Children Australia*, **42**, (**1**), 9–17.

Clegg, J., Brumfitt, S., Park, R. W. and Woodruff, P. W. R., 2007, Speech and language therapy intervention in schizophrenia. *International Journal of Language and Communication Disorders*, **42**, (**51**), 81–101.

Cloke, P., May, J. and Johnsen, S., 2011, *Swept up Lives? Re-envisioning the Homeless City*. Oxford: Blackwell

Coady, J. A. and Evans, J. L., 2008, Uses and interpretations of non-word repetition tasks in children with and without specific language impairments (SLI). *International Journal of Language & Communication Disorders*, **43**, (**1**), 1–40.

Cotman, A. and Sandman, C., 1997, Cognitive deficits and their remediation in the homeless. *Journal of Cognitive Rehabilitation*, **15**, 16–23.

Department for Education, 2016, *Children Looked After in England (including adoption) Year Ending 31 March 2016*. London: National Statistics.

Diaz, R., 2006, *Shelter factsheet: Street homelessness*. available at: https://england.shelter.org.uk/__data/assets/pdf_file/0011/48458/Factsheet_Street_Homelessness_Aug_2006.pdf (accessed on 26 April 2019).

Douglas, J. M., Knox, L., De Maio, C., Bridge, H., Drummond, M. and Whitelock, J., 2019, Effectiveness of communication specific coping intervention for adults with traumatic brain injury: preliminary results. *Neuropsychological Rehabilitation*, **29**, (**1**), 73–91.

Ennis, N., Roy, S. and Topolovec-Vranic, J., 2015, Memory impairment among people who are homeless: a systematic review. *Memory (Hove, England)*, **23**(**5**), 695–713.

Flanagan, B., 2002, Staff at homelessness hostels the Guardian 15 December [Online] (available at: https://www.theguardian.com/money/2002/dec/15/wageslave.careers) (accessed on: 2 April 2019).

Gilchrist, G. and Morrison, D. S., 2005, Prevalence of alcohol related brain damage among homeless hostel dwellers in Glasgow. *European Journal of Public Health*, **15**, (**6**), 587–588.

Glover, J., Izzo, D., Odato, K. and Wang, L., 2006, Evidence-based medicine pyramid. *Dartmouth College and Yale University*. (available at: http://ebmpyramid.org/preview.php) (accessed on 02 January 2020)

Gonzalez, E. A., Dieter, J. N., Natalie, R. and Tanners, S. L., 2001, Neuropsychological evaluation of higher functioning homeless persons: a comparison of Abbreviated Test Battery to the Mini Mental State Examination. *Journal of Nervous and Mental Disease*, **189**, (**3**), 176–181.

Grice, H. P., 1975, Logic and conversation. In P. Cole, & J. Morgan (eds.), *Syntax and Semantics*. (New York: Academic Press), pp. 41–58.

Hagen, J. L., 1987, Gender and homelessness. *Social Work*, **32**, (**4**), 312–316.

Homeless Link, 2014, *The Unhealthy State of Homelessness—Health Audit Results 2014*. London: Homeless Link.

Homeless Link, 2016, *Housing First Principles*. London: Homeless Link.

Homeless Link, 2017, *Positive Approaches—An Introduction*. London: Homeless Link.

Homeless Link, 2018a, *Rough sleeping: explore the data*. (available at: https://www.homeless.org.uk/facts/homelessness-in-numbers/rough-sleeping/rough-sleeping-eplore-the-data) (accessed on 14 December 2018).

Homeless Link, 2018b, *The Future Hostel: The Role of Hostels in Helping to End Homelessness*. London: Homeless Link.

Homeless Link, 2018c, *Creating the change: our strategy to end homelessness*. (available at: https://www.homeless.org.uk/connect/blogs/2018/jul/13/creating-change-our-strategy-to-end-homelessness) (accessed on 8 May 2018).

Hopkins, T., Clegg, J. and Stackhouse, J., 2018, Association between language, discourse and offending behaviour. *International Journal of Language and Communication Disorders*, **53**, (**1**), 113–129.

Jakubovski, e., Carlson, J. P. and Bloch, M. H., 2015, Prognostic subgroups for remission, response, and treatment continuation in the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) trail. *The Journal of Clinical Psychiatry*, **76**, (**11**), 1535–1545.

John, A., McGregor, J., Fone, D., Dunstan, F., Cornish, R., Lyons, R. A. and Lloyd, K. R., 2016, Case finding for common mental disorders of anxiety and depression in primary care: an external validation of routinely collected data. *BMC Medical Informatics and Decision Making*, **16**, (**35**).

Keigher, S. M. and Greenblatt, S., 1992, Housing emergencies and the etiology of homelessness among the urban elderly. *The Gerontologist*, **32**, (**4**), 457–465.

Leng, G., 2017, *The Impact of Homelessness on Health: a Guide for Local Authorities*. London: Local Government Association.

Lix, L. M., Keselman, J. C. and Keselman, H. J., 1996, Consequences of assumption violations revisited. A quantitative review of alternatives to the one-way of analysis of variance F test. *Review of Educational Research*, **66**, 579–619.

Lloyd, S., 2015, Information is everything: the challenges of street outreach www.homeless.org.uk 1 September. (available at: https://www.homeless.org.uk/connect/blogs/2015/sep/01/information-is-everything-challenges-of-street-outreach) (accessed on 6 May 2019).

Luchenski, S., Maguire, N., Aldridge, R. W., Hayward, A., Story, A., Perri, P., Withers, J., Clint, S., Fitzpatrick, S. and Hewett, N., 2018, What works in Inclusion Health: and overview of effective interventions for marginalised and excluded populations. *The Lancet*, **391**, (**10117**), 266–280.

Lumley, T., Diehr, P., Emerson, S. and Chen, L., 2002, The importance of the normality assumption in large public health data sets. *Annual Review of Public Health*, **23**, 151–169.

Mayor of London, 2015, *CHAIN Annual Report* [Online] (available at: https://files.datapress.com/london/dataset/chain-reports/CHAIN%20Greater%20London%20full%20report%202014-15.pdf) (accessed on: 3 November 2018).

Mayor of London, 2018a, *Rough Sleeping Plan of Action*. London: Mayor of London.

Mayor of London, 2018b, *CHAIN Annual Report* [Online] (available at: https://data.london.gov.uk/dataset/chain-reports) (accessed on: 8 November 2018).

McCool, S. and Stevens, I. C., 2011, Identifying speech, language and communication needs among children and young people in residential care. *International Journal of Language and Communication Disorders*, **46**, (**6**), 655–674.

McMiken, B. L., 2014, Volunteerism: speech and language pathology with the homeless. *Journal of Communication Disorders, Deaf Studies and Hearing Aids*, **2**, (**1**).

Mental Capacity Act, 2005, (c.3). (available at: https://www.legislation.gov.uk/ukpga/2005/9/section/3) (accessed on: 6 May 2019).

Ministry of Housing Communities and Local Government, 2018a, *Rough Sleeping Strategy*. (available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/733421/Rough-Sleeping-Strategy_WEB.pdf) (accessed on: 11 November 2018).

Ministry of Housing Communities and Local Government, 2018b, *Rough Sleeping Strategy Delivery Plan*. (available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/762854/RSS_delivery_plan.pdf) (accessed on: 6 May 2019).

Muralidharan, A., Finch, A., Bowie, C. R. and Harvey, P. D., 2018, 'Thought, language and communication deficits and association with everyday functional outcomes among community dwelling middle aged and older adults with schizophrenia.' *Schizophrenia Research*, **196**, 29–34.

Murray, L. L. and Chapey, R., 2001, Assessment of language disorders in adults. In R. Chapey (ed.), *Language Intervention Strategies in Aphasia and Related Neurogenic Communication Disorders*. (Philadelphia, PA: Lippincott, Williams & Wilkins), pp. 55–126.

Myers, L. and Botting, N., 2008, Poor reading comprehension in the mainstream secondary classroom: its relationship to oral language. *Child Language Teaching and Therapy*, **24**, (**1**), 95–114.

National Careers Service, 2019, *Explore careers* [Online] (available at: https://nationalcareers.service.gov.uk/job-profiles/substance-misuse-outreach-worker) (accessed on: 2 April 2019).

NHS, 2019, *The NHS Long Term Plan*. London: NHS England.

Norbury, C. F., Gooch, D., Wray, C., Baird, G., Charman, T., Simonoff, E., Vamvakas, G. and Pickles, A., 2016, The impact of nonverbal ability on prevalence and clinical presentation of language disorder: evidence from a population study. *The Journal of Child Psychology and Psychiatry*, **57**, (**1z1**), 1247–1257.

North West London NHS, 2013, *Rough Sleepers Health and Healthcare*. North West London: NHS.

Oakhill, J. and Cain, K., 2007, Introduction to Comprehension Development. In *Children's Comprehension Problems in Oral*

*and Written Language*. K. Cain & J. Oakhill (eds.), 3–40. New York: Guildford Press.

Oddy, M., Moir, J. F., Fortescue, D. and Chadwick, S., 2012, The prevalence of traumatic brain injury in the homeless community in the UK city. *Brain Injury*, **26**, (**9**), 1058–1064.

O'Hare, A. and Bremner, L., 2016, Management of developmental speech and language disorders: part 1. *Archives of Disease in Childhood*, **101**, (**3**), 272–277.

OLASS, 2015, *English and Maths Assessments: Participation 2014/15* [Online] (available at: https://www.gov.uk/government/statistical-data-sets/fe-data-library-education-and-training) (accessed on 8 October 2018).

Parker, R. D. and Albrecht, H. A., 2012, Barriers to care and service needs among chronically homeless persons in Housing First Programs. *Professional Case Management*, **17**(**6**), 278–284.

Parliament, House of Commons Justice Committee, 2012, Written evidence from the Royal College of Speech and Language Therapists (available at: https://publications.parliament.uk/pa/cm201213/cmselect/cmjust/339/339we17.htm) (accessed on 10 April 2019.

Rees, H., Forrest, C. and Rees, G., 2019, Assessing and managing communication needs in people with serious mental illness. *Nursing Standard*, **34**, (**4**), 51–58.

Richardson, J., 2017, *The European End Street Homelessness Campaign: Leicester City Report*. Leicester: De Montfort University

Royal College of Speech and Language Therapists, 2013, *Adult Support and Protection Toolkit*. London: RCSLT.

Saperstein, A. M., Lee, S., Seeman, R. and Medalia, A., 2014, Cognitive deficit and mental health in homeless transition youth. *Paediatrics*, **134**, (**1**), 138–145.

Schutt, R. K., Seidman, L. J., Caplan, B., Martsinkiv, A. and Goldfinger, S. M., 2007, The role of neurocognition and social context in predicting community functioning among formerly homeless seriously mentally ill persons. *Schizophrenia Bulletin*, **33**, 1388–1396.

Seidman, L. J., Caplan, B. B., Tolomiczenko, G. S., Turner, W. M., Penk, W. E., Schutt, R. K. and Goldfinger, S. M., 1997, Neuropsychological functioning in homeless mentally ill individuals. *Journal of Nervous and Mental Disease*, **185**, (**1**), 3–12.

Seidman, L. J., Schutt, R. K., Caplan, B., Tolomiczenko, G. S., Turner, W. M. and Goldfinger, S. M., 2003, The effect of housing interventions on neuropsychological functioning among persons with mentally illness. *Psychiatric Services*, **54**, 905–908.

Snow, P. C., 2019, 'Speech–Language Pathology and the Youth Offender: epidemiological Overview and Roadmap for Future Speech–language Pathology Research and Scope of Practice.' *Language, Speech and Hearing Services in Schools*, **50**, 324–339.

Solliday-McRoy, C., Campbell, T. C., Melchert, T. P., Young, T. J. and Cisler, R. A., 2004, Neuropsychological functioning of homeless men. *Journal of Nervous and Mental Disease*, **192**, 471–478.

Somerville, P., 2013, Understanding homelessness. *Housing, Theory and Society*, **30**, (**4**), 384–415.

St Mungo's, 2013, *No More: homelessness through the eyes of recent rough sleepers* [Online]. (available at: https://www.mungos.org/wp-content/uploads/2017/12/No_More_Report_20131.pdf?x74044) (accessed on 6 April 2019).

St Mungo's, 2016, *St Mungo's evidence to the NICE Public Health Advisory Committee: severe mental illness and substance misuse (dual diagnosis)* (available at: https://www.mungos.org/app/uploads/2017/07/St-Mungo's-evidence-to-the-NICE-Public-Health-Advisory-Committee-severe-mental-illness-and-substance-misuse-dual-diagnosis.pdf) (accessed on 15 June 2020).

St Mungo's, 2018, *Health Services* [Online] (available at: https://mungos.org/our-services/healthservcies/) (accessed on: 6 December 2018).

St Mungo's, 2019, *CHAIN* [Online] (available at: https://www.mungos.org/work-with-us/chain/) (accessed on 3 May 2019).

Stroke Association, 2018, 'What is stroke?' [Online] (available at: https://www.stroke.org.uk/whatisstroke/whatis aphasia/aphasia-and-its-effects) (accessed on 3 November 2018).

Struchen, M. A., Clark, A. N., Sanders, A. M., Mills, M. R., Evans, G. and Kurtz, D., 2008, Relation of executive functioning and social communication measures to functional outcomes following TBI. *Neurorehabilitation*, **23**, 185–198.

Sturge, G., 2018, *UK Prison Population Statistics*. (House of Commons Library briefing paper CBP-04334) (available at: https://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN04334#fullreport) (accessed on 22 October 2018).

Teixeira, L., 2010, *Still left out? The rough sleepers 205 initiative one year on* [Online] (available at: https://www.bl.uk/collection-items/still-left-out-the-rough-sleepers-205-initiative-one-year-on) (accessed on 10 April 2019).

Thames Reach, 2018, *Lambeth High St* [Online] (available at: https://www.thamesreach.org.uk/what-we-do/response/hostels/lambeth-high-st/) (accessed on 16 December 2018).

Tomasello, M., 2008, *Origins of Human Communication*. Cambridge, MA: The MIT Press.

Twinch, E., 2010, Hostel evictions could be prevented. *Inside Housing*, (available at: https://www.insidehousing.co.uk/news/news/hostel-evictions-could-be-prevented-18627) (accessed on 2 February 2020)

Wilson, K., Halsey, A., Macpherson, H., Billington, J., Hill, S., Johnson, G., Raju, K. and Abbott, P., 2012, The psycho-social rehabilitation of patients with alcohol related brain damage in the community. *Alcohol and Alcoholism*, **47**, (**3**), 304–311.

Wilson, W. and Barton, C, 2019, *Rough sleeping (England)* (House of Commons Library Briefing Paper Number 02007) (available at: file:///C:/Users/acnf831/Downloads/SN02007.pdf) (accessed on 14 December 2018).