

Characteristics and Needs of Long-stay Forensic Psychiatric Inpatients: A Rapid Review of the Literature

Nick Huband, Vivek Furtado, Sandra Schel, Mareike Eckert, Natalie Cheung, Erik Bulten, Birgit

Völlm

Author Note

Nick Huband, Vivek Furtado, Natalie Cheung & Birgit Völlm: Division of Psychiatry and Applied Psychology, University of Nottingham, UK.

Sandra Schel & Mareike Eckert: Pompefoundation, Nijmegen, The Netherlands.

Erik Bulten: Pompefoundation, Nijmegen, and Behavioural Science Institute, Radboud University, Nijmegen, The Netherlands.

Correspondence concerning this article should be addressed to Prof Birgit Völlm, Division of Psychiatry and Applied Psychology, University of Nottingham, Institute of Mental Health, Triumph Rd, Nottingham NG7 2TU, UK. Tel: +44 (0) 115 8231266. email:

birgit.vollm@nottingham.ac.uk

Keywords

Forensic psychiatry, length of stay, long-stay patients, mentally disordered offenders, patients' needs

Abstract

This rapid review summarises currently available information on the definition, prevalence, characteristics and needs of long-stay patients within forensic psychiatric settings. Sixty nine documents from 14 countries were identified. Reports on what constitutes 'long-stay' and on the characteristics of long-stay patients were inconsistent. Factors most frequently associated with longer stay were seriousness of index offence, history of psychiatric treatment; cognitive deficit, severity of illness, diagnosis of schizophrenia or psychotic disorder, history of violence, and history of substance misuse. Although some countries are developing specific long-stay services, there is presently no consensus on what might constitute 'best practice' in such settings.

Forensic-psychiatric services offer care to patients who suffer from a mental disorder and have committed an, often serious, offence. The purpose of such services is twofold: to treat the disorder and alleviate suffering for the patient, but also to treat behavioural disturbance (McInerny & Minne, 2004) and in particular to reduce the risk of re-offending and so protect society from the mentally disordered offender (MDO)¹. This can cause tensions and dilemmas for the practitioner who has potentially incompatible responsibilities to the patient, third parties and the wider community. This dual role also raises some ethical dilemmas, particularly as patients in forensic-psychiatric settings often have long admissions (Völlm, Bartlett & McDonald, 2016).

Detention in forensic care is generally not time-limited, and discharge from a secure hospital setting will partly depend on clinical factors such as the individual's response to treatment and the judgement of the medical team on the risk that may be associated with the patient's discharge. In forensic settings, length of stay will also depend on legislation around the detention of MDOs, the complexities of service provision as well as social and political factors (Völlm et al., 2016); these are likely to vary between, and sometimes within, countries, although the extent of the variation remains minimally researched (e.g. Salize & Dressing, 2005). In terms of legal factors, the detention of MDOs is regulated by mental health legislation and criminal law, and significant differences have been reported in the legal frameworks between a number of European Union countries (Salize & Dressing, 2004). For example, four countries within Europe

¹ The term 'mentally disordered offender' is used here to describe a person who has a disability or disorder of the mind and has committed or is suspected of committing a criminal offence. It differs from the 'MDO' population in California which is based on the legal commitment and is used to describe a specific class of prisoners who have their own set of California parole laws.

(Croatia, Italy, Portugal, Spain) currently restrict the length of stay in forensic psychiatric care to the length of imprisonment a non-mentally disordered individual would have been sentenced to serve if convicted for the same offence (Sampson, Edworthy, Völlm & Bulten, 2016), potentially resulting in shorter admissions. Differences also exist in the role health and justice authorities have in deciding on transfer and discharge of MDOs. Service provision factors might, for example, include whether there is an appropriate setting for the individual to be discharged to, whereas the impact of prevailing sensitivities regarding perceived risk to others is likely to constitute an important social and political factor.

It has been suggested that a significant proportion of MDOs require long term, potentially life-long, forensic psychiatric care (Melzer et al., 2004; Vorstenbosch, Bouman, Braun & Bulten, 2014), and that these long-stay patients are characterized by complex psychopathology, noncompliance in therapy and a high risk of criminal recidivism (e.g. Schel, Bouman & Bulten, 2015). This group may not benefit sufficiently from existing treatment options. They may also show poor treatment progress and an associated high risk of recidivism, and so be unable to move towards less restrictive settings or back into community. Their needs may not be met by existing service provision designed for faster throughput (Völlm et al., 2016), and issues around service organisation and societal attitudes may also prevent them from being reintegrated (Davoren et al., 2015).

Although involuntary hospitalisation in mental health services inevitably raises ethical issues, being by definition a coercive treatment (Valenti, Giacco, Katasakou & Priebe, 2014), there are particular concerns that an extensive period of forensic inpatient care can be detrimental, seriously restricting patients' autonomy, quality of life and their perspectives for future independent living (Völlm et al., 2016). Furthermore, detention in secure settings is cost-

intensive; for example, costs of maintaining a patient in high secure care has been estimated to be as high as £275,000 per year in the United Kingdom (UK) (Rutherford & Duggan, 2007) and approximately €190,000 per year in the Netherlands (Ministerie van Veiligheid en Justitie, 2015). There is also the possibility that a significant number of long-stay forensic patients receive treatment in an inappropriate and over-restrictive care setting (Shaw, Davies & Morey, 2001). In the UK, for example, several studies have highlighted that between one third and two thirds of patients resident in high secure settings do not require that level of security (e.g. Bartlett, Cohen, Backhouse, Highet & Eastman, 1996; Maden, Rutter, McClintock, Friendship & Gunn, 1999; Pierzchniak et al., 1999; Reed, 1997). The Tilt report, commissioned to review the security at all three English high secure hospitals, concluded that about one third of the patients could be safely managed in lower levels of security (Tilt, Perry, Martin, McGuire & Preston, 2000).

There is currently no comprehensive overview of the characteristics and needs of this important patient group, or on the factors that predict its membership. Summary information is also lacking on how such a long-stay group is defined, with no apparent agreement on a threshold. In Germany, for example, 13.7% of those in forensic inpatient care in 2005 had been in treatment for more than 10 years (Dessecker, 2008). In the Netherlands in 2013, the average duration of treatment was reported as 8.4 years (Dienst Justitiële Inrichtingen, 2017). In the same year, 8.0% of patients detained in the ‘Terbeschikkingstelling’ (TBS) system² had official long-stay status, although a further 5.2% of those detained within the regular TBS hospitals had been

² This system was introduced into Dutch penal law in 1928 and allows those with reduced criminal responsibility to be detained and treated in forensic-psychiatric hospitals rather than in prison. TBS can be loosely translated as ‘at the disposal of the government’. The TBS system provides a separate long-stay stream to which patients with treatment duration of over 6 years can be admitted.

in treatment for at least 15 years but were not treated in the special long-stay stream (Nijman, Lammers, Vrinten & Bulten, 2017). In the UK, 27% of patients in high and medium secure forensic services had been in treatment for 10 years or longer in 2007 (Rutherford & Duggan, 2007). The situation is made more complex because length of stay (LoS) may be measured in three different ways, each with advantages and disadvantages (Butwell, Jamieson, Leese & Taylor, 2000). These are (a) admission sample (all patients admitted during a particular period included with LoS calculated from admission to discharge), (b) census sample (all patients resident in the setting of interest on a particular date with LoS calculated from date of admission to this time point), and (c) discharge sample (all patients discharged during a particular period with LoS calculated from date of admission to this discharge date). Results obtained from the three approaches are not directly comparable.

The objective for this review and the six research questions were developed in collaboration with the research team and following consultation with the Service User Reference Group (SURG) of a large, multi-centre, externally funded study on long-stay in forensic care in the UK (Völlm et al. 2017). The grant application for this project involved consultation with service users, clinicians and managers of forensic services. The specific research questions for this review were developed by the project management group and the SURG to this project. The overall project involved individual interviews with service users, senior clinicians, and managers as well as legal professionals, and focus groups of clinicians and carers, the findings of which also assisted in the formulation the questions for this review.

The objective of this rapid review is to summarise what is currently known on the characteristics and needs of long-stay forensic inpatients. Six specific research questions were identified prospectively:

- 1) How is long-stay defined in forensic inpatient settings?
- 2) What proportion of forensic inpatient populations can be considered as ‘long-stay’?
- 3) What are the characteristics of long-stay forensic inpatients?
- 4) What factors predict LoS in forensic inpatient populations?
- 5) What are the needs of this patient group?
- 6) What service provision exists for them?

Method

The characteristics and needs of long-stay forensic inpatients were investigated using a rapid review approach. This approach was selected because of the difficulties that were anticipated in operationalizing the sample variable. An initial inspection of the literature suggested no consensus on the period of hospitalization beyond which a patient can be considered long-stay. Furthermore, one of the research questions was itself to examine how long-stay is defined in forensic inpatient settings. It was therefore impossible to define long-stay status prospectively, as would normally be done in a conventional systematic review. Where such difficulties exist, the rapid review can provide one method of quickly assimilating relevant information.

Rapid reviews are an emerging type of knowledge synthesis which aims to inform health-related policy decisions and discussions, especially when there is a need for immediate information (Lal & Adair, 2014). While still aiming to produce valid conclusions, the rapid review represents a streamlining of the conventional systematic review process, with certain components being simplified or omitted to produce information in a short period of time (Tricco et al., 2015) by, for example, the development of a limited research question or use of truncated

literature searching (Cameron, Watt, Lathlean & Sturm, 2007). There is, however, no universally accepted definition of what constitutes a rapid review.

The limitations of the rapid review compared to the full systematic review include absence of a universally agreed methodology and a tendency towards poor quality reporting (Tricco et al., 2015). Nonetheless it has been argued that the rapid review can address a need for timely and trustworthy evidence (Khangura, Konnyu, Cushman, Grimshaw & Moher, 2012), and a comparative study by Watt et al., (2008) found that the essential conclusions of the rapid and full reviews which they evaluated did not differ extensively, even though the scope of the rapid reviews was substantially narrower.

The approach adopted in the current study was to follow Lal and Adair (2014) who used methods similar to Khangura and colleagues' seven-step process for conducting a rapid review (Khangura et al., 2012). These steps can be summarised as (1) identification of the research question in collaboration with the knowledge user, (2) development of the search strategy, (3) identification of relevant studies, (4) screening and selection of studies, (5) conceptual mapping/identifying topical areas, (6) charting information, and (7) report production (Lal & Adair, 2014).

A keyword-based search strategy was developed based on the concepts of forensic psychiatric inpatients, long-stay/length of stay, and patients' needs (see Appendix) and was used to search three bibliographic databases (Medline, Embase and PsycINFO) from 1980 to December 2016. A search for relevant theses was carried out using the Proquest database. Google was searched separately and the first 150 hits examined. A check for additional articles that might meet the inclusion criteria was made by examining the references cited in all included

documents. No restrictions were placed on study design, publication type or language of publication.

All hits were initially screened against the following inclusion criteria by inspection of title and abstract. Studies of inpatient forensic psychiatric settings were included if they provided data on (a) the characteristics or needs of a prospectively defined long-stay patient group, or (b) factors predicting membership of a prospectively defined long-stay group, or (c) factors predicting actual length of stay; opinion or discussion articles, studies of adolescent patients, and studies of prison or correctional settings were excluded. Hard copies were then obtained of all articles which were identified in the screening process as potentially relevant, or for which there was insufficient information within the title and abstract to allow a decision to be reached; these were then inspected and selected for inclusion against the inclusion criteria. Screening and selection were carried out by a doctoral-level and a masters-level mental health researcher (NH, NC). A third doctoral-level mental health researcher (BV) who is also an experienced forensic psychiatrist adjudicated in cases of disagreement.

Each included document was read carefully and any text or data relevant to the review's objective were marked. Data were extracted (NH & BV) separately in relation to each of the research questions as follows. For Question (1) any prospectively defined LoS threshold used in a research study to define a long-stay group (or to differentiate a long-stay subgroup from a shorter-stay subgroup) was extracted. For Question 2, the proportions of prospectively defined long-stay patients in relation to the sample were extracted. For Question 3, any quantitative data on patient characteristics in relation to length of stay were extracted, including those relating to differences between long(er)-stay and shorter-stay subgroups. For Question 4, the focus was on factors that are predictive, rather than simply characteristic, of length of stay. Although a

considerable number of characteristics have been found to differentiate longer-stay forensic patients from those who experience shorter stays, many of these are confounded and so cannot be seen as unique predictors; thus only those factors shown to be predictive in multivariate statistical analysis were extracted. For Question 5, any information on the needs of this patient group, and for Question 6 on service provision for them was recorded.

Where data were presented qualitatively rather than quantitatively, the marked text was analysed using thematic analysis (Braun & Clarke, 2006). All authors contributed to the conceptual mapping, tabulation, and development of a narrative synthesis of relevant material from the included documents.

Results

Characteristics of Included Documents

A total of 69 primary documents were identified for inclusion comprising 60 papers published in peer-reviewed journals, two reports from governmental organisations, one independent mental health charity report, one university-based report, three theses and two conference abstracts (Table 1). Fourteen countries were represented (68% countries within Europe, 19% USA/Canada, 7% Australasia).

[Table 1 about here]

1) How is long-stay defined in forensic inpatient settings?

Twenty studies used a prospectively chosen LoS threshold to define a long-stay group or to differentiate long-stay and shorter-stay subgroups. Six countries were represented with sampling periods ranging from 1972 to 2014. All had predominately male samples with the exception of one all-female study which used a median split (21.6 months) to differentiate long-stay from short-stay in their sample (Long & Dolley, 2012).

The threshold used to differentiate long-stay from shorter-stay groups varied between studies. Hospitalisation in excess of ten years was used in studies in Israel (Bauer, Rosca, Grinshpoon, Khawalled & Mester 2006), in Malaysia (Fong et al., 2010) and in Germany (Dessecker, 2008; Ross, Querengässer, Fontao & Hoffmann, 2012). A shorter threshold of two years was used in two studies in Ireland (O'Neill et al., 2003; Wright, O'Neill & Kennedy, 2008).

In the UK, the care provided for forensic psychiatric inpatients is categorised by the level of security provided. For high secure samples, the threshold used to define long-stay has been taken as hospitalisation in excess of fifteen years (MacKay & Ward, 1994), eight years (Dell, Robertson & Parker 1987), and ten years (Edworthy & Völlm, 2016). For medium secure samples, a threshold of five years was used in two studies (Edwards, Steed & Murray, 2002; Edworthy & Völlm, 2016), and two years in eight studies (Heap, 2003; Kennedy, Wilson & Cope, 1995; Maden et al., 1999; McKenna, 1996; Mohan, Murray, Taylor & Steed, 1997; Ricketts, Carnell, Davies, Kaul & Duggan, 2001; Shah, Waldron, Boast, Coid & Ullrich, 2011; Wilkes, 2012). A similar figure of 21.6 months was used by Long & Dolley (2012) based on a median split in their medium secure sample.

The point beyond which forensic inpatients have been considered as long-stayers has thus ranged from two to fifteen years in these studies, demonstrating the lack of consensus in how best to define long-stay for this patient group. The UK appears to be an exception, however. Researchers in the UK have been relatively consistent in selecting a threshold of two years for medium secure samples. This is in keeping with the original guidance from the UK government based the recommendations in the Butler (1975) report that medium secure units were intended to provide care for patients for whom there was a good prospect of discharge within 18 months

to two years of admission (Department of Health and Social Security, 1974). An upper limit of two years stay for medium secure units is thus implicit in that guidance.

2) What proportion of forensic inpatient populations can be considered as 'long-stay'?

Seventeen studies reported on the proportion of long-stay patients in relation to the overall population or sample. Five countries were represented with sampling periods that ranged from 1972 to 2014. Percentages are summarised in Table 2. Summary statistics on actual length of stay are not presented because reporting inconsistencies prevent any useful interpretation; for example, some studies provide mean values for LoS whereas others provide medians, the latter arguably a better measure of central dispersion for a variable that commonly has a non-normal (skewed) distribution.

Inspection of Table 2 reveals considerable variation in these figures which likely reflects the diversity of the studies. Percentages ranged from 2.6% for an admission sample in Ireland (Wright et al., 2008) to 66% for a UK combined high and medium secure population (Rutherford & Duggan, 2007), both using a two-year threshold. Considerable variation was also evident between studies of similar populations. For example, three UK studies each examining broadly similar numbers of patients discharged from a medium secure unit reported proportions with LoS >2 years as 9% (Maden et al., 1999, Greater London, n=234, timeframe 1980-94), 33.6% (Shah et al., 2011, East London, n=259, timeframe 1999-2008) and 45% (Wilkes, 2012, West Midlands, n=198, timeframe 2001-2011).

Considerable variation was also seen in the proportion of forensic patients that are long-stay even when the threshold used remains constant. In UK medium security, for example, percentages ranged from 13.1% (East Midlands, 1983-1999) to 52% (West London, 1983-1995)

with both figures based on an admission sample using a two-year threshold to delineate long-stay status. Furthermore, three UK studies of patients discharged from a medium secure unit reported proportions with a length of stay greater than two years ranging between 9% and 45%.

There was thus considerable inconsistency between studies in the proportion of patients that are reported as long-stayers, and in the threshold used by researchers to define long-stay status, which is in keeping with Sampson et al. (2016) who found that formal and informal definitions of ‘long-stay’ varied widely between the 18 European countries they studied. These inconsistencies may be a consequence of heterogeneity among the studies. Such heterogeneity may arise from one or more of the following:

1) Differences in the sampling timeframe. Forensic mental health practice and service provision change over time, and so findings might be expected to vary with the age of a study. The direction of such an effect on the proportion of patients that are long stayers is difficult to predict, however. In the UK, for example, Brown, Lloyd and Donovan (2001) found an increase from 1992 to 1997 for medium secure care, whereas Ricketts et al. (2001) found the proportion staying longer than two years rose from 7% in 1983-1987 to 16.2% in 1991-1995 before falling to 12.3% in 1995-1999; and Butwell et al. (2000) found no change in average length of stay from 1986 to 1995 in high secure hospitals.

2) Differences in the forensic mental health practices in different countries. The characteristics of the patients each institution or hospital accepts is also likely to contribute to this effect. Arguably, a decision to include or exclude patients with personality disorder, sex offenders, and psychopaths, for example, will influence the proportion of patients that are long-stay (as these patient groups might have prolonged stays), as will the way in which aftercare is arranged and whether or not patients get ‘stuck’ in the system due to a lack of aftercare facilities.

Edworthy, Sampson and Völlm (2016) found a profound difference in how three European countries (England, Germany, and the Netherlands) relate to forensic patients, with each approach contributing to different pathways and potentially different outcomes for the individual. Movement between different levels of security may also effect the length of stay. UK patients may be moved between hospitals of different levels of security, whereas in the Netherlands, for example, different levels of security are provided within the same hospital, ranging from high security to living outside under the supervision of the hospital. Studies which consider length of stay based on time spent in the current institution only may underestimate overall length of stay where it is common practice for service users to move between secure settings during one spell of care.

3) Variation between services within countries. In the UK, for example, there is evidence of considerable geographical variation: Coid, Kahtan, Gault, Cook and Jarman (2001) studied 2608 patients admitted to medium secure settings in seven different regions between 1988 and 1994 and found mean length of stay ranged between 25.0 and 59.1 months.

4) Whether the study focused on an admission, discharge or census sample. The majority of studies use discharge samples, comparing cohorts with longer and shorter stays to determine their different characteristics. This method has many advantages, including the relative ease with which such samples can be obtained, the calculation of 'true' length of stay (completed care episodes) and the consistency of the legal and policy context at the time of discharge. However, this method is less suited to predict factors that affect length of stay as there will be a number of confounders due to different admission criteria at the different times of admission in the cohort. If one is interested in the characteristics and needs of patients who remain in the system and may have little prospect of discharge, then it can be argued that a census sample is the most suitable

method. It does not, however, include completed care episodes and is therefore less suited to identifying factors predictive of length of stay.

3) What are the characteristics of long-stay forensic inpatients?

Forty studies examined the characteristics associated with long-stay forensic inpatients, either by comparison with a shorter-stay group (16 studies) or in relation to length of stay recorded as a continuous variable (24 studies). Given the lack of consensus among (and within) countries on how long-stay patients are defined, all 40 studies are considered together in this section in an attempt to provide an overall picture of the patient characteristics most strongly associated with long-stay status, however defined. A total of 90 diverse variables were examined in the 40 documents. The range of characteristics explored was broad, encompassing the nature of the index offence that preceded admission, other admission details, diagnosis and symptoms, demographics, personality traits, and the patients' personal, criminal, psychiatric, and treatment histories. The characteristics most often examined were those related to diagnosis, gender, age, and nature of index offence. Figure 1 summarises the 48 variables which were examined by more than one study.

[Figure 1 about here]

Inspection of Figure 1 reveals a number of characteristics where the direction of the association was inconsistent among the studies. For example, the association between a diagnosis of schizophrenia or psychotic disorder and long-stay status was positive in nine studies, negative in two, and showed no association in nine. The association between male gender and long-stay status emerged as the most ambivalent, being positive in three studies, negative in three, and showing no association in eleven. Such inconsistencies may arise from the diversity of settings

within countries and from differences in forensic mental health practices between countries; they may also arise from diversity in the populations studied where these exclude, for example, specific mental disorders, personality disorder, or specific offences.

The inconsistencies described above make it hard to assess the relative importance of each characteristic displayed in Figure 1 solely by visual inspection. A simple scoring system was therefore devised to allow the characteristics to be arranged in a rank order that reflected their impact on length of stay. This was calculated by taking the number of studies indicating a positive association with LoS, subtracting the number of studies indicating a negative association, and expressing the result as a percentage of the total number of studies reporting on that characteristic. To minimise the risk of placing too much weight on rarely reported factors, this calculation was applied only to those characteristics reported by six or more studies.

On the basis of this scoring system, the characteristics most commonly found as positively associated with long-stay status were those which concerned the gravity of the offence that precipitated admission, in keeping with the findings from a recent review of forensic mental health services by Sedgwick, Young, Das and Kumari (2016). These included an index offence of murder or homicide (eleven studies, with two studies reporting no significant association; score 85%), the severity of the offence (eleven studies, with five reporting no association; score 69%), and having an index offence that was violent (seven studies, with four reporting no association; score 64%) or sexually motivated (four studies, with four reporting no association; score 50%). In contrast, the number of previous convictions had no significant association in seven out of the eight studies which tested for this, in keeping with the finding by Sedgwick et al., (2016) that it is the severity rather than the extent of offending that is implicated in the length of time MDOs remain in services.

Other characteristics commonly found associated with longer forensic inpatient stays were: history of psychiatric treatment (67%), cognitive or organic deficit (67%), severity of illness or symptoms (55%), diagnosis of schizophrenia or psychotic disorder (35%); history of violence (33%), history of substance misuse (29%), poorer education (27%), and younger age at admission or index offence (26%).

The finding that a diagnosis of schizophrenia or psychotic disorder is associated with longer stay contrasts with results obtained by Advokat, Eustis and Pickering (2005) who found no significant differences in mean length of stay between those diagnosed with schizophrenia, schizoaffective disorder or affective disorder in a non-forensic sample. One possibility for this difference is that it is not simply the presence of a psychotic disorder that impacts on length of stay for forensic inpatients, but rather the combination of a psychotic disorder and other disorders common in the forensic population such as chronic drug misuse or personality disorder. The lack of a supportive social network and the possibility of a poor response to pharmacological treatment in combination with diagnosis of a psychotic disorder may also play a part.

Five studies reported on long-stay samples without a comparison group. In these, the most dominant characteristics in order of frequency (where specified) were:

- (a) schizophrenia or psychosis, male, index offence of assault against family members (Israel, >10 years, Bauer et al., 2006).
- (b) serious index offence, long term institutional care, poor response to intervention, enduring mental health problems, continuing dangerousness/risk to self; risk of absconding, weak community/family links (UK medium secure, >2 years, Vaughan, 2000).

(c) mentally disordered and in need of treatment, perceived as dangerous, perception that some patients were institutionalized and wished to remain (UK high secure, >15 years, MacKay & Ward, 1994).

(d) male, single, from rural area, aged in the mid-thirties, violent crime, major psychiatric illness (Ireland, insanity acquittees over period 1850-1995, Gibbons, Mulryan & O'Connor, 1997).

(e) history of physical assault, physical health problems, anxiety symptoms (UK low secure, longer stay, Beer, Tighe, Ratnajoathy & Masterson (2007).

4) What factors predict LoS in forensic inpatient populations?

Eighteen of the 40 studies used multivariate analyses to identify factors that can be considered to be predictive, rather than simply characteristic, of length of stay. The majority used regression techniques in attempt to isolate key predictive factors, and all but two considered length of stay as a continuous variable. Ten factors emerged as significant predictors in more than one study. These can be summarised in terms of demographics, diagnosis, and offending history.

Demographics: Being male predicted longer stay in one study and shorter stay in another. In terms of personal relationships, there was limited evidence that having no ongoing close relationship predicted longer stay (two studies). Experience of employment before admission to forensic psychiatry predicted shorter stay (two studies).

Diagnosis: A diagnosis of schizophrenia or psychotic disorder predicted longer stay in four studies and shorter stay in one. Severity of illness or symptoms predicted longer stay in two studies.

Offending history: The seriousness of the index offence was a strong predictor of longer stay in terms of its severity (five studies), whether it was murder or homicide (seven studies), violent (two studies), or sexually motivated (two studies). A longer previous prison sentence duration also predicted longer stay (two studies).

Twenty five factors emerged as predictive in just one study. Longer stay was predicted by: severe educational problems in childhood, poorer education, being unmarried, cognitive or organic deficit, larger number of victims, charges not proceeded with, number past convictions, younger age on admission/offence, younger age at first conviction, having been admitted from a non-secure hospital, seclusion or restraint during stay, history or risk of absconding, higher number of inter-ward transfers, aggressive/violent behaviour during stay, history of psychiatric treatment, non-compliance with treatment, and higher scores on the DUNDRUM-1 triage security scale (Flynn, O'Neill & Kennedy, 2011). Factors predicting shorter stay were: being a parent, having good ongoing contact with family members, immigrant status, higher 'premorbid competence', diagnosis of an affective disorder, adjustment disorder, higher 'cooperativeness' trait score, and a higher score on the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS; Randolph, 1998).

In summary, the factors most often found to predict a longer length of stay were the seriousness of the index offence (severity, murder or homicide, violent, sexually motivated) and a diagnosis of schizophrenia or psychotic disorder. Having an ongoing close relationship and being employed before admission to forensic psychiatry predicted shorter stay. If this severity of

crime is also related to a higher risk, as seems likely, then longer stay appears broadly in keeping with the principles of the Risk-Need-Responsivity (RNR) Model (e.g. Skeem, Steadman & Manchak, 2015) widely used to assess and rehabilitate criminals. If severity is not related to higher risk, however, then the responsibility for longer stays might reasonably be attributed to the legal system combined with professional hesitation to support discharge in possibly higher profile cases. No study examining risk assessment or the RNR model in relation to LoS was identified in the searches for this review, however.

5) What are the needs of this patient group?

Table 3 lists the specific needs of long-stay patients as reported in more than one of the eleven studies which examined this. Although the search criteria were not restrictive, the studies identified tended to focus on treatment needs. Inspection of Table 3 indicates considerable levels of disablement; ongoing needs which figure prominently include alleviation of psychotic symptoms, achievement of mental health recovery, and provision of interventions to address violence. Given the extended period of treatment already experienced by these patients, this suggests a chronic presentation that has so far responded poorly to treatment. This coincides with the views of the individual experts interviewed by Sampson, et al. (2016) that non-responsive chronic mental disorder and dangerous or violent behaviour were common characteristics associated with long-stay status. A second theme emerging from Table 3 relates to needs more closely related to quality of life; these include having structured daytime activity, improving social skills, and having better understanding of sexual experiences.

[Table 3 about here]

Table 3 excludes eleven needs which were identified in a single study only. These are: treatment for alcohol misuse (Thomas et al., 2004), interventions to manage anger and anxiety, improve self-esteem, address communication difficulties, provide insight into mental illness, or to provide insight into offending behaviour (Glorney et al., 2010), interventions for personality disorder, pharmacotherapy including clozapine for treatment-resistant schizophrenia (Harty et al., 2004), treatment for an identifiable brain dysfunction (Williams, Badger, Nursten & Woodward, 1999), and assistance with self-care and the living environment (Jacques, Spencer & Gilluley, 2010).

In the UK, forensic inpatient care is provided at different levels of high, medium and low levels of security. This gives rise to the concept of ‘placement need’ and the importance of providing long-term forensic care in a setting that is appropriate to a patient’s security requirements. There is evidence of poor matching in this respect. For example, one survey in England and Wales in 1994 showed that 32% of patients currently in high secure care would be more appropriately placed in longer term medium security and 10% in longer term low security (Reed, 1997). A similar survey some ten years later in England found as many as 40% of those in high secure care were rated by clinicians as suitable for transfer to lower security if such facilities provided sufficient capacity (Harty et al., 2004). In addition, it has been argued that there is a particular need for long-term 24-hour nurse-staffed accommodation rather than long-term medium security for some patients (Pierzchniak et al., 1999).

In summary, although the specific needs of long-stay forensic patients have been explored in relatively few studies, their findings may serve to guide the planning of future service provision for this patient group. Understandably, the need for safety (to others and to the self) was viewed as paramount, along with providing interventions to address violence and to resolve

psychotic symptoms. Most studies also identified the need for social interaction and structured day-time activity, and the importance of providing treatment related to sex offences and interventions to address substance abuse and physical health issues such as smoking and obesity.

6) What service provision exists for this patient group?

Although the literature contains a considerable number of papers that comment generally on forensic services, both currently and in terms of future need, description of service models geared specifically to long-stay forensic patients is limited. In a recent exploratory study of eighteen European countries by Sampson et al. (2016), experts from eight countries (France, Germany, Ireland, Netherlands, UK, Spain, Portugal & Croatia) stated that specific services were currently available for long-stay forensic inpatients, either in a separate hospital or specific treatment wards.

For example, in the Dutch Terbeschikkingstelling forensic system (commonly referred to as ‘TBS’) MDOs who meet the criteria for long-stay status are cared for in one of two long-stay units. The entry criteria for such units include: LoS of at least six years, have been in two separate forensic hospitals, have completed relevant treatment programmes with little discernible progress, and have no expected reduction in risk for the foreseeable future. In the Germany, at least forensic psychiatric hospital provides long-stay wards at each level of security (high, medium and low) (Vollm et al., 2017). No evaluation of these services was identified in the searches for this review, however.

An early study by Finlay-Jones & Nielssen (1993) in Australia considered how a high security unit for MDOs might be successfully designed by considering the shortcomings of an existing high secure unit. The authors took into account, amongst other things, the probable

length of stay of the MDOs who they observed generally resided on the long-stay ward. They suggested five key principles: exclude those who will never be released, keep patients with Cluster B diagnoses separate from those with schizophrenia, to achieve therapeutic goals, adopt a ‘very hard to escape’ security policy rather than a ‘no escape’ ethos, use a high staff-to-patient ratio to avoid excessive physical security, and location so as to facilitate travel by staff and visiting relatives.

In the UK, Power, Harwood & Akinkunmi (2006) describe the first dedicated long-term medium secure unit for men with complex clinical needs and risk assessment issues who had previously been inappropriately detained within high secure services owing to a lack of suitable, less secure placement facilities. This unit, interestingly, offers a work rehabilitation project in parallel with treatment. Vaughan (2000) outlines a set of specifications that might guide establishment of a secure long-stay facility (i.e. >2 years) for patients with enduring mental health or learning disability problems with, typically, a poor response to treatment, a serious index offence against the person, and continuing dangerousness or risk to self. This too includes the desirability of a ‘slow-stream’ rehabilitation programme. Both studies note the importance of individualised treatment programmes and structured timetabled activities that include sport, social and leisure groups. The need to provide adequate medical resources to deal with physical health needs in a group of patients that tend to be considerably older than their shorter-stay peers was also acknowledged (Power et al., 2006).

Two studies were identified that describe efforts made to reduce the length of stay of MDOs. Nagtegaal, van der Horst & Schonberger (2011) identified two measures introduced in 2008 in attempt to reduce length of stay for forensic patients in Holland designated ‘TBS’. The first was an increase in the maximum duration of conditional discharge from three to nine years,

with the hope that this would lead to conditional discharge being granted earlier than before and so reduce length of stay. The second was improvement in the supervision and aftercare programmes for those leaving inpatient forensic settings. The argument has been made that when supervision and aftercare are well organized, forensic patients can move faster from high security institutions to settings with lower levels of security. It was hoped that the presence of this type of aftercare would (a) help forensic inpatient settings to be more prepared to grant conditional discharge and so improve throughput, and (b) allow the general psychiatric health care system to feel more prepared to take ex-forensic patients sooner into their care. The effect of these measures has yet to be fully evaluated, although one limitation has already been anticipated – that the procedure of going through all the various phases of the leave process might slow down rather than speed up throughput. Evaluation is likely to be complicated by the introduction in the Netherlands in 2013 of the so-called Manifest van Lunteren (Ministry of Security & Justice, 2013) which, it can be argued, is likely to have had a stronger influence on length of stay. In this Manifest, judges, lawyers, hospitals and the Ministry of Security & Justice work together to decrease length of stay, with the hospitals receiving a financial penalty if some of the aims are not achieved.

In the UK, Glorney et al. (2010) describe a model of treatment that aims to provide a streamlined pathway through high secure care and so reduce length of stay. The aims of the model are (a) to actively engage service users in recovering/discovering their mental health and reducing risk, (b) to take account of individual needs, abilities and interests, and (c) to provide care and treatment based on need and appropriate timing. The authors anticipated that the model would help to provide care that is strategically planned and sequenced from admission to discharge. No evaluation of this model in clinical practice was identified, but the transparency

that is proposed in linking needs and interventions does appear to have potential to enhance the engagement of the service user.

There is some evidence that the physical environment of long-stay rehabilitation wards may positively influence aggressive behaviour and arousal in chronically ill patients. Olver, Love, Daniel, Norman and Nicholls (2009) found that patients in a purpose-built, spacious, light-filled facility experienced lower levels of arousal, less aggression and scored lower on psychopathology measures when compared with a similar group of long-stay, severely ill psychiatric inpatients and concluded that the greater levels of ambient light were associated with less arousal.

In summary, although the literature on service provision specifically for long-stay forensic patients is sparse, continued therapeutic input for long-stay patients appears to be valued, with support for individualised treatment programmes, structured activities that include sport, social and leisure groups, and attention to work rehabilitation. An important need identified in several studies was to receive treatment for psychotic symptoms in order to achieve mental health recovery. This raises the issue of responsivity (the third principle in the Risk-Need-Responsivity approach) which focuses on how treatment should be provided. Arguably, it is the responsibility of the system to provide treatment in ways in which patients can benefit, and the needs of patients who respond poorly to conventional treatments for schizophrenia will be particularly relevant for a long-stay population. Arguments have also been made for providing a well-lit environment to reduce aggression, for arranging for patients who are unlikely to ever be released to be cared for separately, for ensuring those with Cluster B diagnoses are kept separate from those with schizophrenia, and for adopting a high staff-to-patient ratio to avoid excessive physical security.

It appears therefore that recovery, quality of life and social climate are considered as key elements when designing provision for long-stay patients. Arguably, that is also the case for forensic psychiatry in general where the professional challenge is to achieve a balance between creating proper living conditions and protecting others by preventing aggression and reducing the risk of reoffending. There is some suggestion that this balance is currently unsettled for long-stay patients.

Strengths and Limitations of This Review

This rapid review has attempted to summarise the characteristics and needs of long-stay forensic patients, with recognition from the outset that a conventional systematic review would be an unsuitable approach given that ‘long-stay’ is a poorly defined concept. A systematic approach has been adopted: the key steps defined by Khangura et al. (2012) for conducting a rapid review were followed, the search strategy was comprehensive, and the reference lists of the included documents were searched in attempt to identify any additional relevant papers. Any bias towards the literature of any particular country is therefore unlikely to have arisen from not using a systematic approach to the searches. Certain limitations of the rapid review approach need to nevertheless be acknowledged. There is no guarantee that every relevant document has been identified, and it is possible that some reports from non-English language countries were not identified. It is also possible that some reports on a related topic in which information on a long-stay subgroup is embedded were not identified.

No geographical restrictions were applied in this review in attempt to keep an international perspective. It is therefore important to acknowledge that significant differences

exist between countries in, for example, how services exclude individuals with certain diagnoses such as personality disorder, the importance of criminal responsibility as an entry criterion to forensic care, the length of time patients can spent in forensic settings and whether transfer from prison to a psychiatric setting is possible after sentencing (Vollm et al., 2016). There was, however, insufficient evidence to draw conclusions on any variation in LoS between countries, and geographical variation within a country was reported in only one UK study.

Given the significant heterogeneity in the included studies and the poor agreement on the definition of ‘long-stay’ the applicability of findings has to be carefully assessed. One factor is that the included studies cover a number of years, and forensic services tend to change over time. For example, changes in the availability of general adult psychiatric beds may lead to patients from adult psychiatric care being diverted to forensic services, while the greater availability of low secure services may prevent patients escalating to medium secure care (Davoren et al., 2015). Changes in admission and discharge policy over time and changes in bed numbers may also impact on thresholds for admission, and it has been suggested that systemic factors such as these may have as much impact on length of stay as clinical or legal factors (Sharma, Dunn, O’Toole & Kennedy, 2015). It has also been suggested that psychiatric practice has tended to become more restrictive over time and that this may lead to increased lengths of stay in forensic psychiatric settings (Petrila & de Ruiter, 2011), although there was insufficient evidence from the studies included in this review to indicate whether the proportion of long-stay patients is increasing or decreasing as time goes by.

Implications for Research and Practice

A future review on this topic might benefit from a more extensive search of the grey literature for unpublished reports, and from communication with selected academic researchers and clinicians who may have personal knowledge of additional relevant studies. Including more specific search terms for qualitative research might identify studies focusing on the experience of professionals, patients and carers of residing in forensic settings for a long period of time. Methodological issues around long-stay studies could be minimised by large, longitudinal cohort designs. The responsiveness issues for long-stay patients appear poorly documented, and so good quality studies are also needed of patients who do not respond to efforts to reduce their length of stay, especially in comparison with those who are more successful. Further research is also needed to evaluate newly-developed long-stay forensic services as identified by Sampson et al. (2016).

There is clearly a need for agreement on how best to define the concept of ‘long-stay’ in forensic settings. Regardless of how long-stay is defined, however, there is strong indication that development of services for this patient group should anticipate significant levels of chronic, treatment-resistant mental disorder. Future service provision for long-stay forensic patients will need to strike a balance between addressing this chronicity, reducing the risk of violence, and helping such patients achieve an improved quality of life. Whether such separate services for long-stay patients are needed and desirable though is a question that warrants further exploration through the engagement of service users, providers, clinicians, ethicists and law professionals.

Acknowledgments & Disclaimer

This study was partly funded by the National Institute for Health Research; reference: HS&DR 11/1024/06. The views and opinions expressed therein are those of the authors and do not

necessarily reflect those of the HS&DR Programme, NIHR, NHS or Department of Health. The sponsor was Nottinghamshire Healthcare NHS Foundation Trust.

References

- Advokat, C., Eustis, N. & Pickering, J. (2005). Relationship between diagnosis and disposition of patients admitted to a state psychiatric hospital, *Psychiatric Quarterly*, 76(2), 97-106. doi: 10.1007/s11089-005-2333-3.
- Alexander, R.T., Hiremath, A., Chester, V., Green, F.N., Gunaratna, I.J. & Hoare, S. (2011). Evaluation of treatment outcomes from a medium secure unit for people with intellectual disability. *Advances in Mental Health and Intellectual Disabilities*, 5(1), 22 – 32.
- Andreasson, H., Nyman, M., Krona, H., Meyer, L., Anckarsäter, H., Nilsson, T. & Hofvander, B. (2014). Predictors of length of stay in forensic psychiatry: the influence of perceived risk of violence. *International Journal of Law & Psychiatry*, 37(6), 635-642.
- Baldwin, L.J., Menditto, A.A., Beck, N.C. & Smith, S.M. (1992). Factors influencing length of hospitalization for NGRI acquittees in a maximum security facility. *Journal of Psychiatry & Law*, 20(2), 257–267.
- Bartlett, A., Cohen, A., Backhouse, A., Highet, N. & Eastman, N. (1996). Security needs of South West Thames Special Hospital patients: 1992 and 1993. No way out? *The Journal of Forensic Psychiatry*, 7(2), 256-270.
- Bauer, A., Rosca, P., Grinshpoon, A., Khawalled, R. & Mester, R. (2006). Monitoring long-term court order psychiatric hospitalization: a pilot project in Israel. *Med Law*, 25, 83-99.
- Beer, M., Tighe, J., Ratnajothy, K. & Masterson, D. (2007). Predicting outcome in low secure environments: A case series from one low secure unit. *Journal of Psychiatric Intensive Care*, 3(2), 85-92.

- Belfrage, H., Kevin, S. & Douglas, K.S. (2002). Treatment effects on forensic psychiatric patients measured with the HCR-20 Violence Risk Assessment Scheme. *International Journal of Forensic Mental Health*, 1(1), 25-36. doi: 10.1080/14999013.2002.10471158
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101.
- Brown, C.S., Lloyd, K.R. & Donovan, M. (2001). Trends in admissions to a regional secure unit (1983-1997). *Med Sci Law*, 41, 35-40.
- Butler (1975). *Report of the Committee on Mentally Abnormal Offenders (chairman Lord Butler)*. Cmnd 6244. London: HMSO.
- Butwell, M., Jamieson, E., Leese, M. & Taylor, P. (2000). Trends in special (high-security) hospitals. 2: Residency and discharge episodes 1986-1995. *Br J Psychiatry*, 176, 260-265.
- Callahan, L.A. & Silver, E. (1998). Factors associated with the conditional release of persons acquitted by reason of insanity: A decision tree approach. *Law and Human Behavior*, 22(2), 147-163.
- Cameron, A., Watt, A, Lathlean, T & Sturm, L. (2007). *Rapid versus full systematic reviews: an inventory of current methods and practice in Health Technology Assessment*. ASERNIP-S Report No. 60. Adelaide, South Australia: ASERNIP-S, July 2007.
- Castro, M., Cockerton, T. & Birke, S. (2002). From discharge to follow-up: A smallscale study of medium secure provision in the independent sector. *British Journal of Forensic Practice*, 4, 31-39.

- Coid, J., Kahtan, N., Gault, S., Cook, A. & Jarman, B. (2001). Medium secure forensic psychiatry services: Comparison of seven English health regions. *British Journal of Psychiatry*, 178, 55–61.
- Colwell, L.H. & Giancesini, M.A. (2011). Demographic, criminogenic, and psychiatric factors that predict competency restoration. *Journal of the American Academy of Psychiatry and the Law*, 39, 297–306.
- Cormac, I., Ferriter, M., Benning, R. & Saul, C. (2005). Physical health and health risk factors in a population of long-stay psychiatric patients. *Psychiatric Bulletin*, 29(1), 18-20.
- Davoren, M., Byrne, O., O’Connell, P., O’Neill, H., O’Reilly, K. & Kennedy, H.G. (2015). Factors affecting length of stay in forensic hospital setting: need for therapeutic security and course of admission. *BMC Psychiatry*, 15, 301.
- Dell, S., Robertson, G. & Parker, E. (1987). Detention in Broadmoor: factors in length of stay. *British Journal of Psychiatry*, 150, 824-827.
- Department of Health and Social Security (1974). *Revised Report of the Working Party on Security in NHS Psychiatric Hospitals (The Glancy Report)*. HMSO, London.
- Dessecker, A. (2008). *Lebenslange Freiheitsstrafe, Sicherungsverwahrung und Unterbringung in einem psychiatrischen Krankenhaus. Dauer und Gründe der Beendigung im Jahr 2005* [life sentences, high security detention, and referral to a forensic psychiatric hospital. Duration and reasons for termination in 2005]. Kriminologische Zentralstelle e.V. Wiesbaden.
- Dienst Justitiële Inrichtingen (2017). *Forensische Zorg in getal 2012-2016*. DJI. Den Haag.
- Edwards, J., Steed, P. & Murray, K. (2002). Clinical and forensic outcome 2 years and 5 years after admission to a medium secure unit. *Journal of Forensic Psychiatry*, 13(1), 68–87.

- Edworthy, R. & Vollm, B. (2016). Long-stay in high and medium secure forensic psychiatric care: Prevalence, patient characteristics and pathways in England. *European Psychiatry*, 33, Supplement, page S207.
- Edworthy, R., Sampson, S. & Völlm, B. (2016). Inpatient forensic-psychiatric care: Legal frameworks and service provision in three European countries. *International Journal of Law and Psychiatry*, 47, 18–27. 10.1016/j.ijlp.2016.02.027
- Ficken, C.T. (2003). *Using demographic and clinical variables to predict the length of stay of “incompetent to stand trial” patients*. PhD thesis. Oregon State University, Ann Arbor.
- Finlay-Jones, R. & Nielssen, O. (1993). The optimum size of a high-security unit for mentally disordered offenders. *Criminal Behaviour & Mental Health*, 3, 472-483.
- Fioritti, A., Ferriani, E., Rucci, P., Melega, V., Venco, C., Scaramelli, A.R. & Santarini, F. (2001). Predicting length of stay in Italian Psychiatric Forensic Hospitals: A survival analysis. [Italian]. *Epidemiologia e Psichiatria Sociale*, 10(2), 125-133.
- Flynn, G., O'Neill, C. & Kennedy, H.G. (2011). The DUNDRUM-1 structured professional judgment for triage to appropriate levels of therapeutic security: retrospective cohort validation study. *BMC Psychiatry*, 11, 43.
- Fong, C.L., Kar, P.C., Huei, L.T., Yan, O.L., Daud, T.I.M., Zakaria, H., . . . Salleh, R.M. (2010). Factors influencing inpatient duration among insanity acquittees in a Malaysian mental institution. *Psychiatry*, 11(1), 25-35.
- Furtado, V. & Vollm, B. (2012). Long-term forensic psychiatric care in the united kingdom: an epidemiological study. Abstracts of the 20th European Congress of Psychiatry. *European Psychiatry*, 27, Supplement 1, page P657.

- Gibbons, P., Mulryan, N. & O'Connor, A. (1997). Guilty but insane: The insanity defence in Ireland, 1850-1995. *The British Journal of Psychiatry*, 170, 467-472.
- Glorney, E., Perkins, D., Adshead, G., McGauley, G., Murray, K., Noak, J. & Sichau, G. (2010). Domains of need in a high secure hospital setting: A model for streamlining care and reducing length of stay. *International Journal of Forensic Mental Health*, 9, 138-148.
- Green, B. & Baglioni, A.J. (1998). Length of stay, leave and re-offending by patients from a Queensland security patients hospital. *Australian & New Zealand Journal of Psychiatry*, 32(6), 839-847.
- Grounds, A. (1991). The transfer of sentenced prisoners to hospital 1960-1983: A study in one special hospital. *British Journal of Criminology*, 31(1), 54-71.
- Harty, M.A., Shaw, J., Thomas, T., Dolan, M., Davies, L., Thornicroft, G., . . . Jones, P. (2004). The security, clinical and social needs of patients in high security psychiatric hospitals in England. *Journal of Forensic Psychiatry and Psychology*, 15(2), 208-221.
- Heap, M. (2003). Differences in the progress of discharged and undischarged patients in a medium secure unit: a pilot study. *Journal of Psychiatric and Mental Health Nursing*, 10, 534-542.
- Jacques, J., Spencer, S-J. & Gilluley, P. (2010). Long-term care needs in male medium security. *The British Journal of Forensic Practice*, 12(3), 37-44. doi: 10.5042/bjfp.2010.0424
- Kennedy, J., Wilson, C. & Cope, R. (1995). Long-stay patients in a regional secure unit. *J Forens Psychiatry & Psychol.*, 6, 541-551.
- Khangura, S., Konnyu, K., Cushman, R., Grimshaw, J. & Moher, D. (2012). Evidence summaries: the evolution of a rapid review approach. *Systematic Reviews*, 1, 10. doi: 10.1186/2046-4053-1-10

- Knapp, M., Healey, A., Coid, J., Hickey, N., Raikou, M. & Mangalore, R. (2007). *An economic evaluation of medium secure forensic psychiatry services*. London School of Economics, Unpublished report.
- Krakowski, M.I. & Czobor, P. (1994). Clinical symptoms, neurological impairment, and prediction of violence in psychiatric inpatients. *Hospital and Community Psychiatry*, 45 (7), 700-705.
- Lal, S. & Adair, C.E. (2014). E-Mental Health: A rapid review of the literature. *Psychiatric Services*, 65(1), 24-32. doi: 10.1176/appi.ps.201300009
- Lammers, S., Vrinten, M. & Nijman, H. (2015). *(Te) lang in de tbs? Een onderzoek naar patiënten die meer dan 15 jaar in de tbs-behandeling zijn*. Den Haag: WODC en Nijmegen: Radboud Universiteit.
- Long, C., Dolley, O. & Hollin, C. (2013). Engagement in psychosocial treatment; its relationship to outcome and care pathway progress for women in medium-secure settings. *Criminal Behaviour & Mental Health*, 22, 336-349.
- Long, C.G. & Dolley, O. (2012). Factors predictive of length of stay for women in medium secure settings. *J Psychiatric Mental Health Nursing*, 19(10), 870-4. doi: 10.1111/j.1365-2850.2011.01866.x
- Mackay, R.D. & Ward, T. (1994). The long-term detention of those found unfit to plead and legally insane. *British Journal of Criminology*, 34(1), 30-43.
- Maden, A., Rutter, S., McClintock, C., Friendship, C. & Gunn, J. (1999). Outcome of admission to a medium secure psychiatric unit. I: Short- and long-term outcome. *British Journal of Psychiatry*, 175, 313-316.

- Margetic, B., Margetic, B.A. & Ivanec, D. (2014). Can personality traits affect detention length in a forensic institution? *Journal of Forensic Psychology Practice*, 14 (4), 277-287.
- McInerney, T. & Minne, C. (2004). Principles for treatment of mentally disordered offenders. *Crim Behav Ment Health*, 14, S43-7.
- McKenna, J. (1996). In-patient characteristics in a regional secure unit. *Psychiatric Bulletin*, 20, 264–268.
- McMurran, M., Egan, V. & Ahmadi, S. (1998). A retrospective evaluation of a therapeutic community for mentally disordered offenders. *Journal of Forensic Psychiatry*, 9(1), 103-113.
- Melzer, D., Tom, B.D.M., Brugha, T., Fryers, T., Gatward, R., Grounds, A., . . . Meltzer, H. (2004). Access to medium secure psychiatric care in England and Wales. 3: The clinical needs of assessed patients. *The Journal of Forensic Psychiatry & Psychology*, (15)1, 50-65. doi.org/10.1080/14789940410001661856
- Ministerie van Veiligheid en Justitie. (2015). *Rijksbegroting 2015 IV Veiligheid en Justitie, Kamerstukken 2014-2015, 34 000 VI, nr. 2*. Den Haag: Ministerie van Veiligheid en Justitie; 2014.
- Ministry of Security & Justice (2013). Manifest Law & TBS. Downloaded 29 March 2017 from www.forensischezorg.nl/beleid/beleidsdocumenten-en-kaders/manifest-van-lunteren.
- Mohan, D., Murray, K., Taylor, P. & Steed, P. (1997). Developments in the use of regional secure unit beds over a 12-year period. *Journal of Forensic Psychiatry*, 8(2), 321-335.
- Moran, M.J., Fragala R., Wise B.F. & Novak T.L. (1999). Factors affecting length of stay on maximum security in a forensic psychiatric hospital. *International Journal of Offender Therapy and Comparative Criminology*, 43(3), 262–274.

- Murray, K. (1996). The use of beds in NHS medium secure units in England. *Journal of Forensic Psychiatry*, 7(3), 504-524.
- Nagtegaal, M.H., van der Horst, R.P. & Schönberger, H.J.M. (2011). *Length of stay in forensic psychiatric hospitals* [Dutch with English summary]. Meppel, Netherlands: Boom Juridische Uitgevers (Royal Boom Publishers).
- Nakatani, Y., Ohki, S., Yamada, H., Iwanami, A. & Fujimori, H. (1992). A typology of difficult patients with long-term stays on a secure ward in Japan. *Hosp Community Psychiatry*, 43(10), 1030-2.
- Nijman, H., Lammers, S., Vrinten, M., & Bulten, E. (2017). (Too) long in tbs? A study on patients receiving forensic psychiatric tbs-treatment for 15 years or longer. *Tijdschrift voor psychiatrie*, 59(1), 9.
- Noblin, J.L. (2011). *Patient length of stay: predictive variability among forensic and civil psychiatric units and populations*. Thesis (MA), University of Houston.
- O'Neill, C., Heffernan, P., Goggins, R., Corcoran, C., Linehan, S., Duffy, D., . . . Kennedy, H.G. (2003). Long-stay forensic psychiatric inpatients in the Republic of Ireland: aggregated needs assessment. *Irish Journal of Psychological Medicine*, 20(4), 119-125.
- Olver, J., Love, M., Daniel, J., Norman, T. & Nicholls, D. (2009). The impact of a changed environment on arousal levels of patients in a secure extended rehabilitation facility. *Australasian Psychiatry*, 17(3), 207-11.
- Petrila, J. & de Ruiter, C. (2011). The competing faces of mental health law: recovery and access versus the expanding use of preventative confinement. *Amsterdam Law Forum*, 3, 59–68.

Pierzchniak, P., Farnham, F., de Taranto N., Bull, D., Gill, H., Bester, P., . . . Kennedy, H.

(1999). Assessing the needs of patients in secure settings: A multi-disciplinary approach.

Journal of Forensic Psychiatry, 10(2), 343-354.

Power, N., Harwood, D. & Akinkunmi, A. (2006). Tilting the balance: the first long-term

medium secure unit in the NHS in England and Wales. *Psychiatric Bulletin*, 30, 25-28.

Quinn, C. & Happell, B. (2015). Supporting the sexual intimacy needs of patients in a longer

stay inpatient forensic setting. *Perspectives in Psychiatric Care*, 52(4), 239-247.

Randolph, C. (1998). *Repeatable Battery for the Assessment of Neuropsychological Status*

(RBANS): *Manual*. San Antonio, TX: The Psychological Corporation.

Reed, J. (1997). The need for longer term psychiatric care in medium or low security. *Criminal*

Behaviour and Mental Health, 7, 201–212.

Rice, M.E., Quinsey, V.L. & Houghton, R. (1990). Predicting treatment outcome and recidivism

among patients in a maximum security token economy. *Behav Sci Law.*, 8(3), 313–326.

Ricketts, D., Carnell, H., Davies, S., Kaul, A. & Duggan, C. (2001). First admissions to a

regional secure unit over a 16-year period: Changes in demographic and service

characteristics. *Journal of Forensic Psychiatry*, 12(1), 78-89.

Rodenhauser, P. & Khamis, H.J. (1988). Predictors of improvement in maximum security

forensic hospital patients. *Behavioral Sciences & the Law*, 6(4), 531–542.

Ross, P.T., Padula, C.B., Nitch, S.R. & Kinney, D.I. (2015). Cognition and competency

restoration: using the RBANS to predict length of stay for patients deemed incompetent

to stand trial. *The Clinical Neuropsychologist*, 29(1), 150–165. doi:

10.1080/13854046.2015.1005678

- Ross, T., Querengässer, J., Fontao, M.I. & Hoffmann, K. (2012). Predicting discharge in forensic psychiatry: The legal and psychosocial factors associated with long and short stays in forensic psychiatric hospitals. *International Journal of Law and Psychiatry*, 35(3), 213-221.
- Rutherford, M. & Duggan, S. (2007). *Forensic Mental Health Services: Facts and figures on current provision*. Sainsbury Centre for Mental Health.
- Salize, H.J. & Dressing, H. (2005). *Placement and Treatment of Mentally Ill Offenders – Legislation and Practice in EU Member States*. Mannheim: Central Institute of Mental Health.
- Salize, H.J. & Dressing, H. (2004). Epidemiology of involuntary placement of mentally ill people across the European Union. *British Journal of Psychiatry*, 184, 163-168.
- Sampson, S., Edworthy, R., Völlm, B & Bulten, E. (2016). Long-term forensic mental health services: An exploratory comparison of 18 European countries. *International Journal of Forensic Mental Health*, <http://dx.doi.org/10.1080/14999013.2016.1221484>
- Schalast, N., Seifert, D. & Leygraf, N. (2007). Patienten des Maßregelvollzugs gemäß § 63 StGB mit geringen Entlassungsaussichten [Patients in forensic mental hospitals in Germany with little chance of discharge from inpatient detention]. *Forensische Psychiatrie, Psychologie, Kriminologie*, 1, 34-42.
- Schel, S.H.H., Bouman, Y.H.A. & Bulten, B.H. (2015). Quality of life in long-term forensic psychiatric care: comparison of self-report and proxy assessments. *Archives of Psychiatric Nursing*, 29, 162-7.

- Sedgwick, O., Young, S., Das, M. & Kumari, V. (2016). Objective predictors of outcome in forensic mental health services—a systematic review. *CNS Spectrums*, page 1 of 15. doi:10.1017/S1092852915000723
- Shah, A., Waldron, G., Boast, N., Coid, J.W. & Ullrich, S. (2011). Factors associated with length of admission at a medium secure forensic psychiatric unit. *J Forens Psychiatry Psychol.*, 22(4), 496-512.
- Sharma, A., Dunn, W., O'Toole, C. & Kennedy, H.G. (2015). The virtual institution: Cross-sectional length of stay in general adult and forensic psychiatry beds. *International Journal of Mental Health Systems*, 9, 25.
- Shaw, J., Davies, J. & Morey, H. (2001). An assessment of the security, dependency and treatment needs of all patients in secure services in a UK health region. *J Forensic Psychiatry Psychol.* 12, 610-37.
- Silver, E. (1995). Punishment or treatment? Comparing the lengths of confinement of successful and unsuccessful insanity defendants. *Law Hum Behav.*, 19, 375-388.
- Skeem, J.L., Steadman, H.J. & Manchak, S.M. (2015). Applicability of the risk-need-responsivity model to persons with mental illness involved in the criminal justice system. *Psychiatric Services*, 66(9), 916-22. doi: 10.1176/appi.ps.201400448
- Skipworth, J., Brinded, P., Chaplow, D. & Frampton, C. (2006). Insanity acquittee outcomes in New Zealand. *Aust N Z J Psychiatry.*, 40, 1003-1009.
- Steadman, H.J., Pasewark, R.A., Hawkins, M., Kiser, M. & Bieber, S. (1983). Hospitalization length of insanity acquittees. *Journal of Clinical Psychology*, 39(4), 611-4.

Thomas, S., Leese, M., Dolan, M., Harty, M., Shaw, J., Middleton, H. . . Appleby, L. (2004).

The individual needs of patients in high secure psychiatric hospitals in England. *Journal of Forensic Psychiatry and Psychology*, 15 (2), 222-243.

Tilt, R., Perry, B., Martin, C., McGuire, N. & Preston, M. (2000). *Report of the Review of Security at the High Security Hospitals*. London: Department of Health.

Tricco, A.C., Antony, J., Zarin, W., Striffler, L., Ghassemi, M., Ivory, J., ... Straus, S.E. (2015).

A scoping review of rapid review methods. *BMC Medicine*, 13, 224. doi: 10.1186/s12916-015-0465-6

Valenti, E., Giacco, D., Katasakou, C. & Priebe, S. (2014). Which values are important for patients during involuntary treatment? A qualitative study with psychiatric inpatients. *Journal of Medical Ethics*, 40, 832-836.

Vaughan, P. (2000). Developing Service Specifications for Secure Provision. *The British Journal of Forensic Practice*, 2(2), 13-18. doi: 10.1108/14636646200000013

Vollm, B., Bartlett, P. & McDonald, E. (2016). Ethical issues of long-term forensic psychiatric care. *Ethics, Medicine & Public Health*, 2(1), 36-44. doi: 10.1016/j.jemep.2016.01.005

Völlm, B., Edworthy, R., Holley, J., Talbot, E., Majid, S., Duggan, C., ... McDonald, R. (2017). A mixed-methods study exploring the characteristics and needs of long-stay patients in high and medium secure settings in England: implications for service organisation. *Health Serv Deliv Res*, 5(11). doi: 10.3310/hsdr05110

Vorstenbosch, E.C.W., Bouman, Y.H.A., Braun, P.C. & Bulten, E.B.H. (2014) Psychometric properties of the forensic inpatient quality of life questionnaire: quality of life assessment for long-term forensic psychiatric care. *Health Psychology & Behavioral Medicine*, 2(1), 335-348. doi: 10.1080/21642850.2014.894890

Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., ... Maddern, G.

(2008). Rapid versus full systematic reviews: validity in clinical practice? *ANZ J Surg.*,

78, 1037-1040. doi: 10.1111/j.1445-2197.2008.04730.x

Wilkes, V.L. (2012). *Predicting length of stay in a male medium secure psychiatric hospital.*

Thesis (Foren Psy D), University of Birmingham.

Williams, P., Badger, D., Nursten, J. & Woodward, M. (1999). A review of recent academic

literature on the characteristics of patients in British special hospitals. *Criminal*

Behaviour and Mental Health, 9, 296–314.

Wright, B., O'Neill, C. & Kennedy, H.G. (2008). Admissions to national forensic hospital 1997-

2003. *Irish Journal of Psychological Medicine*, 25(1), 17-23.

Appendix

Keyword-based search strategy

((length\$ or duration or time or period or long\$) adj3 (stay\$ or treatment or admission or detention or hospitali\$ or confinement)) or (inpatient duration or longstay or long-stay or needs)

AND

((patient\$ or inpatient\$ or detainee\$) adj12 (felon\$ or forensic mental or forensic psychiat\$ or ((low or medium or high or maximum) adj3 secur\$))) or (insanity acquittee\$ or insanity defend\$ or offender patient\$) or ((hosp\$ or ward or inpatient or setting\$ or unit or facility or institut\$) adj5 (forensic psych\$ or forensic mental or TBS or secur\$)) or (((low or medium or high or maximum) adj3 secur\$) or (Broadmoor or Rampton or Ashworth or Carstairs or forensic institut\$))

Table 1

Summary of the Included Documents (n=69)

| Study | Country | Research Question | Security Level | Notes |
|-----------------------------|---------|----------------------|-------------------|--|
| Alexander et al. (2011) | UK | 3 | Medium | Admission sample; retrospective; 2003-2009; n=138 |
| Andreasson et al. (2014) | Sweden | 3,4 | FS | Admission sample; retrospective; 1999-2005; n=125 |
| Baldwin et al. (1992) | USA | 3,4 | FS | Discharge sample; retrospective; 1970-1990; n=193 |
| Bauer et al. (2006) | Israel | 1,3 | FS | Census sample; 2003; n=65 |
| Beer et al. (2007) | UK | 3 | Low | Discharge; retrospective; 1997-2005; n=86 |
| Belfrage et al. (2002) | USA | 3 | Maximum | Admission sample; retrospective; 1997-2001; n=150 |
| Butwell et al. (2000) | UK | 3 | High | Discharge sample; retrospective; 1986-1995; n=3263 |
| Callahan & Silver (1998) | USA | 3 | FS | Admission sample; retrospective; 1985-1987; n=529 |
| Castro et al. (2002) | UK | 3 | Medium | Admission sample; retrospective; 1995-1998; n=166 |
| Colwell & Giancesini (2011) | USA | 3 | Maximum | Discharge sample; retrospective; n=71 |
| Cormac et al. (2005) | UK | 5 | High | Retrospective; 2000-2001; n=248 |
| Davoren et al. (2015) | Ireland | 3,4 | FS | Admission sample; prospective; 2010-2014; n=279 |
| Dell et al. (1987) | UK | 1,2,3 | High | Admission sample; retrospective; 1972-1974; n=187 |

| | | | | |
|--------------------------------|-----------|---------|--------|---|
| Dessecker (2008) | Germany | 1,2 | FS | Discharge sample; retrospective; 2005 |
| Edwards et al. (2002) | UK | 1,2,3 | Medium | Admission sample; retrospective; 1983-1996; n=225 |
| Edworthy & Vollm (2016) | UK | 1,2 | Hi+Med | Census sample; 2016; n=401 |
| Ficken (2003) | USA | 3,4 | FS | Discharge sample; retrospective; 1999-2001; n=198 |
| Finlay-Jones & Nielssen (1993) | Australia | 5 | FS | No sample |
| Fioritti et al. (2001) | Italy | 3,4 | FS | Discharge sample; retrospective; 1997-1999; n=118 |
| Fong et al. (2010) | Malaysia | 1,2,3,4 | FS | Census sample; 2007; n=112 |
| Furtado & Vollm (2012) | UK | 2 | Hi+Med | Census sample; 2012 |
| Gibbons et al. (1997) | Ireland | 3 | FS | Admission sample; retrospective; 1850-1995; n=436 |
| Glorney et al. (2010) | UK | 5 | High | Admission sample; retrospective; 2000-2001; n=63 |
| Green & Baglioni (1998) | Australia | 3,4 | FS | Census sample; 1996; n=590 |
| Grounds (1991) | UK | 3 | High | Census sample; 1983; n=317 |
| Harty et al. (2004) | UK | 5 | High | Needs |
| Heap (2003) | UK | 1,3 | Medium | Census sample; 2001; n=15 |
| Jacques et al. (2010) | UK | 5 | Medium | Needs |
| Kennedy et al. (1995) | UK | 1,3 | Medium | Admission sample; retrospective; 1987-1993; n=100 |
| Knapp et al. (2007) | UK | 3 | Medium | Discharge sample; retrospective; 1994-1998 |
| Krakowski & Czobor (1994) | USA | 3,4 | FS | Admission sample; retrospective; 1984-1985; n=38 |
| Long & Dolley (2012) | UK | 1,3 | Medium | Female admission sample; retrospective; 2002-2010; n=70 |
| Long et al. (2013) | UK | 3 | Medium | Female discharge sample; retrospective; opening-2012;n=60 |

Running head: LONG-STAY FORENSIC PSYCHIATRIC INPATIENTS

| | | | | |
|---------------------------|-------------|---------|---------|---|
| MacKay & Ward (1994) | UK | 1,3 | Hi+Med | Census sample; 1988; n=114 |
| Maden et al. (1999) | UK | 1,2 | Medium | Discharge sample; retrospective; 1980-1994; n=234 |
| Margetic et al. (2014) | Croatia | 3,4 | FS | Census sample; 2011; n=56 |
| McKenna (1996) | UK | 1 | Medium | Discharge sample; retrospective; 1994; n=100 |
| McMurran et al. (1998) | UK | 3 | Medium | Admission sample; retrospective; 1987-1997; n=53 |
| Melzer et al. (2004) | UK | 5 | Medium | Patients assessed for medium secure beds; 1999; n=387 |
| Mohan et al. (1997) | UK | 1,2 | Medium | Admission sample; retrospective; 1983-1995; n=282 |
| Moran et al. (1999) | USA | 3,4 | Maximum | Discharge sample; retrospective; 1993-1998; n=101 |
| Murray (1996) | UK | 2 | Medium | Census; 1991; n=555 |
| Nagtegaal et al. (2011) | Netherlands | 5 | FS | Retrospective; 1990-2009 |
| Nakatani et al. (1992) | Japan | 3 | FS | Admission sample; retrospective; 1979-1988; n=39 |
| Nijman et al. (2017) | Netherlands | 1,2,3 | FS/TBS | Census sample; 2013; n=97 |
| Noblin (2011) | USA | 3,4 | FS | Retrospective; 1999-2008; n=767 |
| O'Neill et al. (2003) | Ireland | 1,2,3,5 | FS | Census; 2000; n=88 |
| Olver et al. (2009) | Australia | 5 | FS | Patients pre-post move between facilities; 2006; n=15 |
| Pierzchniak et al. (1999) | UK | 5 | Hi+Med | Retrospective; 1995; n=176 |
| Quinn & Happell (2015) | Australia | 5 | FS | Qualitative; views of 12 nurses & 10 long-term patients |
| Power et al. (2006) | UK | 5 | Medium | Overview |
| Reed (1997) | UK | 5 | Medium | Overview/needs |
| Rice et al. (1990) | Canada | 3,4 | Maximum | Discharge sample; retrospective; 1995-1996; n=92 |

| | | | | |
|-----------------------------|-------------|---------|---------|--|
| Ricketts et al. (2001) | UK | 1,2,3 | Medium | Admission sample; retrospective; 1983-1999; n=504 |
| Rodenhauser & Khamis (1988) | USA | 3 | Maximum | Discharge sample; retrospective; 1980-1984; n=376 |
| Ross et al. (2012) | Germany | 1,3,4 | FS | Discharge sample; retrospective; 2009-2010; n=204 |
| Ross et al. (2015) | USA | 3,4 | FS | Admission sample; retrospective; 2000-2012; n=288 |
| Rutherford & Duggan (2007) | UK | 2 | Hi+Med | Census; 2004 |
| Schalast et al. (2007) | Germany | 3,4 | FS | Discharge sample, retrospective; n=134 |
| Shah et al. (2011) | UK | 1,2,3 | Medium | Discharge sample, retrospective; 1999-2008; n=259 |
| Sharma et al. (2015) | UK | 2 | Medium | Census, 1999, n=185 |
| Silver (1995) | USA | 3,4 | FS | Admission sample; retrospective; 1976-1985; n=6572 |
| Skipworth et al. (2006) | New Zealand | 3 | FS | Admission sample; retrospective; 1976-2004; n=135 |
| Steadman et al. (1983) | USA | 3,4 | FS | Admission sample; retrospective; 1971-1976; n=225 |
| Thomas et al. (2004) | UK | 5 | High | Patients resident in 2003; n=1008 |
| Vaughan (2000) | UK | 3,5 | Medium | Overview |
| Wilkes (2012) | UK | 1,2,3,4 | Medium | Discharge sample; retrospective; 2001-2011; n=198 |
| Williams et al. (1999) | UK | 5 | High | Review of characteristics of inpatients; 1989-1998 |
| Wright et al. (2008) | Ireland | 1,2 | FS | Admission sample; retrospective; 1997-2003; n=780 |

Table 2

Proportion of forensic patients that are long-stay from 17 studies

| | >2yrs | | | >5yrs | | | >8yrs | >10yrs | | >20yrs | >30yrs |
|-------------------------|--|---|--|-----------------|-------------------|--|--------------------|--------------------|--------------------------------------|--------------------|-----------------|
| | admission | discharge | census | admission | discharge | census | admission | discharge | census | census | census |
| Netherlands | | | | | | | | | 8% ^a | | |
| Malaysia | | | | | | | | | 34% ^b | | |
| Germany | | | | | | | | 13.7% ^c | | | |
| Ireland | 2.6% ^d | | 48.8% ^e | | | | | | | 19.3% ^e | |
| UK high & medium secure | | | 66% ^f | | | 39.1% ^g 47% ^f 25% ^h | | | 27% ^f 25% ^h | 9% ^f | 3% ^f |
| UK medium secure | 52% ⁱ 13.1% ⁿ | 9% ^j 33.6% ^m 45% ^p | 12.4% ^s 20% ^k | 8% ^l | 9.3% ^m | | | | | | |
| UK high secure | | | | | | | 46.5% ^r | | 15% ^k | | |

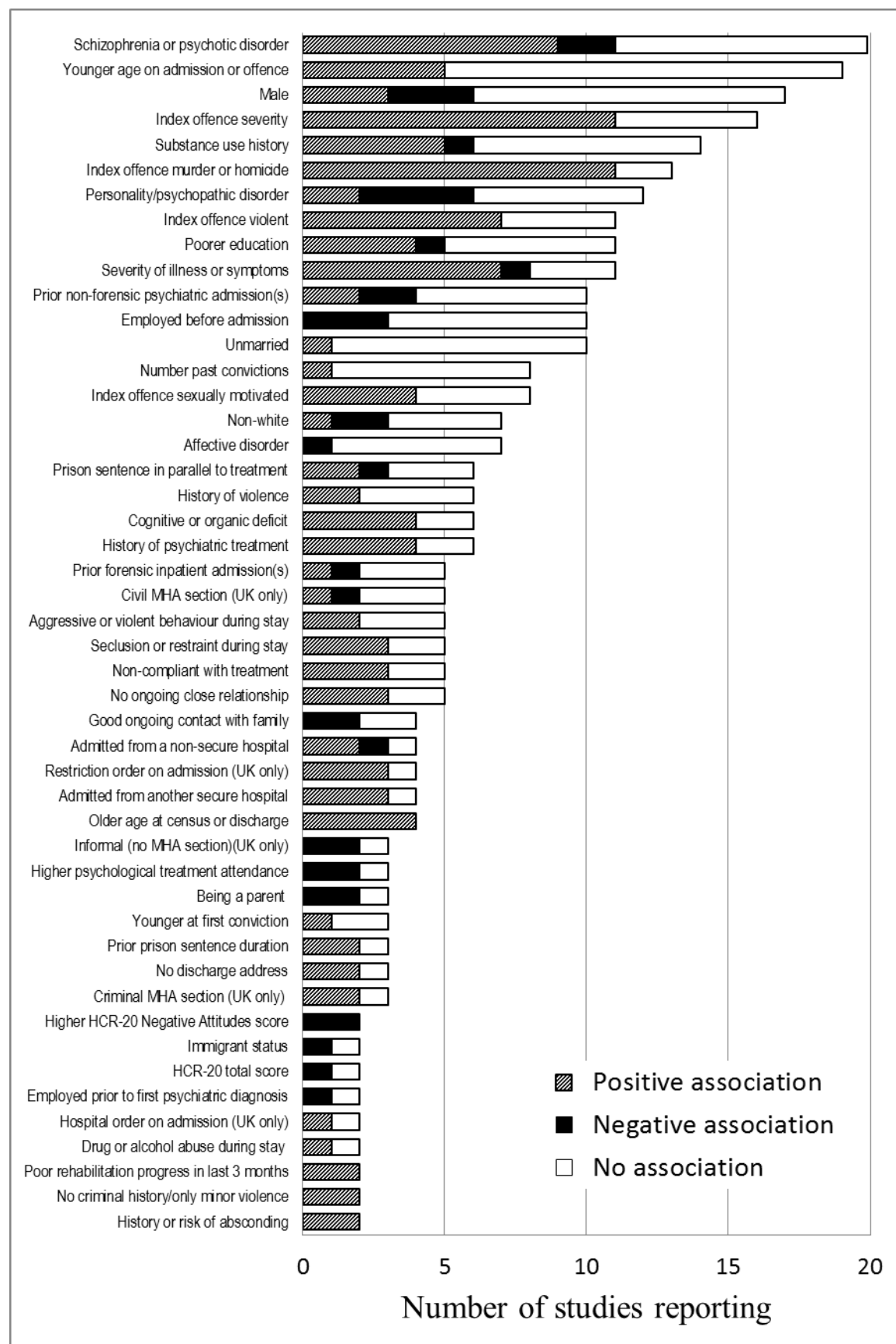
^a Nijman et al. (2017); ^b Fong et al. (2010); ^c Dessecker (2008); ^d Wright et al. (2008); ^e O'Neil et al. (2003);^f Rutherford & Duggan (2007); ^g Sharma et al. (2015); ^h Edworthy & Völlm (2016); ⁱ Mohan et al. (1997); ^j Maden et al. (1999);^k Furtado & Vollm (2012); ^l Edwards et al. (2002); ^m Shah et al. (2011); ⁿ Ricketts et al. (2001); ^p Wilkes (2012); ^r Dell et al. (1987);^s Murray (1996).

Table 3

Needs of long-stay forensic inpatients reported by more than one study

| Need | Studies reporting, identified in the key below |
|---|---|
| Psychotic symptoms/mental health recovery | c, e, f, i |
| Safety/risk to others/interventions to address violence | c, e, f, i |
| Substance abuse treatment | b, c, e, f |
| Treatment related to sex offences | b, c, d, e(men) |
| Daytime activities/structuring the day | c, e, f, i |
| Physical health issues (e.g. weight, smoking) | a, e, f |
| Placement need | c, g, h, i |
| Psychological distress | b, e(women), f |
| Safety/risk to self | e(women), f, i |
| Arson issues | b, e(women) |
| Social skills | b, f |
| Understanding sexual experiences/supporting sexual intimacy | b, c, e, f, j |

Key to studies: a, Cormac et al. (2005); b, Glorney et al. (2010); c, Harty et al. (2004); d, O'Neil et al. (2003); e, Thomas et al. (2004); f, Jacques et al. (2010); g, Reed (1997); h, Pierzchniak et al. (1999); i, Melzer et al. (2004); j, Quinn & Happell (2015)



Caption for Figure 1

Characteristics associated with long-stay forensic inpatient care summarising the 49 variables reported by more than one study

>>>>>> *end of manuscript* <<<<<<