Review

# Continuity across inpatient and outpatient mental health care or specialisation of teams? A systematic review

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A B S T R A C T

Background: A central question for the organisation of mental health care is whether the same clinicians should be responsible for a patient's care across inpatient and outpatient settings (continuity of care) or if there should be separate teams (specialisation). Current reforms in Europe are inconsistent on which to favour, and are based on little research evidence. This review is the first systematic appraisal of the existing evidence comparing continuity of care and specialisation across inpatient and outpatient mental health care.
Method: A systematic search for studies of any design comparing mental health care systems based on continuity or specialisation of care was performed. Differences in clinical, social and cost-effective outcomes, and the views and experiences of patients and staff were assessed using narrative synthesis.
Results: Seventeen studies met the inclusion criteria. All studies had methodological shortcomings, but findings point towards reduced length and number of hospitalisations, and faster or more flexible transitions between services in continuity systems. Survey and qualitative findings suggest advantages of both systems, whilst patients and staff appear to prefer a continuity system.
Conclusion: The evidence base suggests better outcomes and stakeholder preferences for continuity of care systems, but the quality of existing studies is insufficient to draw definitive conclusions. Higher quality comparative studies across various settings and population groups are urgently needed.

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## 1. Introduction

Optimal organisation of the mental health care system is important and should be informed by research evidence [42]. A mental health care system refers to all the treatment programmes for a target group in a given area and the coordination between these programmes [6]. One key component of mental health care systems concerns whether mental health care should be organised with continuous treatment teams across inpatient and outpatient settings or separate specialised teams within each of the two settings. A central area of ongoing debate in policy-making on mental health care systems is which of the organisational models, i.e. continuity or specialisation, is more effective [5,23]. Reflecting these alternative organisations of care, mental health care systems can focus either on continuity of care (here

termed continuity systems) or specialisation (here termed specialisation systems).

Currently, there are inconsistent reforms taking place throughout a number of countries regarding which model to adopt. For example, in the United Kingdom (UK) various services have recently switched from a traditional continuity system where the same consultant psychiatrist provides care for a patient across inpatient and outpatient settings, to a specialisation system where separate consultants are responsible for inpatient and outpatient care [5,34]. In other countries, such as Germany [4], there are initiatives to shift from separate specialised services to continuity across inpatient and outpatient settings. These conflicting reforms occurring throughout the world are based on little, if any, evidence on their benefits to patient care [5,23] and to date, there has been no systematic appraisal of the evidence regarding which system is more favourable. A synthesis of the evidence base regarding continuity and specialisation systems of mental health care is needed to inform the debate on which system to favour.

The aim of this systematic review was to identify studies comparing outcomes of continuity and specialisation systems of adult mental health care and synthesize their findings.

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## 2. Method

A protocol-driven systematic review was conducted following recommended guidelines [13,28,32].

### 2.1. Inclusion and exclusion criteria

We included any studies which compared continuity and specialisation systems of adult mental health care. A continuity system was defined as one where care was provided by the same clinicians across inpatient and outpatient services. In order to meet this definition, there had to be continuous clinical responsibility across treatment settings (e.g. simply maintaining contact following referral, or interventions to facilitate the transition between separate inpatient and outpatient services did not meet this definition). A specialisation system was defined as one where care was provided by different clinicians in inpatient and outpatient services, and the transition between services was coordinated through a network of regulated referrals.

We included studies focusing on general adult mental health care services. This included studies with adult psychiatric patients or health care staff (both clinicians and non-clinical staff members). We did not include studies focusing on services for eating disorders or substance use disorders as often these are separate to general mental health care. We only included studies if they contained primary data on clinical, social, or cost-effectiveness outcomes of the two systems, or on the experiences or opinions of staff and patients. Due to the difficulty of relying solely on randomized controlled trials (RCT) in health care systems research [12], we included studies of any design – experimental, quasi-experimental, surveys, and qualitative studies.

Studies were excluded from the review if they assessed services outside adult mental health care (e.g. the integration of mental health with primary care or substance misuse services). Individual articles were also excluded if they did not contain primary data or if they only presented replicated data available in another primary paper.

### 2.2. Search strategy

We identified studies by conducting an electronic search of 5 bibliographic databases (Medline, PsycINFO, Embase, the Cochrane Libraries, and Web of Science) from inception using both controlled vocabulary and free text terms. There were no restrictions on the date of publication or language. The free text search consisted of various descriptors for continuity or specialisation (e.g. "continu* of" OR speciali* OR integrated OR functional* OR fragment*) which needed to appear adjacent to systems descriptors (e.g. system* OR organisation OR care OR responsibilit*). This enabled us to capture terms such as "continuity of care", "specialisation systems", "functional organisation" etc. This was then combined with mental health service descriptors (e.g. "mental health services/" OR psychiatr*). The full search strategy can be found in the supplemental material (Supplement 1). The latest search was conducted on 22nd April 2014. We also conducted a grey literature search using Google Scholar, SIGLE, and ProQuest. Bibliographies of included articles and relevant reviews were hand searched and their citations tracked to identify additional articles. We also contacted the first authors of included studies to supplement the search and to resolve any ambiguity on study details.

Titles and abstracts were screened by two reviewers, with 25% double rated to confirm consistency. All potentially relevant full text articles were independently screened by both reviewers to determine eligibility and disagreement was resolved by discussion and consensus.

### 2.3. Data extraction and quality assessment

Data were extracted for each study independently by two reviewers using a standardized form, with differences resolved by consensus. Data were extracted on the study design, setting, participant characteristics, details of the systems (including the type of services, staff roles, treatments available), and the details and results of all outcome measures.

Internal validity of comparative studies was assessed using a standardised tool adapted from the Cochrane Effective Practice and Organisation of Care (EPOC) group's risk of bias criteria [8]. Due to the lack of randomized trials on this topic, the items for randomization and allocation concealment were omitted. The tool was adapted to include an assessment of topic-specific confounders and differences in treatment between intervention groups. Each study was assessed as either high, low, or unclear risk on nine criteria: baseline differences in outcome measurement, baseline differences in topic-specific confounders, treatment differences, incomplete outcome data, outcome assessment (one item for service contact data and one for other clinical/social/quality outcomes), contamination, selective reporting, and other bias (e.g. design specific issues, number of clusters, sample size). The topic-specific confounders considered by the reviewers to be important in the patient outcome studies were participant demographics (age, gender, ethnicity, socioeconomic status, employment status, education background) and clinical characteristics (symptom levels, number of previous admissions, time since first contact, diagnosis). For studies assessing staff outcomes, the confounders assessed were age, profession, and years in service. The treatment differences item considered any differences between the groups in intensity of inpatient and outpatient treatments and the presence of additional co-occurring interventions that may have biased the results.

Surveys and qualitative studies were assessed as high, low or unclear risk in terms of sampling bias (e.g. representativeness of the population, response rate) and response bias (e.g. leading questions, biased instructions, social desirability). Each study was independently assessed by two reviewers. Disagreements were resolved either by consensus or by a third reviewer adjudicating in the case of ongoing disagreement.

### 2.4. Data analysis

As per protocol, we planned to conduct a meta-analysis of quantitative outcomes comparing continuity systems and specialisation systems where a sufficient number of high quality homogenous studies existed, but this was not the case due to variations in methodology, interventions, and outcomes. Instead, results were synthesized following the narrative synthesis guidance for systematic reviews [32]. First, we conducted a preliminary synthesis using tabulation and textual descriptions to summarise study characteristics, risk of bias, and the main findings. Studies were organised according to design and the main findings grouped under similar outcomes. The direction of effect across studies was compared for each outcome and, where possible, proportional differences or standardized mean differences were calculated. Where conflicting findings existed, extra emphasis was given to studies meeting the EPOC group's criteria for acceptable study design in healthcare systems research (RCT; non-randomized controlled trial, NRT; controlled before and after study, CBA; interrupted time series) [9]. We then interrogated the findings by exploring relationships within and between studies to identify any potential moderator variables that may explain the main effects of studies. This included variations by sub-groups of participants, study setting, treatment characteristics, and methodology. The robustness of the final synthesis was assessed through critical reflection on the quality of the available evidence, the review

methods used, and feedback from other mental health researchers and clinicians.

## 3. Results

### 3.1. Characteristics of the included studies:

The search identified a total of 21 articles including data from 17 studies that met the inclusion criteria. Details of the search process are shown in Fig. 1.

The characteristics of the included studies are summarised in Table 1. Studies were published between 1985 and 2013 and conducted across a wide range of countries, mostly in Europe. No randomized controlled trials were identified. There were 13 non-randomized comparative studies which compared outcomes of continuity and specialisation systems [2,1,14,16,19–22,26,27,30,29,31,36–38,40], three survey studies which investigated patient and staff views towards continuity and specialisation systems [3,15,35], and one qualitative semi-structured interview study on staff views towards the two systems [17].
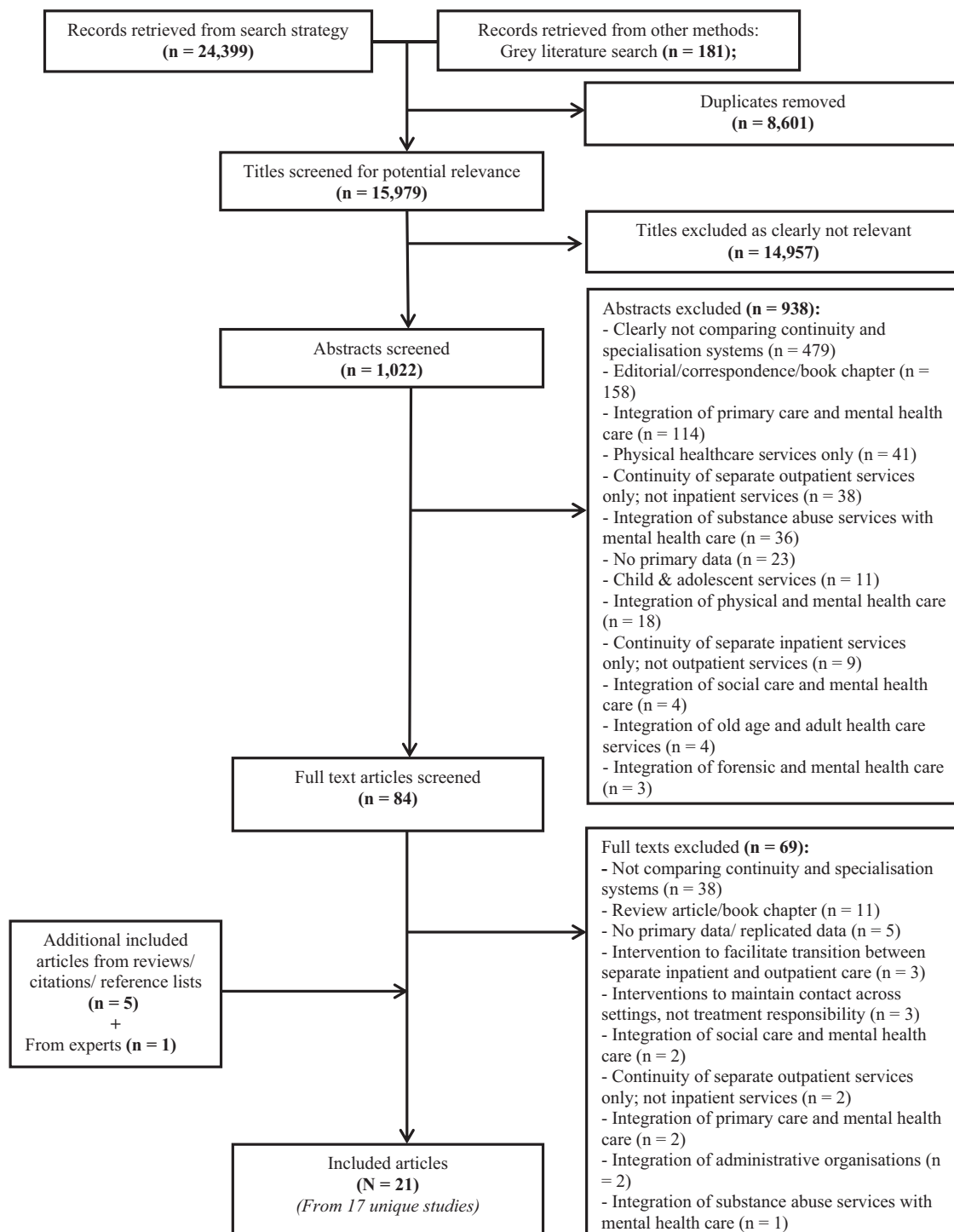
Records retrieved from search strategy
**(n = 24,399)**

Records retrieved from other methods:
Grey literature search **(n = 181)**;

Duplicates removed
**(n = 8,601)**

Titles screened for potential relevance
**(n = 15,979)**

Titles excluded as clearly not relevant
**(n = 14,957)**

Abstracts screened
**(n = 1,022)**

Abstracts excluded **(n = 938):**
- Clearly not comparing continuity and specialisation systems (n = 479)
- Editorial/correspondence/book chapter (n = 158)
- Integration of primary care and mental health care (n = 114)
- Physical healthcare services only (n = 41)
- Continuity of separate outpatient services only; not inpatient services (n = 38)
- Integration of substance abuse services with mental health care (n = 36)
- No primary data (n = 23)
- Child & adolescent services (n = 11)
- Integration of physical and mental health care (n = 18)
- Continuity of separate inpatient services only; not outpatient services (n = 9)
- Integration of social care and mental health care (n = 4)
- Integration of old age and adult health care services (n = 4)
- Integration of forensic and mental health care (n = 3)

Full text articles screened
**(n = 84)**

Full texts excluded **(n = 69):**
- Not comparing continuity and specialisation systems (n = 38)
- Review article/book chapter (n = 11)
- No primary data/ replicated data (n = 5)
- Intervention to facilitate transition between separate inpatient and outpatient care (n = 3)
- Interventions to maintain contact across settings, not treatment responsibility (n = 3)
- Integration of social care and mental health care (n = 2)
- Continuity of separate outpatient services only; not inpatient services (n = 2)
- Integration of primary care and mental health care (n = 2)
- Integration of administrative organisations (n = 2)
- Integration of substance abuse services with mental health care (n = 1)

Additional included articles from reviews/ citations/ reference lists
**(n = 5)**
+
From experts **(n = 1)**

Included articles
**(N = 21)**
*(From 17 unique studies)*

**Fig. 1.** Flow diagram of the search process.

**Table 1**
Summary of the characteristics of the included studies.

| Study | Year | Country | Design | Study participants | Continuity system details | Specialisation system details | Continuous/specialised staff members[a] |
|---|---|---|---|---|---|---|---|
| *NRT/CBA* | | | | | | | |
| Lambert et al. [19]/ Karow et al. [16] | 2010/2012 | Germany | Cluster non-randomized controlled trial | Patients with schizophrenia spectrum disorders treated with quetiapine immediate release | An assertive community treatment service providing continuous 12-month-treatment across inpatient and outpatient settings | Standard care consisting of separate outpatient and inpatient services | C: 1 therapist and 1 psychiatrist S: all staff |
| Mellsop et al. [26] | 1997 | Australia | Controlled before and after study (separate-samples) | Inpatients with long term serious mental illness | A community based service and a separate inpatient ward merged to provide continuous care | An identical control ward which maintained separate services for outpatient care | C: all staff S: all staff |
| *Cohort studies* | | | | | | | |
| Lindgren et al. [22] | 2006 | Sweden | Prospective cohort study (with non-concurrent cohorts) | First-episode psychosis patients | Needs-adapted inpatient care added to an outpatient crisis unit for first-episode psychosis | A first-episode psychosis outpatient service providing a broad range of psychotherapeutic methods adapted to individual needs. Referred to a separate hospital if hospitalised | C: all staff S: all staff |
| Systema et al. [37,38] | 1997; 1996 | Netherlands/Italy | Retrospective cohort study | Patients with schizophrenia-related disorders | A sectorized, community mental health system (South Verona, Italy) whereby the same team remains responsible for a patient over time and through various treatment settings (including inpatient and outpatient care) | A system (Groningen, Netherlands) in which care is provided by several independent services and relies on referral and communication between agencies (including between inpatient and outpatient care) | C: all staff S: all staff |
| Wierdsma & Mulder [40] | 2009 | Netherlands | Retrospective cohort study | Patients with first compulsory admission to psychiatric hospital | Service changes resulted in a merger between the psychiatric hospital and outpatient services | The merger of the psychiatric hospital and separate outpatient services failed, maintaining a functional system | Unclear |
| *Cross-sectional studies* | | | | | | | |
| Myklebust et al. [30,29] | 2009; 2012 | Norway | Ecological cross-sectional study | Any psychiatric patients | A decentralized care system where 70% of inpatients are managed by the local district psychiatric centre which also provides outpatient care | A partly centralized care system where 90% of inpatients are managed at the central psychiatric hospital; separate from their outpatient service | C: all staff (except for inpatient nurses) S: all staff |
| Laugharne and Pant [20] | 2012 | UK | Cross-sectional survey study | Psychiatric patients that had experienced an acute inpatient stay | A sector-based model where consultants were responsible for both inpatient and outpatient care | A specialisation model where separate consultants were responsible for inpatient and outpatient care | C: consultant only S: all staff |
| *Before and after studies* | | | | | | | |
| Beezhold et al. [2,1] | 2010; 2012 | UK | Before and after study (separate-samples) | Acute psychiatric inpatients | 13 consultant psychiatrists provide inpatient and outpatient care for one ward | One hospitalist psychiatrist dedicated to inpatient care in the ward. The other psychiatrists provided outpatient care only (A control ward also provided specialisation care as above throughout the study period) | C: consultant only S: all staff |
| Juven-Wetzler et al. [14] | 2012 | Israel | Before and after study | Psychiatric inpatients who had been hospitalized at least twice in the last year | The inpatient ward team continued outpatient treatment following discharge from the ward | An outpatient clinic took over care following discharge from the ward | C: all staff S: all staff |

**Table 1** (*Continued* )

| Study | Year | Country | Design | Study participants | Continuity system details | Specialisation system details | Continuous/specialised staff members[a] |
|---|---|---|---|---|---|---|---|
| Le Bas et al. [21] | 1998 | Australia | Before and after study | Mental health staff (medical, nursing, clerical, psychology, social work, occupational therapy) | An inpatient ward moved closer to the outpatient services and staff started providing care across both services | A small isolated community clinic provided outpatient care separate from the distant psychiatric hospital which provided inpatient care | C: all staff (except for inpatient nurses) S: all staff |
| Mellsop et al. [27] | 2000 | New Zealand | Before and after study (separate-samples) | Any psychiatric patients | An integrated mental health service where the same clinical team delivers treatment in both hospital and community settings | Inpatient care was provided by a distant psychiatric hospital separate from the community service | C: all staff S: all staff |
| Perris et al. [31] | 1985 | Sweden | Before and after study (separate-samples) | Any psychiatric patients | A psychiatric hospital ward closed and staff moved to 2 general hospital wards where all were to provide outpatient and inpatient services. All staff from the 2 outpatient teams also became integrated with one of the two wards | Separate staff provided outpatient care (2 services at general hospital) and inpatient care (2 wards at general hospital, 1 ward at mental hospital) | C: all staff (except for inpatient nurses) S: all staff |
| Sloan et al. [36] | 2010 | USA | Before and after study (separate-samples) | Veteran psychiatric patients recently discharged from inpatient wards | A continuity of care model in which the same team managed veteran patients in outpatient and inpatient care | A hospitalist model, in which patients are cared for by a specific inpatient team and separate outpatient team | C: psychiatrist and social workers S: all staff |
| *Survey and qualitative studies* | | | | | | | |
| Begum et al. [3] | 2013 | UK | Quantitative and qualitative survey | Any psychiatric patients | A traditional sector-based model where consultants were responsible for both inpatient and outpatient care | A new specialisation system where a separate consultant provided inpatient and outpatient care | C: consultant only S: all staff |
| Kar et al. [15] | 2012 | UK | Quantitative and qualitative survey | Mental health staff (doctors, nurses, other clinicians, administrative staff) | A traditional sector-based model where consultants were responsible for both inpatient and outpatient care | A pilot specialisation system where the medical team for community mental health teams was separate from a medical team for inpatient/crisis resolution/home treatment teams | C: consultant integrated S: all staff |
| Singhal et al. [35] | 2010 | UK | Quantitative and qualitative survey | Mental health staff and any psychiatric patients | A traditional sector-based model where consultants were responsible for both inpatient and outpatient care | A new specialisation system where a separate consultants provided inpatient and outpatient care | C: consultant only S: all staff |
| Khandaker et al. [17] | 2009 | UK | Qualitative semi-structured interview study | Staff involved in direct patient care | Previously there was a sector-based model, where the same consultant provided inpatient and outpatient treatment | Recent change to a specialisation model where separate consultants responsible for inpatient and outpatient care | C: consultant only S: all staff |

NRT: non-randomized controlled trials; CBA: controlled before and after studies; C: continuity system; S: specialisation system.

[a] Indicates whether all staff or only specific staff members provided continuity of care in the continuity system, and whether all staff or only specific staff members provided specialised care in the specialisation system.

Of the 13 non-randomized comparative studies, one was a cluster non-randomized controlled trial (NRT) [16,19] which compared patient outcomes in an assertive community treatment service with continuity across inpatient and outpatient care, to standard care with separate inpatient and outpatient services. One study was a controlled before and after study (CBA) [26] which compared service level data (consisting of separate samples before and after) following the integration of an inpatient ward with outpatient services whilst a control site maintained separate specialised services. Three cohort studies [22,37,38,40] followed patients over time and compared outcomes of those treated in continuity systems and specialisation systems. Two cross-sectional studies [20,30,29] compared service level data between continuity and specialisation systems at a particular period in time. Finally, six uncontrolled before and after studies compared outcomes before and after a change from either a continuity to specialisation system [2,1,36] or a specialisation to continuity system [14,21,27,31]. Four of these compared outcomes at the service level (separate samples before and after) [2,1,27,31,36] and two compared outcomes of individual participants before and after the change [14,21].

The studies varied regarding the degree of continuity or specialisation within the systems (see Table 1). This ranged from comparing systems in which all staff members either worked across inpatient and outpatient settings or within one particular setting; to consultant-based systems (mainly in the UK) which focused only on continuity versus specialisation of consultant psychiatrists. The majority of studies collected data on psychiatric patients [2,1,14,16,19,20,22,26,27,30,29,31,36–38,40,3], although three focused on staff [21,15,17], and one study included both patients and staff [35].

## 3.2. Quality of included studies

The quality of the non-randomized comparative studies was low, with all scoring a high risk of bias on at least two domains (see Table 2). Only two studies [16,19,26] would meet the EPOC group's criteria for acceptable study design in healthcare systems research. Overall, nine of the studies were at high risk of selection bias [2,1,14,20–22,27,30,29,31,36] due to uncontrolled confounders or, for before and after studies, due to having no control group for comparison. All studies were also unclear [20,30,29,31,40] or at high risk [2,1,14,16,19,21,22,26,27,36–38] of performance bias due to an imbalance in treatment intensity or the existence of additional co-occurring interventions – such as one treatment group receiving extended 24-hour-care, assertive engagement, or home treatment whilst the other does not. Design specific issues, such as having only one site per intervention group in cluster-level studies or a lack of an appropriate concurrent control altogether, means all the studies were also at high risk of other potential sources of bias. Reporting bias was unclear for most of the studies due to a lack of clearly pre-specified outcomes. However, the studies were generally low risk in outcome assessment and attrition as most outcomes were objective and taken from medical records. Generally, there was low risk of contamination as interventions were often implemented for whole catchment areas, although two [30,29,40] were at high risk due to a small percentage of patients receiving care in both types of system.

For the survey and qualitative studies, the risk of bias was low. All four studies were rated low risk of response bias due to the absence of biased instructions or leading questions, and no concerns regarding social desirability bias [3,15,35,17]. Three studies were low risk of sampling bias as they included a range of patients and professionals deemed representative of the population with a relatively high response rate and sample size [3,15,17]. However, the study by Singhal et al. [35] was higher

**Table 2**
Summary of the risk of bias assessment of the non-randomized comparative studies.

| Study | Baseline differences in outcome measures | Baseline differences in confounders (participant demographics/staff characteristics) | Baseline differences in confounders (clinical characteristics) | Treatment differences | Outcome assessment 1: Service contacts | Outcome assessment 2: Other clinical, social, or subjective outcomes | Incomplete outcome data | Contamination | Selective reporting | Other bias |
|---|---|---|---|---|---|---|---|---|---|---|
| Lambert et al. [19]/Karow et al. [16] | Low risk | Low risk | Low risk | High risk | Low risk | High risk | Low risk | Low risk | Low risk | High risk |
| Mellsop et al. [26] | Low risk | Unclear risk | Unclear risk | High risk | Low risk | N/A | Low risk | Unclear risk | Unclear risk | High risk |
| Lindgren et al. [22] | Low risk | Low risk | High risk | High risk | Low risk | High risk | Low risk | Unclear risk | Unclear risk | High risk |
| Systema et al. [37,38] | Unclear risk | Unclear risk | Low risk | Unclear risk | Low risk | N/A | Low risk | Unclear risk | Unclear risk | High risk |
| Wierdsma & Mulder [40] | Unclear risk | Low risk | Unclear risk | Unclear risk | Low risk | N/A | Unclear risk | High risk | Unclear risk | High risk |
| Myklebust et al. [30,29] | High risk | Unclear risk | Unclear risk | Unclear risk | N/A | N/A | Low risk | High risk | Unclear risk | High risk |
| Laugharne and Pant [20] | High risk | High risk | Unclear risk | High risk | Low risk | Low risk | Low risk | Low risk | Unclear risk | High risk |
| Beezhold et al. [2,1] | High risk | High risk | Unclear risk | High risk | Low risk | Low risk | Low risk | Unclear risk | Unclear risk | High risk |
| Juven-Wetzler et al. [14] | High risk | High risk | High risk | High risk | Low risk | N/A | Low risk | Low risk | Unclear risk | High risk |
| Le Bas et al. [21] | High risk | N/A | N/A | High risk | N/A | High risk | Unclear bias | Low risk | Low risk | High risk |
| Mellsop et al. [27] | High risk | High risk | High risk | High risk | Low risk | N/A | Low risk | Low risk | Unclear risk | High risk |
| Perris et al. [31] | High risk | High risk | High risk | Unclear risk | Low risk | N/A | Low risk | Low risk | Unclear risk | High risk |
| Sloan et al. [36] | High risk | High risk | High risk | High risk | Low risk | N/A | Low risk | Low risk | Unclear risk | High risk |

risk as the response rate was lower (51.5% for staff survey; unclear for patient survey), raising the question of possible sampling bias.

### 3.3. Outcomes

A summary of all the outcomes and the findings for each included study is shown in the supplemental material (STable). Table 3 summarises the key findings for outcomes on hospitalisation, length of stay, transition of care, and staff and patient views.

### 3.3.1. Hospitalisation outcomes

Overall, 11 studies compared the number of admissions of the two systems and reported mixed findings. This was measured in a variety of ways, including the number of admissions or readmissions per patient, the percentage admitted, or service level data on bed occupancy or total discharges. The two higher quality studies that meet the EPOC group's study design criteria (a NRT and a CBA study) both found a lower number of hospitalisations in the continuity system [19,26]. One cohort study [22] had found reduced hospitalisations over the first year of treatment in the specialisation system. However, over the subsequent 4 years the findings then favoured the continuity system [22]. Another cohort study [37,38] found reduced hospitalisations in the specialisation system. Two studies, a cohort study [40] and cross-sectional study [29], found no differences between the two systems. Of the before and after studies, two found that a change from a specialisation to continuity system led to reduced hospitalisations [14,27], whereas two found that this was the case for a change from a continuity to specialisation system [2,1,36], and another found no clear differences following a change to a continuity system [31].

### 3.3.2. Length of stay outcomes

Outcomes on the length of hospital stay, reported in ten studies, showed a tendency to favour continuity over specialisation systems. The NRT [19], CBA [26], and two cohort studies [37,38,40] all found the continuity system to have shorter lengths of hospital stay. The other cohort study [22] found a shorter length of stay over the first year in the specialisation system, but over the subsequent four years this was lower in the continuity system. However, one cross-sectional study by Myklebust et al. [30,29] only partially supported these findings with a continuity system having shorter lengths of day-care admissions, but longer lengths of in-patient stay compared to a specialisation system. Of the before and after studies, all three evaluating a change from a specialisation to continuity system found a reduction in length of stay in the continuity system [14,27,31]. Those evaluating a change from continuity to specialisation system found a reduction in the latter in one study [2,1], but no difference in length of stay in the other study [36].

### 3.3.3. Transition of care outcomes

Transition of care outcomes were measured in various ways in five studies and showed a tendency for continuity systems to have earlier patient contact with services following hospital discharge and better flexibility of care across service settings. Two cohort studies [38,40] found patients in the continuity system were more likely to have contact with services within two weeks of hospital discharge. One of these studies [38] also found more flexibility of care in the continuity system, with patients more likely to receive treatment from a combination of in-, day- and out-patient services. Similarly, one cross-sectional study [30] found that although outpatient contacts were more frequent in the specialisation system overall, they were more common in the continuity system when comparing only those patients who had at least one inpatient stay. One before and after study also found staff members rated the "continuity of care" to be better in the new continuity system [21],

however, another found earlier contact with services following hospital discharge in a new specialisation system [36].

### 3.3.4. Other clinical and social outcomes

Few studies have measured other clinical and social outcomes. Lambert et al. [19] found favourable outcomes for the continuity system in symptom levels, time in contact with services, global functioning, quality of life, substance misuse, and medication adherence. They found no differences in subjective well-being, medication satisfaction, or service engagement. Lindgren at al. [22] also reported improved global functioning and a greater percentage of patients recovered and in employment in the continuity system. However, Beezhold et al. [2,1] suggested that a change to a specialisation system was associated with a decrease in violent incidents, constant observation, and self-harm on an inpatient ward.

### 3.3.5. Cost-effectiveness outcomes

Only one study evaluated cost-effectiveness. Karow et al. [16] found assertive community treatment based on a continuity system was more cost-effective than standard care based on a specialisation system in terms of mean costs and mean quality adjusted life years.

### 3.3.6. Views of patients and staff

Five out of six studies that measured the views of patients and staff reported preferences for continuity over specialisation systems. Two non-randomized comparative studies found patients in continuity systems were more satisfied with their care [19] and with their psychiatrist - although only significant in the latter with regards to being treated with respect and dignity [20]. A before and after study also reported that staff rated the quality of their service to be better following a change to a continuity system – although only significant on ratings of "continuity of care" [21]. Three questionnaire surveys measured patient and staff preferences, with two finding clear preferences for a continuity system among patients [3] and staff [15]. However, the other suggested that neither system was preferred by staff or patients [35].

### 3.3.7. Qualitative findings

Three survey studies [3,15,35] and one semi-structured interview study [17] also collected qualitative data on the views of patients and staff towards the two systems. All were conducted in the UK assessing participants' views on the change from a continuity to a specialisation system, and all found advantages to both systems. The key benefits highlighted for a specialisation system included the opportunity for a second opinion/perspective from another consultant [3,15,35]; more dedicated and better inpatient care [15,35,17]; shorter admissions and a faster discharge process [15,17]; reduced consultant workload [35,17]; improved specialisation and focused skills of staff [35,17]; streamlining of mental health act processes [15]; improved access to doctors and specialist services [15]; empowerment of nursing staff [35]; and more supervision of junior doctors [17]. The main concerns regarding a change from a continuity to specialisation system included poor continuity of care and problems arranging care after hospital discharge [15,35,17]; disagreement between staff [15,35,17]; a communication gap [15,35]; a breakdown in therapeutic relationship or familiarity [3,35]; repetition of the patient's history and concerns [3,15,35]; frequent changes to treatment plans [15]; uncoordinated admissions and discharges [15]; staff dissatisfaction and increased community workload [15,17]; and deskilling of specialists [15,35]. A common finding was that key to the success of the specialisation system is communication and effective collaboration between separate teams [3,35,17].

**Table 3**
Summary of the outcomes and main findings of the included studies.

| Study | Design | N (C) | N (S) | Time span/details | Outcome | Result (C) | Result (S) | Favoured system[a] (absolute difference[b]) | Proportional difference[c]; effect size[d] | P |
|---|---|---|---|---|---|---|---|---|---|---|
| *Number of admissions* | | | | | | | | | | |
| Lambert et al. [19] | NRT | 64 | 56 | 12 months (individual data) | Median (range) number of hospital admissions | 0 (0–3) | 1 (0–5) | C (−1) | −100.0%* | 0.022 |
| | | | | | Median (range) number of day-care admissions | 0 (0–2) | 1 (0–2) | C (−1) | −100.0%* | 0.012 |
| Mellsop et al. [26] | CBA | Pre: 129 Post: 132 | Pre: 162 Post: 188 | 6 months pre- & post-change (service data) | Total number of hospital admissions (pre-post change) | 132 (+3) | 188 (+26) | C (−56) | −29.8% | Unknown |
| Lindgren et al. [22] | Cohort | 29 | 20 | 1 year & 5 years (individual data) | Percentage hospitalized (years 0–1) | 91% | 67% | S (−24%) | −26.4%* | < 0.05 |
| | | | | | Percentage hospitalized (years 2–5) | 62% | 85% | C (−23%) | −27.1% | 0.06 |
| Systema et al. [37,38] | Cohort | 123 | 689 | From first contact within 2-year-period to the end of the 2-year-period (individual data) | Percentage hospitalized | 53% | 74% | C (−21%) | −28.4% | Unknown |
| | | | | | Percentage admitted to day-patient care | 56% | 17% | S (−39%) | −69.6% | Unknown |
| | | | | | Mean (SD) hospital admissions (of those hospitalized) | 2.3 (1.8) | 1.7 (1.4) | S (−0.6) | −26.1%; d = 0.41 | Unknown |
| | | | | | Mean (SD) day-care admissions (of those using day-patient) | 7.2 (1.6) | 3.8 (1.4) | S (−3.4) | −47.2%; d = 2.30 | Unknown |
| Wierdsma & Mulder [40] | Cohort | 489 | 341 | 12 months–two separate cohorts (individual data) | Percentage involuntarily readmitted | – | – | – | – | NS |
| | | | | | 1991–1993 cohorts | 32.1% | 30.9% | S (−1.2) | 3.7% | – |
| | | | | | 2001–2003 cohorts | 17.7% | 19.5% | C (−1.8) | 9.2% | – |
| Myklebust et al. [29] | XS | 141 | 106 | 12 months (service data) | Rate (1/1,000 inhabitants) of hospital admissions | 7.7 | 7.8 | C (−0.1) | −1.3% | NS |
| | | | | | Rate (1/1,000 inhabitants) of day-care admissions | 1.4 | 2 | C (−0.6) | −30.0% | NS |
| Beezhold et al. [2,1] | BA | Unknown (total 5019) | Unknown (total 5019) | 42 months pre- & post-change (service data) | Number of admissions per month | Unknown | Unknown | S (−6.17) | Unknown** | < 0.001 |
| Juven-Wetzler et al. [14] | BA | 35 | 35 | 18 months pre- & post-change (individual data) | Mean number of hospital admissions | 1.79 | 4.67 | C (−2.88) | −61.7%** | 0.0002 |
| Mellsop et al. [26] | BA | Unknown (1 health service) | Unknown (1 health service) | 6 months pre- & post-change (service data) | Average percentage bed occupancy | 69.1% | 93.8% | C (−24.7%) | −26.3% | Unknown |
| Perris et al. [31] | BA | Unknown (2 wards) | Unknown (3 wards) | Two 1 year periods pre- (t1, t2) and 1 year period post-change (service data) | Total hospital admissions | 176 | 205 (t1)/ 180 (t2) | C (−4) | −2.2% | Unknown |
| Sloan et al. [36] | BA | 678 | 731 | 6 months pre- & post-change (individual data) | Percentage readmitted within 30 days of discharge | 15% | 9% | S (−6%) | −40%** | < 0.001 |
| *Length of stay* | | | | | | | | | | |
| Lambert et al. [19] | NRT | 64 | 56 | 12 months (individual data) | Mean (SD) cumulative length of hospital stay | 11.3 (20.1) days | 28.2 (44.9) days | C (−16.9 days) | −59.9%; d = 0.50* | 0.028 |
| | | | | | Mean (SD) cumulative length of day-care stay | 2.4 (10.9) days | 16.4 (33.7) days | C (−14 days) | −85.4%; d = 0.56** | 0.007 |
| Mellsop et al. [27] | CBA | Pre: 129 Post: 132 | Pre: 162 Post: 188 | 6 months pre- & post-change (individual data) | Median cumulative length of hospital stay | 6 days | 15 days | C (−9 days) | −60.0%* | 0.0138 |

**Table 3** (*Continued*)

| Study | Design | N (C) | N (S) | Time span/details | Outcome | Result (C) | Result (S) | Favoured system[a] (absolute difference[b]) | Proportional difference[c]; effect size[d] | P |
|---|---|---|---|---|---|---|---|---|---|---|
| Lindgren et al. [22] | Cohort | 29 | 20 | 1 year and 5 years (individual data) | Mean cumulative length of stay (years 0–1) | 140 days | 63 days | S (−77 days) | −55%* | <0.05 |
| | | | | | Mean cumulative length of stay (years 2–5) | 108 days | 248 days | C (−140 days) | −56.5%* | <0.05 |
| Systema et al. [37,38] | Cohort | 123 | 689 | From first contact within 2-year-period to the end of the 2-year-period (individual data) | Mean cumulative length of hospital stay | 67 days | 194 days | C (−127 days) | −65.5%** | <0.001 |
| | | | | | Median length of individual hospital stays | 6 days | 12 days | C (−6 days) | −50%; HR = 0.31 (95% CI 0.18–0.53)* | <0.05 |
| | | | | | Median length of individual day-care admissions | Unknown | Unknown | S (unknown) | HR = 0.20 (95% CI 0.11–0.35)* | <0.05 |
| Wierdsma & Mulder [40] | Cohort | 489 | 341 | 12 months–two separate cohorts (individual data) | Mean length of stay for first admission | – | – | C | d = −0.16* | 0.021 |
| | | | | | 1991–1993 cohort | 53 days | 77 days | C (−24 days) | −31.2% | – |
| | | | | | 2001–2003 cohort | 81 days | 92 days | C (−11 days) | −12.0% | – |
| Myklebust et al. [30,29] | XS | 141 | 106 | 12 months (service data) | Median cumulative length of hospital stay | 20 days | 10 days | S (−10 days) | −50%* | <0.05 |
| | | | | | Mean length of day-care admissions over 12 months | 7.4 days | 25.8 days | C (−18.4 days) | −71.3%** | <0.01 |
| Beezhold et al. [2,1] | BA | Unknown (total 5019 across groups) | Unknown (total 5019 across groups) | 42 months pre- & post-change (service data) | Median length of stay per admission (over 42 months) | Unknown | Unknown | S (−80.119 days [95% CI 45.70–114.54]) | Unknown** | <0.001 |
| Juven-Wetzler et al. [14] | BA | 35 | 35 | 18 months pre- & post-change (individual data) | Mean (SD) cumulative length of hospital stay (18 month) | 24 (41.65) days | 119.71 (69.31) days | C (−95.31 days) | −79.6%** | <0.0001 |
| Mellsop et al. [26] | BA | Unknown (1 health service) | Unknown (1 health service) | 6 months pre- & post-change (service data) | Total number of intensive psychiatric care bed days | 1764 days | 3887 days | C (−2123 bed days) | −54.6% | Unknown |
| Perris et al. [31] | BA | Unknown (2 wards) | Unknown (3 wards) | Two 1 year periods pre- (t1, t2) and 1 year period post-change (service data) | Mean length of stay per admission | "Just below 10 days" | "About 3 weeks" | C (unknown) | Unknown | Unknown |
| Sloan et al. [36] | BA | 678 | 731 | 6 months pre- & post-change (individual data) | Mean (SD) length of hospital stay per discharge | 10.8 (12.72) days | 11.1 (13.37) days | S (−0.3 days) | −2.7% | >0.10 |
| *Transition of care* | | | | | | | | | | |
| Systema et al. [38] | Cohort | 123 | 689 | From first contact within 2-year-period to the end of the 2-year-period (individual data) | Median time from discharge to out-patient contact (percentage receiving aftercare within 2 weeks) | 6 days (71.5%) | 9 days (54.6%) | C (−3 days) (+16.9%) | −33.3% (+31.0%)* | <0.02 |
| | | | | | Percentage using a combination of in-, day-, and out-patient care | 67% | 45% | C (+22%) | +48.9% | Unknown |
| Wierdsma & Mulder [40] | Cohort | 489 | 341 | 12 months–two separate cohorts (individual data) | Percentage with service contact within 2 weeks of discharge | Unknown | Unknown | C (unknown) | HR = 1.39 (95% CI 1.14–1.68)* | <0.05 |
| Myklebust et al. [30] | XS | 141 | 106 | 12 months (individual data) | Median number of outpatient consultations for patients who received inpatient care | 7 | 5 | C (+2) | +40.0%* | 0.021 |
| Sloan et al. [36] | BA | 678 | 731 | 6 months pre- & post-change (individual data) | Percentage with outpatient visits within 30 days of discharge | 68% | 80% | S (+12%) | +17.6%** | 0.001 |

**Table 3** (*Continued*)

| Study | Design | N (C) | N (S) | Time span/details | Outcome | Result (C) | Result (S) | Favoured system[a] (absolute difference[b]) | Proportional difference[c]; effect size[d] | P |
|---|---|---|---|---|---|---|---|---|---|---|
| *Patient/staff views* | | | | | | | | | | |
| Lambert et al. [19] | NRT | 64 | 56 | 12 months (individual data) | Mean (95% CI) CSQ-P score | 2.1 (95% CI: 2.0–2.3) | 1.9 (95% CI: 1.7–2.1) | C (+0.2) | +10.5%; d = 0.49[*] | < 0.05 |
| | | | | | Mean (95% CI) CSQ-R score | 2.1 (95% CI: 1.9–2.3) | 1.8 (95% CI: 1.6–2.0) | C (+0.3) | +16.7%; d = 0.58[*] | < 0.05 |
| Laugharne and Pant [20] | XS | 16 NHS trusts | 10 NHS trusts | Compared single survey scores across NSH trusts | Mean (SD) overall satisfaction with psychiatrist score | 7.11 (0.614) | 6.73 (0.359) | C (+0.38) | +5.6% | 0.06 |
| | | | | | Sub-scale: did the psychiatrist listen to you carefully? | 7.23 (0.62) | 6.96 (0.40) | C (+0.27) | +3.9% | 0.193 |
| | | | | | Sub-scale: were you given enough time to discuss your treatment? | 6.64 (0.857) | 6.26 (0.353) | C (+0.38) | +6.1% | 0.127 |
| | | | | | Sub-scale: do you have confidence and trust in the psychiatrist? | 6.49 (0.167) | 6.17 (0.210) | C (+0.32) | +5.2% | 0.243 |
| | | | | | Sub-scale: did the psychiatrist treat you with respect and dignity? | 8.06 (0.399) | 7.67 (0.316) | C (+0.39) | +5.1%[*] | 0.011 |
| Le Bas et al. [21] | BA | 17 (t1), 15 (t2) | 24 | Staff members surveyed once pre- and twice post-change | Overall quality index rating | 29.38 (t1)/ 29.15 (t2) | 25.43 | C (+3.95) | +15.5% | < 0.05 (only for continuity of care) |
| Begum et al. [3] | Survey | – | Total of 255 | Single survey of opinions | Percentage preferring continuity or specialization | 76.5% | 2% | C (+74.5%) | +3725%[**] | < 0.0001 |
| Kar et al. [15] | Survey | – | Total of 83 | Single survey of opinions | Percentage views towards the specialisation system | Unsatisfied = 57.3% | Satisfied = 14.3% | C (+43.0%) | 300.7% | Unknown |
| Singhal et al. [35] | Survey | – | Total of 114 service providers, 43 service users | Single survey of opinions | Service users satisfaction with the specialisation system | Did not like = 44%; Extremely unsatisfied = 3% | Satisfied to some extent = 47%; Highly unsatisfied = 6% | S (+6.0%) | +12.8% | Unknown |
| | | | | | Service providers satisfaction with specialisation system | Did not like = 43%; Extremely unsatisfied = 10% | Satisfied to some extent = 43%; Highly unsatisfied = 4% | C (+6.0%) | +12.8% | Unknown |
| | | | | | Service providers thoughts on the need for a change to the specialisation system | Opposed to change = 51% | Change was needed = 49% | C (+2.0%) | +4.1% | Unknown |

C: continuity system; S: specialisation system; BA: before and after study; CBA: controlled before and after study; CI: confidence interval; CSQ-P: client satisfaction questionnaire–patient version; CSQ-R: client satisfaction questionnaire–relative version; HR: hazard ratio; N: number of participants; NRT: non-randomized controlled trial; NS: not significant; SD: standard deviation; t1: first time point; t2: second time point; XS: cross-sectional study.

[a] Indicates which system is favoured (continuity or specialisation).

[b] The absolute difference between the favoured and not favoured system.

[c] The proportional difference between the favoured and not favoured system = [(absolute difference/not favoured system score) × 100]

[d] Standardized mean difference (d), hazard ratio (HR), or odds ratio (OR) where available.

[*] Significant at $P < 0.05$.

[**] Significant at $P < 0.01$.

## 3.4. Moderator variables

We found no consistent differences within and across studies to support the benefits of continuity or specialisation systems for particular population sub-groups or health care settings. Also, although the studied systems varied in the degree of continuity and specialisation (i.e. consultant-based or whole teams), no clear comparisons across studies could be made on the relative effectiveness of these variations. In terms of the stage of illness, one study found favourable outcomes in the specialisation system for the first year of care for first-episode psychosis patients, but favourable outcomes in the continuity system over the subsequent four years [22]. In terms of the views of staff, another study reported more experienced staff or those working in community care are less satisfied with the change from continuity to specialisation system in the UK than newer staff members or those working in inpatient settings [15].

In terms of study design, there is some indication of a tendency for the novel or experimental system to show favourable outcomes. In 10 out of 11 non-randomized comparative studies where one system was clearly stated to be new and under evaluation, this system was reported to have better outcomes regardless of whether it was a continuity or specialisation system [2,1,14,16,19,21,22,26,27,31,36,40]. The novel system in these studies was also always more intensive due to the availability of additional treatments and services [2,1,14,16,19,21,22,26,27,36], with the exception of two studies where insufficient details were reported to determine treatment intensity [31,40]. However, one of the comparative studies on patient satisfaction [20] and two out of three survey studies of staff and patient preferences [3,15] favoured the continuity system, despite the specialisation system being a newer, novel system.

## 4. Discussion

### 4.1. Main findings

This review identified a range of studies comparing mental health care systems based on continuity of care with those based on specialisation of inpatient and outpatient care. Currently there are mixed findings regarding the number of hospitalisations in the two systems, though the two higher quality studies that meet the EPOC group's study design criteria [9] (a NRT and a CBA) both suggest favourable outcomes in a continuity system. There is more consistent evidence from the included studies suggesting a continuity system is associated with lower lengths of hospital stay. Some preliminary evidence, from studies not meeting the EPOC groups study design criteria (cohort, cross-sectional, before and after, and survey studies), also suggest a continuity system has faster and more flexible transitions between services, and may be preferred by both patients and staff. Little evidence currently exists regarding other clinical, social or cost-effectiveness outcomes, or regarding the benefits of each system across different population sub-groups or settings.

### 4.2. Strengths and limitations

This review is the first systematic appraisal of the evidence base on comparisons of continuity of care and specialisation across inpatient and outpatient mental health care. A variety of study designs were included to synthesize quantitative and qualitative findings on a range of outcomes in an area of research where randomized controlled trials alone are rarely feasible. A highly sensitive search strategy was used to identify relevant studies through the inclusion of grey literature sources, contact with experts in the field, and with no restrictions on date or language of publication. Additionally, recommended guidelines for systematic reviews were followed to minimise sources of bias and provide a robust synthesis of the available literature.

However, although a rigorous strategy was used to identify eligible studies, wide variations in the terms used to describe the two types of systems means that it is possible other eligible studies may have been missed. Conducting a narrative synthesis, as opposed to a meta-analysis, may also increase potential sources of bias in synthesising the evidence. The included studies themselves are also at a high risk of bias which may have influenced their results. Therefore, findings should be considered with caution, especially in the case of uncontrolled before and after studies. Most studies fail to control for potential confounders and only include one site per system in cluster-level comparisons. For most studies the two systems under comparison are also unbalanced in terms of the intensity of the treatment provided, and findings tend to favour the more intensive system. In other studies these issues are not clear due to incomplete reporting. Additionally, only two of the included studies would meet the EPOC group's criteria for an acceptable study design in health systems research [9]. Finally, there was a tendency for novel systems to show positive results regardless of whether they are a continuity or specialisation system, possibly because they are designed to test for differences and offer additional resources or interventions. Such validity issues raise concerns as to which factors might be accounting for the main effects in the studies, a common problem in the evaluation of complex interventions [7,10].

### 4.3. Comparison with the available literature

The available studies, overall, support continuity across inpatient and outpatient mental health care, which is in line with some arguments expressed in the literature [5,23]. As reported in the qualitative findings [15,35,17], continuity across these settings may avoid problems in the communication and agreement between separate clinicians, reducing potential gaps in the collaboration between inpatient and outpatient services. The benefits of reducing this gap between service settings could explain the smoother transition of care found in continuity systems. Additionally, many interventions aimed at improving the transition between separate inpatient and outpatient services have also shown clinical benefits [39]. Therefore, this reduction in the collaboration gap between service settings could also explain the reduced bed usage and higher stakeholder preferences for continuity systems. Additionally, having continuity of care across inpatient and outpatient settings may also be beneficial in the therapeutic relationship between clinicians and patients [3,35]. The therapeutic relationship is widely considered key to achieving positive outcomes in mental health care [18,33,25] and any breakdown in the relationship during referrals between services is potentially harmful. A system focused on ensuring continuity of care can ameliorate this problem leading to better patient outcomes and satisfaction.

Even so, some studies did find favourable outcomes for specialisation systems, in which separate clinicians provided inpatient and outpatient care. Stronger clinical leadership and specialised care in such systems [11], which are among the key benefits identified by staff and patients [15,35,17], may help reduce untoward events occurring during hospital care as reported by Beezhold et al. [2,1]. Additionally, Lindgren et al. [22] found that having separate inpatient and outpatient teams is beneficial for patients during their first year in care, whilst continuity was associated with better longer term outcomes. This may suggest benefits to having separate inpatient and outpatient care during acute or early stages of the illness. Indeed, a specialisation system

may favour the development of expertise for the intensive treatment of specific patient groups by focusing on one treatment setting, e. g. specialized inpatient care for patients who have treatment-resistant disorders [41]. Additionally, patients who have a limited range of needs, not requiring the coordination of different interventions for their care, may benefit from the higher specialisation of care that can be achieved from separate inpatient and outpatient services, and from the opportunity to meet different clinicians and to receive second opinions [24].

### 4.4. Implications

This review highlights the lack of high quality evidence regarding the benefits of continuity and specialisation systems in mental health care. Some evidence favours continuity systems in terms of the number and length of hospitalisations, transition between services, and staff and patient preferences. However, caution should be taken before drawing any conclusions due to methodological issues and conflicting findings across studies. At the very least, the findings should raise questions regarding the appropriateness of reforms where continuity systems are being replaced with specialisation systems of care [23] based on little, if any, research evidence.

The costs related to changing from one system of mental health care to another are significant, not only from a financial point of view but also in terms of loss of focus and morale in the clinical teams. Hence, there is an urgent need for more high quality research comparing continuity and specialisation systems of care. The tendency for findings to favour the novel over traditional system raises the importance of establishing a standardised methodology for evaluating the effectiveness of changes in mental health care organisation. Future research needs to better control for potential confounders and imbalanced treatment intensity (or at least record treatment intensity as an outcome of the system). There is also a need for larger scale studies consisting of numerous sites per intervention group to minimise cluster effects. In an area of research where randomized controlled trials may not always be feasible [12], such issues are increasingly important to ensure the validity of findings. It is also possible that both systems have advantages for different patient groups or across different settings. Future research, therefore, also needs to evaluate continuity systems and specialisation systems for various population sub-groups, such as people at differing stages of illness and levels of disability and autonomy. Further studies should be conducted across different health care settings, including countries with diverse traditions of mental health care, urban or rural settings, and financing systems.

### Disclosure of interest

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