

Title: Concepts, Models and Measurement of Continuity of Care in Mental Health Services: A Systematic Appraisal of the Literature

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# **Concepts, Models and Measurement of Continuity of Care in Mental Health Services: A Systematic Appraisal of the Literature**

## **Abstract**

### Introduction

The increased complexity of community mental health services has been associated with fragmentation of traditional dividing lines between services. This highlights the importance of care continuity and coordination within modern mental healthcare. However, clarification of the key features of the care continuity has proved difficult and a consensus has not been reached.

### Aim/Question

This review aims to draw together latest evidence on care continuity in order to contribute to current theory and practice.

### Method

Databases ASSIA, Pubmed, Medline and Cochrane were searched for papers dating from January 2005 to July 2016, of which 21 articles met inclusion criteria. These were subjected to quality appraisal based on CASP and COSMIN checklists.

Studies were grouped into three thematic categories: studies defining concepts of care continuity, studies providing models of continuity and studies describing scale development.

### Results/Discussion

Synthesis indicated correspondence between independent, multi-dimensional models of care continuity, providing greater clarity regarding the essential features of the concept. Association though not causation between care continuity factors and health outcomes is supported.

### Implications for Practice

Future research may develop further the nascent consensus on care continuity as a multi-dimensional concept, and the nature of a causal relationship between care continuity and health outcomes.

## **Relevance Statement**

This paper provides the findings from a systematic review of care continuity which is a key element of care coordination systems in mental health. Clarification of the nature of care continuity may provide better guidance for future policy and service delivery impacting upon care continuity in mental health. Since mental health nurses are the main profession working in the role of care coordinator, issues relating to care coordination and continuity, such as care in the community, managing complex needs of service users and increasing service fragmentation, are especially relevant to the mental health nursing field.

## **Introduction**

Continuity of care (CoC) is a cornerstone of modern mental healthcare and is one of the principal aims of care coordination (Burns et al., 2009; Sweeney et al., 2012; Schultz & McDonald, 2014). Continuity of care has been defined as “the long-term delivery of care that is coordinated among services and is appropriate to a patient's current needs” (Puntis et al., p.1). As mental health services have become increasingly fragmented, a crucial criterion for best quality care is the degree to which services are coordinated to produce continuous care at multiple points of delivery (Sweeney et al., 2012). A major factor behind service fragmentation has been the movement away from long-term inpatient care towards care in the community where services are diversified to focus support on specific needs (Joyce et al., 2004; Gilbert, 2015). In addition to this, people with serious and enduring mental health issues often have complex needs requiring numerous specialist interventions (Crawford et al., 2004; Durbin et al., 2004). Consequently, people require access to a variety of health care options from an assortment of service delivery points, necessitating the provision of seamless and continuous care between systems over a period of time.

## **Background**

In the UK, the care programme approach (CPA) was introduced in England in 1991 and more recently the care and treatment plan (CTP) was introduced in Wales with the intention of facilitating greater levels of care coordination and continuity for service users (Simpson et al., 2003; Welsh Government, 2011). However, recent research has found significant levels

of variability in the quality of care planning and care coordination across England and Wales with a resulting negative impact on care continuity (Simpson et al, 2016). As service provision becomes ever more complex, developments such as increased primary mental health care (WHO, 2008) and the proliferation of different types of functional services and non-statutory providers (Belling et al., 2011), have led to fragmentation of traditional dividing lines between services, with the resulting disruption of care continuity and coordination (Gilburt et al., 2014). An absence of continuity has been implicated in failures of services leading to tragic consequences for individuals, their families and the general public (Coid, 1994; Court, 1994; Ritchie et al., 1994; Simpson et al., 2003). Disruption in continuity of care potentially creates organizational instability and financial drain (Paris & Hoge, 2010), whilst the creation of a plethora of complex pathways for individuals to navigate in order to access services means that community and primary care-based models may not necessarily incur savings on inpatient services (Gilburt et al., 2014). Given the series of challenges facing contemporary mental health services (Gilburt et al., 2014; Gilburt, 2015) and the aim of government to improve continuity and coordination, it is timely to draw together the evidence on care continuity within mental health care.

Characterising the key features of a definition of CoC has proved challenging and a consensus on a systematic definition in mental healthcare has not been reached (Jones et al., 2009; Catty et al., 2011; Sweeney, et al., 2015). Care continuity, it has been observed, is a concept which is often lauded but seldom defined (Crawford, et al., 2004; Burns, et al., 2009). Bachrach (1981) and Freeman et al. (2002) pioneered multi-dimensional and multi-axial models which sought to bring together the disparate elements of care continuity into a single definition. In recent years, CoC has been increasingly seen as a multi-dimensional construct (Puntis, et al., 2014), and unidimensional definitions of continuity are now considered to be inadequate (Joyce, et al., 2004).

Another important development has been the increased priority placed on the patient's experience of care (Joyce, et al., 2004; Puntis, et al., 2014). Sweeney et al. (2015) observe

that CoC definitions have been historically dominated by the 'professional paradigm' which prioritises professionals' perspectives. The alternative is the 'perspectivist paradigm', which places the emphasis on service users' views and experiences of healthcare. Service users and professionals tend to prioritise different aspects of CoC, with service users emphasising aspects such as peer support and access to services (Rose et al., 2009), with professionals prioritising other factors, such as workloads and IT systems (Belling et al., 2011; Waibel et al., 2012). In view of the priority placed upon multi-dimensional and patient-centred concepts in recent research, this review has sought to identify literature representative of these trends. On this basis, this review will summarise current research describing continuity of care in mental health in order to provide better understanding of issues facing services, and guidance for future service development.

## **Methods**

The objective of this literature review is to identify studies which focus on continuity of care in mental health as a multi-dimensional concept, including care continuity scales based on a multi-dimensional concept of care continuity. Health measurement scales have been developed by researchers, which include scales for CoC, seeking to quantify patients' subjective experiences of care and treatment in ways which are both consistent and scientifically valid (Marshall et al., 2000; Streiner, Norman & Cairney, 2015). In order to achieve the objective of the literature review, a search strategy was undertaken employing both inductive and deductive approaches, and a review of articles limiting these studies to those dealing with multiple aspects of continuity.

## **Inductive Search Strategy**

An inductive approach to systematically search for studies is the key underpinning of the search strategy and involves keyword searches of bibliographic databases (Aveyard, 2014; Bryman, 2016). Two Boolean search strings were created to perform the inductive search. The first search was made up of generic terms and synonyms of mental health and psychiatric disorder. The second string included terms for care coordination and care continuity used in a review of care continuity (Uijen et al., 2012b). The following search string was used for mental health:

- ((mental AND ill\*) OR (mentally AND ill) OR (mental AND disorder\*) OR (psychiatric AND illness) OR (psychiatric AND disorder\*))

This search string was used for the care continuity:

- ((care AND contin\*) OR (continuity AND of AND care) OR (care AND coordin\*) OR (care AND co-ordin\*) OR (coordination AND of AND care) OR (co-ordination AND of AND care) OR (case AND management))

These two strings were combined using the Boolean operator 'AND' and applied to the bibliographic databases ASSIA, Pubmed, Medline and Cochrane for the time period between 2005 and 2016. This time period was chosen since it was considered to provide good coverage of publications within the recent history and development of care continuity theory associated with a multi-dimensional definition and perspectivist focus. Further limiters were that publications should be research papers in peer reviewed journals in the English language.

The initial literature search yielded a total of 20,811 articles, 1,266 from ASSIA, 9,256 from Pubmed, 6,751 from Medline, and 3,538 from the Cochrane database. After removal of duplicates, 15,656 articles remained. These were then screened for relevance by title and abstract, resulting in 696 eligible articles. These articles were then independently assessed by two reviewers limiting studies to those that follow the focus of the literature review:

### **Inclusion Criteria**

- Primary focus on mental health services or sample.
- Adult mental health: 18 to 64 years of age inclusive.
- Care continuity, care coordination, case management.
- Care continuity scale (measurement tool) based on a multi-dimensional construct for care continuity.

### **Exclusion Criteria**

- Articles based on a unidimensional conception of continuity of care.
- Articles focusing only on one or two dimensions of care continuity – i.e. not a multi-dimensional construct model of care continuity. For example Minore et al. (2005) was excluded since it focuses on the single CoC factor of nursing turnover.

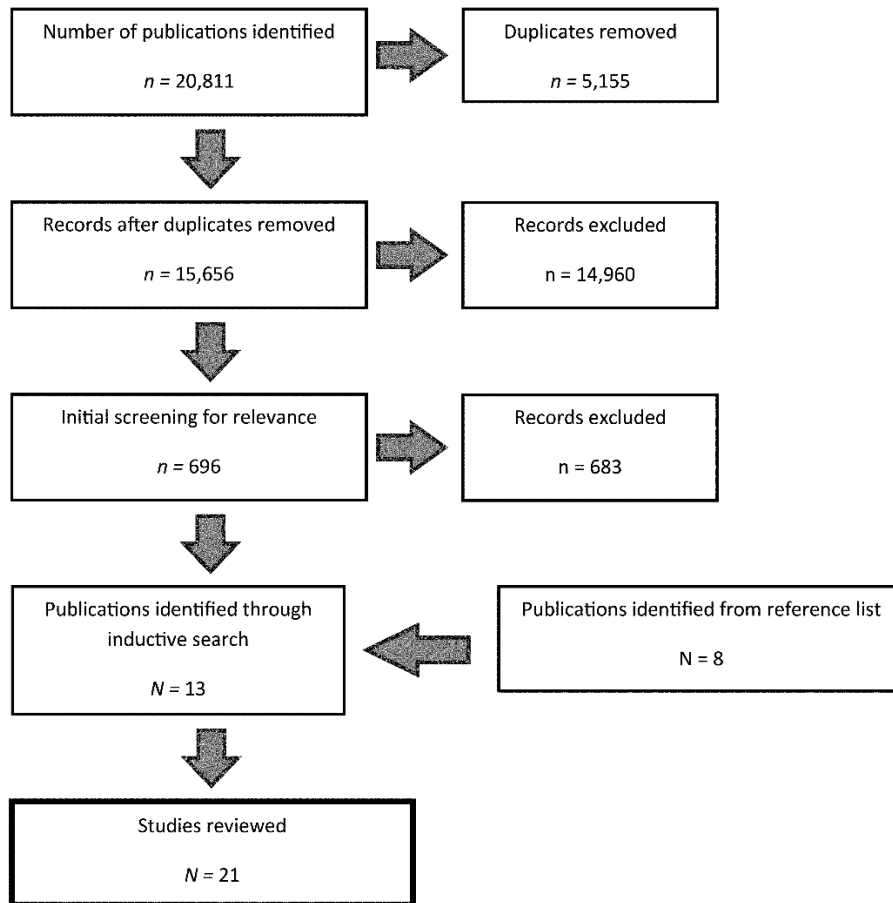
Using these criteria, articles were divided between the two reviewers who separately reviewed the papers and collected these into three groups depending on their relevance. Papers were tagged as 'yes', 'no' and 'maybe'. As a quality check the reviewers then checked 10% of 'no' papers from the other reviewer and all 'maybe' papers to agree on the final tally of 'yes' papers. Once disagreements between reviewers had been resolved, 13 articles remained for this stage.

### **Deductive Search Strategy**

A deductive approach to systematically search for studies involves reference list searching, hand searching through reference lists, author searching and the use of citation links to identify relevant articles published more recently than the source article (Aveyard, 2014). Researchers have noted that inductive search strategies relying on search engines of databases may miss certain relevant articles (Evans, 2002; Montori et al., 2004). For this reason we combined deductive and inductive approaches for this review. An additional 8 publications were identified through the deductive strategy. The final number of publications

identified for review was therefore 21. Figure 1 provides a flow chart of the search strategy process, with both inductive and deductive strategies.

**Figure 1: Search strategy flow chart**



The final set of 21 publications identified for review is listed in Table 1. Publications are arranged into groups if they are the product of the same study group or are associated with the development of a particular CoC scale.

### Quality Appraisal

Final selected articles were subjected to a quality appraisal process. This is intended to determine the credibility of findings and theoretical assertions found in each reviewed study. The quality appraisal approach was based on the CASP framework (CASP UK: Critical Appraisal Skills Programme, 2013). CASP checklists for literature reviews, qualitative



studies, quantitative studies and cohort studies were combined to create a single, universal quality assessment tool usable for all types of publications in this review (see Figure 2).

Each field applicable to the type of study was rated on a three-point scale of strong, moderate or weak quality. Where the field was not applicable to the type of study, the field was left blank. When all fields were completed, an overall quality appraisal rating was given based on a procedure adapted from the Effective Public Health Practice Project (EPHPP; Thomas et al., 2004). Articles with no more than one weak rating and at least a third strong ratings are considered strong. Articles with less than a third strong ratings and no more than one weak are considered moderate. Finally, articles with two or more weak ratings are considered weak. The number of strong, weak or moderate ratings given to each article and the overall rating based on this is provided in the 'Quality Appraisal Rating' column of Table 1. The assessment tool contains one field for psychometric validation. This field is used where the study describes psychometric validation of a CoC scale. Appraisal of the methodological quality of the psychometric validation is based on an appraisal given in a review of CoC scales applying the COSMIN checklist (Uijen et al., 2012a). The Consensus-based Standards for the selection of health status Measurement Instruments (COSMIN) is a consensus-based checklist for evaluation of methodological quality of studies providing psychometric evaluation of measurement scales (Mokkink et al., 2010).

**Figure 2: Universal quality assessment tool**

Category	Score: Weak, Moderate, Strong
Literature Review	
Clear & appropriate aims, objectives, research design, methodology	
Ethics	
Clear data collection & analysis	
Good recruitment strategy	
Rigour of analysis (qualitative study only)	
Quality of literature search (literature review only)	
Quality of literature synthesis (literature review only)	
Quality appraisal for literature (literature review only)	
Selection and sample bias elimination; blinding	
Confounding factors identified?	
Result precision	
Generalisability (sample size, limitations)	
Psychometric validation (measurement scale only) → based on COSMIN checklist	
Follow-up long enough & low attrition (cohort / longitudinal only)	
Discussion & conclusion quality	
Clear statement of findings	
Impact, recommendations and future research	

### **Results: Data Extraction and Synthesis**

Papers arising from studies of CoC were reviewed and grouped into the following thematic categories: studies defining concepts of care continuity, studies providing models of care continuity and studies describing scale development. A description of these themes and study groups is provided in the narrative account which follows. A summary of the findings of studies under review is provided in Table 1.

### **Studies Defining Concepts of Care Continuity**

This theme is defined as studies which develop a multi-dimensional concept of CoC and collects together all papers under review (n=21). It should be noted that there is some overlap between studies describing concepts, models and scales. In a sense, all studies under review may be regarded as describing concepts, though some proceed to develop these conceptual structures into either models or scales. Consequently, some studies which also describe models or scales are included in this initial section on concepts. A multi-

dimensional CoC concept entails various dimensions of continuity which combine together to form the overall concept. These include continuity as experienced, cross boundary, longitudinal, relational, informational, contextual and flexible/responsive continuity.

### **Experienced Continuity**

Experienced continuity is defined as care perceived by the person as continuous, connected and coordinated such that no detrimental gaps in provision have occurred (Bachrach, 1981; Freeman et al., 2002). . The prevalence of this dimension is indicative of the increasing influence of the 'perspectivist paradigm' within current CoC literature (see Table 1).

Reflecting this, a number of recent studies situate experienced continuity as a central component within their multi-dimensional concepts of CoC (Ware et al., 2003; Burns et al., 2009; Rose et al., 2009; Poremski et al., 2016).

### **Cross-boundary and Longitudinal Continuity**

Alongside the overarching dimension of experienced continuity, the two dimensions of cross-boundary and longitudinal CoC may be considered to be key anchors of care continuity (Ware et al., 2003). Cross-boundary continuity is defined as effective coordination of care between professionals and services involving good management of links between services, professionals and components of care (Ware et al., 2003; Adair et al., 2005; Uijen et al., 2014; Sweeney et al., 2015). Longitudinal continuity is defined as having care delivered by as few professionals as possible with minimal gaps in treatment (Ware et al., 2003; Burns et al., 2009). Cross-boundary continuity is one of the most prevalent domains within the literature under review, reflecting the integral position which it occupies within the multi-dimensional concept (see Table 1). The presence of good cross-boundary links between services and professionals is vital in order to avoid gaps in treatment which are detrimental to longitudinal continuity.

## **Relational Continuity**

The relational or therapeutic dimension of care continuity is defined as the establishment of a therapeutic relationship between one or more professionals and the service user (Burns et al., 2009; Belling et al., 2011). This concept is well represented in the reviewed literature (see Table 1). Support for the significance of this domain is provided by various studies (Adair et al., 2003; Joyce et al., 2004; Ware et al., 2004; Joyce et al., 2010; Poremski et al., 2016). Relational or therapeutic continuity is an important dimension within a multi-dimensional definition of care continuity since it is indicative of the quality and not just the frequency of care contact points. The importance of having a designated care coordinator who establishes a written and agreed care plan with the service user is also highlighted (Ware et al., 2003; Burns et al., 2009; Catty et al., 2011), and appears to have a significant impact on cross-boundary continuity (Rose et al., 2009).

## **Informational continuity**

Informational continuity is defined as the degree of communication between services, professionals and service users, and the level of consistency in care plans so that providers have good information about resources and their patients (Joyce et al. 2004; Rose et al., 2009). There is some disagreement concerning the role which informational continuity plays in relation to service user experienced CoC. Durbin et al. (2004) argue that the service user will not directly experience the process of information transfer between services. Consequently, informational continuity can only be experienced by the effect it has on other domains. For example, poor longitudinal care as experienced by the service user may be indicative of issues of informational discontinuity. A frequent complaint amongst service users is the challenge of having to repeat their service history to different service professionals (Rose et al., 2009). It could be argued that this is one significant way in which poor cross-boundary information transfer does impact directly upon service user experience. It is clearly identifiable as an experience which relates directly to the level of information flow occurring between services, and may be justified as an individual component of CoC.

## **Contextual continuity**

The concept of 'contextual continuity', defined as care which is sustained within a person's preferred social relationships in the community, is identified as a component of CoC in a number of studies in this review (see Table 1; n=5). The availability of day centres (Rose et al., 2009; Sweeney et al., 2015), supported housing (Ware et al., 2003; Burns et al., 2009), and peer support (Sweeney et al., 2015) are considered to be contributors to contextual continuity. Service users find the option of attending day centres a valuable contributor to their overall care according to two studies (Rose et al., 2009; Sweeney et al., 2015).

## **Flexible and responsive continuity**

Flexibility of care is a major component of care for many of the studies under review (Ware et al., 2003; Rose et al., 2009; Joyce et al., 2010). Joyce et al. (2004) and Sweeney et al. (2015) emphasise flexibility of service provision and location. For example, services may provide a greater continuity of care if they are geographically near to the service user's home address and include home visits (Joyce et al., 2004). Closely related to flexibility of care is the responsiveness of care to changing service user needs and life circumstances (Durbin et al., 2004; Joyce et al., 2004; Joyce et al., 2010). However, this dimension is only represented in literature surrounding a CoC scale called the ACSS-MH (Alberta Continuity of Services Scale – Mental Health: Durbin et al., 2004), and in studies which use the conceptual framework for CoC based on factor analysis of this measure, such as Jensen et al. (2014), suggesting that further research is required to establish the generalizability of the component.

## **Studies Providing Models of Care Continuity**

This theme is defined as studies which develop conceptual structure of care continuity into systems or models, and collates together n=5 papers developing models of CoC (Freeman et al., 2002; Crawford et al., 2004; Burns et al., 2009; Sweeney et al., 2015; Poremski et al., 2016). These models have not been developed into scales or instruments for measurement

of care continuity though they may contribute to scale development (Burns et al., 2009; Rose et al., 2009) or constitute a clearer definition of CoC than a conceptualisation (Freeman et al., 2002; Crawford et al., 2004).

Models of CoC range from the multi-dimensional formulation developed by Bachrach (1981), which structures the thematic analysis in Poremski et al. (2016), to the multi-axial definition provided by Freeman et al. (2002). Components within Bachrach's model are divided into facilitators and barriers of CoC. Facilitators according to Bachrach (1981) are relational continuity, service coordination and the experience of seamless transitions of care. Barriers are identified as difficulties engaging with new or continuing services, short service duration, and confusion about service provision and accountability where there are multiple providers (Bachrach, 1981; Haggerty et al., 2003).

Building on the definitions provided by Bachrach (1981), Freeman et al. (2002) produced their multi-axial model of CoC based on a literature review, case studies and a Delphi study combining the views of panels of experts. The Freeman model was first developed for general healthcare and consisted initially of six domains later developed with a further two mental health specific domains (Freeman et al., 2001; Freeman et al., 2002 – see Table 1 for domain definitions).

Burns et al. (2009) later confirmed the Freeman model through factor analysis. Each of the CoC dimensions provided by Freeman et al. (2002) were operationalized by identifying data or a measure which is representative of each dimension (Burns et al., 2009). For example, longitudinal continuity was operationalized by using data on changes in care coordinator, psychiatrist or other key professionals.

Crawford et al. (2004) introduced a factor model consisting of five components which they labelled as: sustained contact with services, breaks in service delivery, maintaining the same clinician, coordination of health and social care, and the overall experience of care for the service user. Sweeney et al. (2015) further built on inclusion of service user experience by

introducing new components to their model such as ease of access to services, out of hours crisis support and the degree to which a service user can establish independence from services.

### **Studies Describing Scale Development for Care Continuity**

Measurement scales for care continuity are instruments which appraise components of care delivery in ways which are consistent and scientifically valid (Streiner et al., 2015). This theme collates together n=6 papers associated with three scales for measurement of CoC in mental health: 'CONNECT', 'CONTINU-UM' ('CONTINUity of care – User Measure'), and the 'ACSS-MH' (Ware et al., 2003; Durbin et al., 2004; Joyce et al., 2004; Adair et al., 2005; Rose et al., 2009; Joyce et al., 2010).

The CONNECT measure, which was developed before either CONTINU-UM or the ACSS-MH, aims to assess practitioner knowledge of clients, flexibility and availability of services and care coordination, as well as focusing on some specific areas not covered by the ACSS-MH or CONTINU-UM, such as discharge planning and primary mental health care (Ware et al., 2003). CONNECT is a fixed-response interview which can be administered by lay interviewers and consists of 72 items (Ware et al., 2003). Domains for primary mental health care and discharge planning may have particular applicability to contemporary developments in CoC such as increased primary mental health care (WHO, 2008).

The scale CONTINU-UM places particular emphasis on care continuity as experienced by the service user (Rose et al. 2009). This scale is validated from the perspective of service users who have acted as researchers and expert panel members in its development. CONTINU-UM is presented as a Patient Reported Outcome Measure (PROM), a psychometrically robust, self-reported instrument for service users focusing on their subjective experience of healthcare (Rose et al., 2011; Sweeney, et al., 2015).

The ACSS-MH is a self-report scale consisting of 43 items that assess CoC (Durbin et al., 2004). Respondents rate these items concerning their experiences of services on a 5-point

Likert scale ranging from strongly disagree to strongly agree, with the midpoint anchor as 'not sure' (Durbin et al., 2004). Initial factor analysis identified three subscales of CoC within the ACSS-MH: 'System Access', concerning user experience of services and challenges involved with accessing the right care; 'Interpersonal Aspects of Care', concerning the extent to which patients perceive providers to be respectful, collaborative and responsive; and 'Care Team Function', concerning the extent to which the care team delivers timely and coordinated care with a shared care plan (Durbin et al., 2004). Further studies focusing on factor analysis of the ACSS-MH identified within the domains of relational continuity (Joyce et al., 2004), individualized care (the service user's perception of how well adapted care is adapted to their needs), and flexibility/responsiveness of services (Joyce et al., 2010).

The ACSS-MH has the best rating for psychometric properties in the relevant field based on the COSMIN checklist, since two studies describing the validation of this scale, Durbin et al. (2004) and Joyce et al. (2010), have a strong rating in the psychometric field of the quality appraisal. The scales 'CONNECT' and 'CONTINU-UM', on the other hand, each have only one associated study for psychometric validation, which achieve a moderate score in the psychometric field based on the COSMIN checklist (Ware et al., 2003; Rose et al., 2009). Consequently, the scope and degree of corroboration between studies entailing psychometric testing of 'CONNECT' and 'CONTINU-UM' is significantly lower than for the ACSS-MH. The ACSS-MH has been tested for internal consistency and structural validity by three separate studies (Durbin et al., 2004; Adair et al., 2005; Joyce et al., 2010), for hypothesis testing by two studies (Durbin et al., 2004; Joyce et al., 2010), and both reliability and content validity by one study (Adair et al., 2005). CONTINU-UM has been tested by one study for three psychometric categories: reliability, measurement error and content validity (Rose et al., 2009). CONNECT has been tested by one study for four categories: internal consistency, reliability, content validity and hypothesis testing (Ware et al., 2003). Additionally, two papers undertaking psychometric testing for the ACSS-MH achieve a stronger rating than those undertaking psychometric testing for CONTINU-UM and



CONNECT, according to the universal quality assessment in this review (see Table 1: Joyce et al., 2004; Joyce et al., 2010). Therefore two key papers undertaking psychometric validation for the ACSS-MH score more highly according to the CASP framework, in addition to the COSMIN checklist.

## **Discussion**

In all types of study contained in this review, the concept of care continuity was described as complex, integrated and multi-dimensional with multiple points of connection between different components of continuity. Certain core structural features may be discerned within the concept. Experienced continuity is the overriding dimension of CoC since all aspects of continuity will ultimately be filtered through the experiential lens of the service user. A prime example of this is the component of informational continuity between services and/or providers, which, it is argued only impacts upon CoC indirectly through its effect on the overall experience of care (Durbin et al., 2004). A number of studies identify experienced continuity as an important component domain (Crawford et al., 2004; Burns et al., 2009; Rose et al., 2009) or even frame the entire CoC concept in terms of how it is experienced (Ware et al., 2003; Sweeney et al., 2012). It is clear therefore that the 'perspectivist' paradigm' within healthcare is a major influence in contemporary CoC research.

Relational continuity is also a major component within the CoC concept. The significance of this factor for mental health nursing is twofold. In one sense relational continuity can be seen in terms of the person having a dependable and continuing relationship with a professional who can assist in navigating the system of care in establishing a written and agreed care plan (Joyce et al., 2010). As the main professional workforce working in the role of care coordinator (Simpson, 2005), this role is most commonly fulfilled by mental health nurses. The related, alternate sense of relational continuity is the establishment of a therapeutic relationship with the patient (Joyce et al., 2010), which is fundamental to the practice of mental health nursing (Peplau, 1952; Hewitt & Coffey, 2005).

Significant overlap between components of the CoC concept is indicated by this review. For example, discharge planning may rightly be considered to be an important sub-theme of experienced continuity since it impacts greatly on patient experience (Jensen et al., 2014; Poremski, et al., 2016). However, discharge planning can also be considered to be a subcategory of cross-boundary continuity (Ware et al., 2003; Uijen et al., 2014; Sweeney et al., 2015) since it relates to the effective coordination of care across service boundaries. There is also overlap between components when comparing models and concepts of CoC. For example, the operationalization of the Freeman model by Burns et al. (2009) articulates factors such as 'meeting needs', corresponding to flexible continuity, and 'consolidation', corresponding to cross-boundary continuity (see Table 1). Other examples of overlap and/or correspondence between factors, dimensions and components of CoC models or concepts in different studies include relational continuity and service coordination in Bachrach (1981), which correspond to the concepts of relational continuity and cross-boundary coordination respectively. This overlap and correspondence between dimensions of CoC within separate studies may point towards a potential consensus on a systematic definition of CoC and general clarification of the key features of the concept.

Three measurement scales for care continuity have been identified by the search strategy employed within this review. The ACSS-MH scale makes the greatest contribution towards a comprehensive multi-dimensional CoC concept since an extensive and complex factor structure is described in a number of associated studies (Durbin et al., 2004; Adair et al., 2005; Joyce et al., 2010). Factors identified also correspond well with components and dimensions of CoC described in other studies under review (see Table 1), and the measure has strong psychometric qualities (Joyce et al., 2010). The concept of relational continuity is also best represented in the ACSS-MH scale, according to factor analyses which identify the 'relationship base' domain concerning the quality of the patient-provider relationship (Durbin et al., 2004; Adair et al., 2005; Joyce et al., 2004).

A number of studies concerning multi-dimensional CoC focus on the relationship between continuity factors and health outcomes (Catty et al., 2011; Sweeney et al., 2012; Puntis et al., 2014; Tomita & Herman, 2015). Although this is not a topical focus of this review, it is relevant that studies concerning the relationship between care continuity and health outcomes attempt to describe this relationship on the basis of a multi-dimensional concept of CoC. Consequently, a number of studies concerning the continuity-outcomes relationship are returned by the search strategy for this review. Research indicates that the relationship between CoC and outcomes is not a simple one, but operates as a complex, dynamic process (Catty et al., 2011; Sweeney et al., 2012; Tomita & Herman, 2015).

Earlier evidence of the association between CoC and outcomes has been mixed (Adair et al., 2003; Ware et al., 2003; Puntis et al., 2014). This has been attributed to lack of clarity about the multi-dimensional constitution of CoC (Adair et al., 2003). Now that a multi-dimensional concept is firmly established in the literature, a clearer relationship between continuity and outcomes is emerging, though at this stage studies have largely determined associations and not causal relations (Sweeney et al., 2012; Puntis et al., 2014). The increased rigour required to establish complex causal relations necessitates sophisticated, reliable and comprehensive multi-dimensional definitions according to Puntis et al. (2014). This review contributes to clarifying the concept by analysing the literature on definition and understanding of the multi-dimensional nature of CoC. Ultimately this will assist the role of the mental health nurse as care coordinator, given increased issues of blurred professional roles, fragmented services and professional jurisdictional claims (Simpson, 2005; Belling et al., 2011; Coffey & Hannigan, 2013; Gilbert et al., 2014).

### **Review Limitations**

The review used a tightly defined set of search terms on continuity of care in mental health settings. This may have resulted in studies being excluded which addressed care continuity implicitly rather than explicitly, for example studies on topics such as care coordination, case management and multi-disciplinary collaboration (Uijen et al., 2012b). This review did not

include studies of child, adolescent or older persons with mental health issues and therefore findings may not be transferable to those populations. The approach employed for the purposes of quality appraisal should be regarded with some caution. Some fields may achieve a weak scoring not because this criterion was unfulfilled but because it was not reported in the relevant paper. Additionally, some subjectivity will inevitably influence a particular judgment on quality despite the fact that a critique should be an impersonal evaluation of the strengths and limitations of the research being reviewed (Coughlan et al., 2007; Porter & O'Halloran, 2012). For this reason, studies given an overall weak rating are included in the review, though their findings are not emphasised as much as with the stronger studies.

## **Conclusion**

This review has identified different groups of study concerning continuity of care in mental health, studies describing concepts, studies outlining models and studies describing scale development. The common ground for the studies under review is that they describe a multi-dimensional definition of CoC. A consensus about the precise nature and specific features of this construct has yet to be established. However, this review shows that there are many similarities and parallels between different multi-dimensional models and the scales associated with them. In so doing, this review attempts to provide greater clarification of the CoC concept in order to facilitate the development of consensus in future research.

Such a consensus about the CoC concept would benefit both theory and practice in mental health nursing. It would provide a firmer foundation for new research into the mix of components that best delivers improved continuity for people using services, and also enable mental health nurses working as care coordinators to have a better understanding of the elements of their role that are most effective. Future research should involve field research to investigate the significance of individual CoC components within the multi-dimensional structure. A clearer understanding of this multi-dimensional structure would also impact positively upon work seeking to relate CoC to health outcomes, potentially to the

point of establishing causal relations. New evidence to link continuity of care to positive health outcomes is required to justify any claim that this element of care coordination is indeed the much lauded cornerstone of mental health care.

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**Table 1: Summary of findings of studies included in review**

Article	Study Group / Scale	Target Population	Sample Size	Data Collection	Data Analysis	Findings / Domains / Components of Care Continuity	Study Limitations	Quality Appraisal Rating (CASP & COSMIN)
Belling et al. (2011)	ECHO Group	Random sample of health and social care professionals.	<i>n</i> = 113	Structured questionnaire Semi-structured interviews	Data systematically coded, categorized and analysed using framework analysis.	<p><u>Conceptual components of care continuity:</u></p> <p><u>Facilitators of CoC:</u></p> <ul style="list-style-type: none"> <li>• Teamwork</li> <li>• Workforce stability</li> <li>• Communication</li> <li>• Geographical location</li> </ul> <p><u>Barriers of CoC:</u></p> <ul style="list-style-type: none"> <li>• Leadership and decision making models</li> <li>• Professional role boundaries</li> <li>• Generic working</li> <li>• Support for training and role development</li> <li>• IT systems</li> <li>• Geographical location</li> <li>• Workforce levels and workloads</li> <li>• Service users' needs</li> </ul>	Generalisation constrained by limited geographical location of study.	<p>Weak - 1</p> <p>Moderate - 6</p> <p>Strong - 4</p> <p><b>Overall - Strong</b></p>
Burns et al. (2009)	ECHO Group	People with long-term psychotic disorders sampled from the caseloads of seven community mental health teams (CMHTs).	<i>n</i> = 180	Case notes, demographic and illness data and interviews involving various instruments: <ul style="list-style-type: none"> <li>• Camberwell Assessment of Need (CAN)</li> <li>• CONTINU-UM</li> <li>• Scale to Assess Therapeutic Relationships in Community Mental Health Care (STAR)</li> <li>• Data on contact with services, number of professional seen and information flow from CMHT records</li> </ul>	Factor analysis employed to operationalize domains of the Freeman model in relation to components of data collection.	<p><u>Seven factor model:</u></p> <ol style="list-style-type: none"> <li>1. <u>Experienced and relational continuity</u> – High experienced continuity, good therapeutic relationship, needs are met, lower level of discontinuities in care.</li> <li>2. <u>Regularity {Long-term/longitudinal continuity}</u> – Being seen more frequently by staff from fewer different non-medical professions.</li> <li>3. <u>Meeting needs {Flexible continuity}</u> – High number of needs met; care plan copy provided to GP and user.</li> <li>4. <u>Consolidation {Cross-boundary continuity}</u> – Contact with fewer different services.</li> <li>5. <u>Managed transitions {Cross-boundary continuity}</u> – Lower number of transitions or transition is documented.</li> <li>6. <u>Care coordination {Longitudinal continuity}</u> – Having a designated care coordinator, no psychiatrist, fewer needs met by informal carers.</li> <li>7. <u>Supported living {Contextual}</u> – Living in supported accommodation, attending day care.</li> </ol>	<ul style="list-style-type: none"> <li>• Psychometrically valid confirmation of Freeman model through factor analysis.</li> <li>• More than half of eligible service users who met inclusion criteria declined to participate (<i>n</i> = 318). It is possible that those who declined may be less engaged with or favourably disposed to services.</li> <li>• Weak correlations in factor analysis not removed.</li> <li>• Data collection limited by quality of case notes and information provided on file by individual CMHTs.</li> <li>• Choice of component input for each domain may be a matter of interpretation.</li> </ul>	<p>Weak - 1</p> <p>Moderate - 7</p> <p>Strong - 5</p> <p><b>Overall - Strong</b></p>

Article	Study Group / Scale	Target Population	Sample Size	Data Collection	Data Analysis	Findings / Domains / Components of Care Continuity	Study Limitations	Quality Appraisal Rating (CASP & COSMIN)
Catty et al. (2011)	ECHO Group	Service users under the CMHT with psychotic disorders from seven CMHTs.	<i>n</i> = 180	<ul style="list-style-type: none"> <li>Interviews conducted at baseline and one and two year follow-up.</li> <li>Data collected on patterns of contact with services, breaks in care, hospital stays and psychiatric symptoms.</li> <li>Global Assessment of Functioning (GAF), Camberwell Assessment of Need (CAN), CONTINU-UM, Manchester Short Assessment of Quality of Life (MANSA).</li> </ul>	<ul style="list-style-type: none"> <li><b>Analysis 1:</b> Assessment of associations between variables as explanatory variables and continuity factor scores (univariate and multifactorial analysis).</li> <li><b>Analysis 2:</b> Assessment of associations between continuity factors and change in clinical and social functioning (linear regression, ANOVA).</li> <li><b>Analysis 3:</b> Exploration of impact of CoC factors on clinical and social outcomes.</li> </ul>	<p><u>Conceptual components of care continuity:</u></p> <ul style="list-style-type: none"> <li>Having a designated care coordinator valuable for improving CoC.</li> <li>Better quality of life is associated with greater experienced and relational continuity</li> <li>Relationship between CoC factors and clinical, social and functional outcomes is not uni-directional but a dynamic process.</li> </ul>	<ul style="list-style-type: none"> <li>Ethical approval not specified.</li> <li>Changes in clinical and social functioning scores not of a great magnitude limiting the degree to which causal links may be inferred.</li> <li>No differential relations provided between CoC and narrower diagnostic groups such as bipolar disorder.</li> <li>Positive relationship between outcomes and experienced and relational CoC may have been inflated by absence of drop-outs.</li> <li>Non-participants may have been less favourably disposed towards services and would have scored lower for experienced and relational CoC.</li> <li>Drop outs likely to be younger.</li> <li>Potential response bias.</li> </ul>	Weak - 2 Moderate - 10 Strong – 2  <b>Overall - Weak</b>
Crawford et al. (2004)	ECHO Group	Research articles and grey literature from The Cochrane Library, Medline, Embase, PsycINFO, AHMED, CINAHL, HMIC, HELMIS, Web of Science and SIGLE.	<i>Literature review;</i> <i>n</i> = 60	Narrative review	Narrative review	<p><u>Five factor model:</u></p> <ol style="list-style-type: none"> <li>Sustained contact with services</li> <li>Breaks in service delivery</li> <li>Seeing the same staff member</li> <li>Coordination of health and social professionals</li> <li>Experience of care</li> </ol> <p>Some evidence of a loose association between CoC and outcomes.</p>	<ul style="list-style-type: none"> <li>Quality appraisal approach for literature under review not specified.</li> <li>Articles reviewed were a mix of observational, experimental and qualitative research meaning that meta-analysis of data is not possible. Narrative review conducted instead.</li> <li>Difficulties encountered identifying papers for review.</li> <li>Limited resources meant that papers not published in English were not included.</li> </ul>	Weak - 1 Moderate - 6 Strong – 0  <b>Overall - Moderate</b>

Article	Study Group / Scale	Target Population	Sample Size	Data Collection	Data Analysis	Findings / Domains / Components of Care Continuity	Study Limitations	Quality Appraisal Rating (CASP & COSMIN)
Jones et al. (2009)	ECHO Group	Service users diagnosed with long-term psychotic disorders and non-psychotic disorders and their carers.	31 service users (n = 31) 14 carers (n = 14)	Qualitative interviews framed around service user's illness career.	Thematic analysis. 'Patient career' concept used to frame patient accounts of experiences of mental health care system.	<p><u>Five conceptual themes:</u></p> <ul style="list-style-type: none"> <li><u>Relational continuity or discontinuity</u> – Repeated changes of staff.</li> <li><u>Depersonalized transitions</u> – Transition either at discharge, between teams due to a change of residence or team restructuring.</li> <li><u>Invisibility and crisis</u> - Invisibility of user in run up to crisis point.</li> </ul> <p><u>Communication gaps</u> – Discontinuities in communication between services.</p> <p><u>Social vulnerability</u> – Complexity of service user's needs and uncertainties surrounding their illness and daily lives leads to social vulnerability.</p>	<ul style="list-style-type: none"> <li>Limitations to research study methodology not discussed.</li> <li>Limited discussion on impact and further research.</li> </ul>	Weak - 0 Moderate - 8 Strong - 3  <b>Overall - Moderate</b>
Rose et al. (2009)	CONTINU-UM	Participants have a diagnosis of psychosis and have been in touch with services for at least 2 years.	<p><u>Phase 1:</u> Focus groups: n = 32; Expert panels: n = 10; Feasibility study: n = 37</p> <p><u>Phase 2:</u> N/A</p> <p><u>Phase 3:</u> n = 176</p>	<p><u>Phase 1:</u> Focus groups; two expert panels; feasibility study.</p> <p><u>Phase 2:</u> Test-retest reliability and validity.</p> <p><u>Phase 3:</u> Field trial.</p>	<p><u>Phase 1:</u> Not specified</p> <p><u>Phase 2:</u> Test-retest reliability and validity</p> <p><u>Phase 3:</u> Not specified</p>	CONTINU-UM scale for measuring CoC emphasises the service user perspective and produces the following domains: <ul style="list-style-type: none"> <li>Experienced continuity</li> <li>Accessing, choice and range of services</li> <li>Waiting for services</li> <li>Out of hours and crisis support</li> <li>Hospital discharge process</li> <li>Staff changes</li> <li>Informational CoC</li> <li>Individual progress</li> <li>Day centres</li> <li>Care planning</li> <li>Staff communication</li> <li>Peer support</li> <li>Avoiding services</li> </ul>	<ul style="list-style-type: none"> <li>CONTINU-UM developed and validated for a narrow patient group, people with differential diagnoses not included in study.</li> <li>Lack of input into the study from less well-engaged service users</li> <li>Data analysis for Phase 1 and 3 not specified.</li> <li>Moderate rating given for methodological qualities of psychometric validation according to COSMIN checklist.</li> </ul>	Weak - 0 Moderate - 10 Strong - 3  Psychometric field - Moderate  <b>Overall - Moderate</b>

Article	Study Group / Scale	Target Population	Sample Size	Data Collection	Data Analysis	Findings / Domains / Components of Care Continuity	Study Limitations	Quality Appraisal Rating (CASP & COSMIN)
Sweeney et al. (2012)	CONTINU-UM	Service users recruited from seven CMHTs in two South London NHS Trusts with a diagnosis of psychosis and in contact with services for at least two years, on the CMHT caseload for at least six months and on enhanced care programme approach.	<i>n = 167</i>	Five focus groups. CONTINU-UM. Two expert panels of service users.	Thematic analysis used to analyse data from focus groups. Domains with CONTINU-UM explored through using factor analysis. Relationships between CONTINU-UM scores and health/social measures explored through linear regression and examination of quartile results.	Three conceptual domains identified based on CONTINU-UM domains based on experienced CoC: <ul style="list-style-type: none"> <li>• <u>Preconditions</u> – Ease of access to services accompanied by high quality information.</li> <li>• <u>Staff contact</u> – Good communication of information between staff with infrequent staff changes.</li> <li>• <u>Care contacts</u> – Waiting for services, avoiding services, peer support, day centres, out of hours crisis support, cross-boundary CoC.</li> </ul> <p>- <u>Hypothesis 1</u> that better CoC should be related to better outcomes is supported.</p> <p>- <u>Hypothesis 2</u> that CoC is most seriously compromised at transitions between services partially supported.</p> <p>- Support for <u>Hypothesis 3</u> that there is a group of service users who are vulnerable to 'falling through the gap'.</p>	<ul style="list-style-type: none"> <li>• Only 36% of eligible CNHT service users participated.</li> <li>• Less well engaged service users not focused upon by study data collection.</li> <li>• Cross-sectional study may only be the basis for inferring associations not causality.</li> <li>• Outcomes chosen are not necessarily those prioritised and valued by service users.</li> </ul>	Weak - 1 Moderate - 8 Strong – 3  <b>Overall - Moderate</b>
Sweeney et al. (2015)	CONTINU-UM	- Service users diagnosed with psychosis recruited from local CMHTs, service user groups and day centres. - Professionals recruited from 19 CMHTs and associated acute units.	- <i>Focus groups: n=32</i> - <i>Professional questionnaire survey: n=184</i>	Five focus groups. Professionals' questionnaire survey.	Thematic analysis used to analyse data from focus groups and also for question asking to define CoC in professionals' questionnaire survey. Conceptual mapping and narrative comparison of service user and professional defined CoC models.	<u>Service user-defined model of CoC:</u> <ul style="list-style-type: none"> <li>• Easy access to services</li> <li>• Range of needed services</li> <li>• Waiting for services</li> <li>• Out of hours support</li> <li>• Support following hospital discharge</li> <li>• Staff turnover</li> <li>• Informational CoC</li> <li>• Service flexibility</li> <li>• Availability of suitable day centres</li> <li>• Agreed care plan</li> <li>• Crisis systems</li> <li>• Peer support</li> <li>• Avoiding services</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple methodologies used for qualitative analysis.</li> <li>• Some bias and sampling issues present.</li> </ul>	Weak - 0 Moderate - 6 Strong – 6  <b>Overall - Strong</b>
Adair et al. (2003)	ACSS-MH	Articles from Medline, HealthSTAR, CINAHL and PsycINFO.	<i>Literature review n =305</i>	Definitions and concepts extracted by trained content analysts.	Not specified	<ul style="list-style-type: none"> <li>• CoC concept considered crucial for the management of people with serious mental illness for more than 40 years.</li> <li>• Consensus exists that COC is a multi-dimensional concept and this should be reflected in development of new measures with good statistical and psychometric properties.</li> <li>• Weak association found between CoC and outcomes.</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis approach not specified.</li> <li>• Quality appraisal for articles under review not specified.</li> </ul>	Weak - 1 Moderate - 4 Strong – 2  <b>Overall - Moderate</b>

Article	Study Group / Scale	Target Population	Sample Size	Data Collection	Data Analysis	Findings / Domains / Components of Care Continuity	Study Limitations	Quality Appraisal Rating (CASP & COSMIN)
Adair et al. (2005)	ACSS-MH	Service users with a confirmed diagnosis of severe mental illness of at least 24 months' duration from 70 directly funded inpatient, outpatient, emergency departments and CMHTs in three regions in Alberta, Canada.	<i>n = 411 (endpoint information attained)</i>	CoC measured using the ACSS-MH. Participants were contacted by telephone at two to three month intervals for measurement of service use events, housing services and medications received. Outcomes measured for symptoms severity using the Brief Psychiatric Rating Scale (BPRS), the Multnomah Community Ability Scale (MCAS) for community functioning, the Service Satisfaction Scale-10, the Wisconsin QoL Inventory (WQLI) and the EQ-5D.	Multi-linear regression models for associations between patient and observer-rated continuity and EQ-5D index scores.	Factor structure is described as follows in a study using the ACSS-MH scale: <ul style="list-style-type: none"> <li>• System fragmentation (perceived discontinuity across services)</li> <li>• Relationship base</li> <li>• Responsiveness of treatment</li> </ul> Pattern of positive association between CoC and outcomes – consistent association observed between patient and observer rated CoC measure and health outcomes over a 17 month period.	<ul style="list-style-type: none"> <li>• Confounding factors not clearly indicated.</li> <li>• Small section on impact and further research.</li> <li>• Minimal attrition</li> <li>• Magnitude of difference in CoC scores related to outcomes is not large.</li> <li>• Bias may be present towards less seriously ill and more compliant service users due to gatekeeper influence. This may lead to an overly optimistic appraisal of continuity.</li> <li>• Moderate rating given for methodological qualities of psychometric validation according to COSMIN checklist.</li> </ul>	Weak - 2 Moderate - 6 Strong – 4  Psychometric field - Moderate  <b>Overall - Weak</b>
Durbin et al. (2004)	ACSS-MH	Sample drawn from 77 programs in 3 regions in Alberta, Canada. Individuals with moderate to severe mental illness.	<i>n = 215</i>	<ul style="list-style-type: none"> <li>• Service user survey using ACSS-MH and collecting additional information on current service use and perceived unmet need.</li> <li>• Staff assessment package using Colorado Client Assessment Record (CCAR) standardized measure of client functioning and service utilization profile for report of client's current use and estimated need.</li> </ul>	<ul style="list-style-type: none"> <li>• Principal components factor analysis with varimax rotation performed to examine structure of ACSS-MH.</li> <li>• Cronbach's alpha used to evaluate internal consistency and reliability of subscales</li> <li>• Pearson correlation coefficients used to assess relationships between subscales.</li> <li>• 1-way analysis of variance procedure and correlation coefficients used to test associations between CoC and client variables.</li> <li>• Regression analysis to assess contribution of clients personal and service use variables to overall variation in CoC scores.</li> </ul>	Three subscales of CoC identified within the ACSS-MH CoC scale through psychometric analysis: <ol style="list-style-type: none"> <li>1. <u>System Access</u> – user experience of the care system and challenges involved with accessing the right care.</li> <li>2. <u>Interpersonal Aspects of Care</u> – the extent to which users perceive providers to be respectful, collaborative and responsive.</li> <li>3. <u>Care Team Function</u> – well functioning team delivering care in a timely and coherent way to the client; shared care plan.</li> </ol> Informational continuity is excluded from this definition of CoC on the basis that the client may not be in a position to judge how well information transfer is occurring between professionals. Consequently the impact upon experienced continuity will be low.	<ul style="list-style-type: none"> <li>• Ethical approval not specified.</li> <li>• Strong rating given for methodological qualities of psychometric validation according to COSMIN checklist.</li> <li>• ACSS-MH performance across the severity continuum is not assessed: only a small number of participants have severe and complex conditions; clients with less severe mental illness not included.</li> </ul>	Weak - 1 Moderate - 10 Strong – 2  Psychometric field – Strong  <b>Overall - Moderate</b>



Article	Study Group / Scale	Target Population	Sample Size	Data Collection	Data Analysis	Findings / Domains / Components of Care Continuity	Study Limitations	Quality Appraisal Rating (CASP & COSMIN)
Jensen et al. (2014)	ACSS-MH	Participants receiving treatment in community psychiatric centre and in a stable condition in an urban area in the vicinity of Copenhagen.	<i>n = 15</i>	Semi-structured interviews focusing on illness narratives.	Content analysis	The following domains of the CoC concept identified by Joyce et al. (2004) are supported by qualitative evidence: <ul style="list-style-type: none"> <li>• Accessibility of services</li> <li>• Individualized care</li> <li>• Relationship base</li> </ul> Flexibility and responsiveness of service delivery; transfer of information between services. Discharge planning.	<ul style="list-style-type: none"> <li>• Introductory literature review not based on most recent literature</li> <li>• Impact and further research not specified.</li> <li>• Use of interpreters entails risk of miscommunication or mistranslation.</li> </ul>	Weak - 2 Moderate - 4 Strong - 3  <b>Overall - Weak</b>
Joyce et al. (2004)	ACSS-MH	Articles from Medline, PsycINFO, CINAHL and HealthSTAR. Participants with severe and persistent mental illness in the Alberta region.	<i>n = 36</i>	Literature review supplemented by semi-structured interviews with patients.	Themes extracted from literature examined by two research teams; Team A and Team B constructing a hierarchical model and a list of themes. These analyses were then merged to create a final domain model.	Four domains identified within the ACSS-MH scale: <ol style="list-style-type: none"> <li>1. <u>Service delivery</u>: Structural links, comprehensive services, good information and communication between services and providers, transition management.</li> <li>2. <u>Accessibility of services</u>: referral timeline and appointment location.</li> <li>3. <u>Relationship base</u>: relational / therapeutic continuity.</li> <li>4. <u>Individualized care</u>: How well care is adapted to the individual.</li> </ol>	<ul style="list-style-type: none"> <li>• Quality appraisal for literature review part of study not specified.</li> <li>• Overreliance on consensus judgments between teams may have led to the introduction of biases in model formation.</li> <li>• Sample size limited.</li> </ul>	Weak - 1 Moderate - 7 Strong - 4  <b>Overall - Strong</b>
Joyce et al. (2010)	ACSS-MH	Adults with severe and persistent mental illness from 70 inpatient, outpatient, emergency and community treatment programs in the Alberta region. Both rural and urban areas.	<i>n = 441</i> <i>Subsample: n=171</i>	<ul style="list-style-type: none"> <li>• ACSS-MH scale</li> <li>• Colorado Client Assessment Record (CCAR)</li> <li>• EQ-5D</li> <li>• Wisconsin Quality of Life Index</li> <li>• MCAS</li> <li>• BPRS</li> <li>• Shortened version of the Service Satisfaction Scale-30</li> </ul>	<ul style="list-style-type: none"> <li>• Exploratory factor analysis.</li> <li>• Cronbach's alpha to evaluate internal consistency.</li> <li>• Relationships between ACSS-MH domains and functioning, satisfaction and Quality of Life using Pearson correlations, one-way ANOVAs and multiple linear regression analyses.</li> </ul>	Three dimensions identified by factor analysis of ACSS-MH scale: <ol style="list-style-type: none"> <li>1. <u>Individualised care</u> - Perceived attentiveness to individual needs, change in illness or life circumstances. Quality of therapeutic relationship.</li> <li>2. <u>Responsive system</u> - Perception of a coherent service system with good communication and informational CoC.</li> <li>3. <u>Responsive caregiver</u> - Perceived flexibility and responsiveness of primary provider.</li> </ol>	<ul style="list-style-type: none"> <li>• Ethical approval not specified.</li> <li>• Good distribution between urban and urban-rural areas in Alberta. Representing 70 mental health services.</li> <li>• Multiple check and review stages. Blind techniques used.</li> <li>• Better functioning individuals may be under-represented.</li> <li>• ACSS-MH performance across the severity continuum is not assessed.</li> </ul>	Weak - 1 Moderate - 5 Strong - 7  Psychometric field - Strong  <b>Overall - Strong</b>

Article	Study Group / Scale	Target Population	Sample Size	Data Collection	Data Analysis	Findings / Domains / Components of Care Continuity	Study Limitations	Quality Appraisal Rating (CASP & COSMIN)
Uijen et al. (2014)	Not grouped	Primary care patients at risk for depression.  Patients with heart failure.  Patients between 18 and 70 years of age in 23 general practices in two regions in the Netherlands.	n = 264 n = 327	Patients' experienced continuity of care measured using a questionnaire including 12 items.	Chi-square testing used to compare the personal continuity score between the two patient groups. P-value < 0.05 Multivariate analysis using a general linear model to compare total scores of team and cross-boundary continuity between the two study groups.	<u>Conceptual components of care continuity:</u> - <u>Personal continuity</u> – number of care providers patients contacted in general practice. - <u>Team continuity in general practice</u> – the extent to which care providers in general practice had knowledge of the patient and communicate / cooperate with each other. - <u>Cross-boundary continuity</u> – the extent to which GPs and care providers outside the general practice communicate and cooperate with each other. Most patients experienced a high level of collaboration between care providers in general practice, 23% experienced a low level of collaboration between care settings. Patients at risk for depression experienced slightly higher team continuity.	<ul style="list-style-type: none"> <li>Impact and further research not specified.</li> <li>Depression and heart failure groups may not be completely distinct.</li> <li>Demographic differences between two groups.</li> <li>Difference in recruitment strategy for two groups.</li> <li>Possible recall bias.</li> </ul>	Weak - 1 Moderate - 9 Strong - 0  <b>Overall - Moderate</b>
Freeman et al. (2002)	Not grouped	Field study participants from home treatment service for adults suffering acute mental health crisis, service for women in mental health crisis, and Beacon site bridging gap between primary and secondary mental health care.  Delphi study panel were experts from stakeholder groups.	Literature Review: n = 91  Sample size not provided for field studies and Delphi study	Literature review: Medline, Embase, PsycINFO, AHMED, CINAHL, HMIC, HELMIS, Web of Science, SIGLE.  Four field studies.  Delphi study – two questionnaires.	Literature review: five questions on CoC.  Field studies involved various case studies.  Delphi study aims to achieve a consensus view on issues from a group of experts. Achieved by qualitative and quantitative analysis of panel answers to questions on CoC from two questionnaires.	<u>General Healthcare CoC concept components:</u> <ul style="list-style-type: none"> <li><u>Experienced continuity</u> – The experience of coordinated and smooth progression of care from the patient's point of view.</li> <li><u>Informational continuity</u> – Information transfer between services which follows the service user.</li> <li><u>Cross-boundary continuity</u> – Effective communication between professionals and services and with the patient.</li> <li><u>Flexible continuity and responsiveness</u> – Flexibility and responsiveness of care to changing needs and life circumstances.</li> <li><u>Longitudinal continuity</u> – Care from as few professionals as possible.</li> <li><u>Relational continuity</u> – Establishment and maintenance of a therapeutic relationship with appropriate, identifiable professional.</li> </ul> <u>Mental Health Specific CoC concept components:</u> <ul style="list-style-type: none"> <li><u>Long-term</u> – Uninterrupted care for as long as the service user requires it.</li> <li><u>Contextual</u> – Care that sustains a person's preferred social and personal relationships.</li> </ul>	<ul style="list-style-type: none"> <li>Low response in Round 2 (using second questionnaire) of Delphi study.</li> <li>Ethical approval not specified in this report.</li> <li>Quality appraisal not specified for literature review.</li> </ul>	Weak – 0 Moderate – 8 Strong – 5  <b>Overall - Strong</b>

Article	Study Group / Scale	Target Population	Sample Size	Data Collection	Data Analysis	Findings / Domains / Components of Care Continuity	Study Limitations	Quality Appraisal Rating (CASP & COSMIN)
Ware et al. (2003)	Not grouped	Adults diagnosed with serious mental illness using public mental health services in and around Boston, USA.	Pilot test: <i>n = 41</i> Field test: <i>n = 400</i>	Ethnographic data collected through observation and topically based open-ended interviewing.  CONNECT was then administered in the context of cognitive interviews during which there was examination of meaning and relevance of questionnaire items.	Comprehensive psychometric testing of CONNECT through field test for internal consistency, scale reliability, convergent reliability, test-retest reliability and known-groups validity.	<u>Five Domains for experienced continuity:</u> 1. Knowledge – practitioners’ knowledge of their clients. Quality of therapeutic relationship. 2. Flexibility – creating flexibility – easy appointment changes; practitioner goes out of his/her way to help the user. 3. Availability – practitioner availability. 4. Care Coordination – practitioner coordination – is mental health treatment well coordinated? 5. Transitions – smoothing transitions: ○ Discharge plan: Emergency services transition, transition from one physician / case manager/ therapist to another, housing transition. ○ Primary care – good contact and coordination with primary care physician. Two key dimensions identified – Longitudinal CoC and Cross-sectional or Cross-boundary CoC. Good cross-boundary CoC aids longitudinal CoC.  Weak relationship between CoC and health outcomes.	<ul style="list-style-type: none"> <li>Ethical approval not specified.</li> <li>Sample bias may have occurred due to the sample being volunteers.</li> <li>Field test only conducted in Boston area – May limit generalisability of findings.</li> <li>There is room for improvements in psychometric testing – a second round of psychometric testing could incorporate additional measures of psychological wellbeing.</li> </ul>	Weak – 1 Moderate – 10 Strong – 2  Psychometric field - Moderate  <b>Overall - Moderate</b>
Johnson et al. (1997)	Not grouped	Literature review articles from Medline and PsychLit.	Literature review <i>n = 9</i>	Not specified.	Not specified.	Two key dimensions of the CoC concept are identified - Longitudinal CoC and Cross-boundary CoC.	<ul style="list-style-type: none"> <li>Data extraction and analysis process not specified.</li> <li>Limited number of databases searched.</li> <li>Quality appraisal not specified.</li> </ul>	Weak – 1 Moderate – 6 Strong – 1  <b>Overall - Moderate</b>
Puntis et al. (2014)	Not grouped	Literature review articles from Medline and PsychINFO.	Literature review <i>n = 18</i>	Not specified.	Not specified.	18 studies show little consistency in the way the care continuity concept is measured. Little consistency in the way outcomes are measured. Mixed association between COC and risk of rehospitalisation. Mixed association between COC and service satisfaction – Adair et al. (2005) does find a relationship. Consistency of evidence of association between functioning and COC.  Review identifies emerging consensus about important outcomes for measuring effects of COC in terms of hospital readmission, symptom severity, social functioning and service satisfaction.	<ul style="list-style-type: none"> <li>Search strategy was fairly broad so it is possible relevant articles were missed.</li> <li>Meta-analysis not possible due to different study types under review.</li> <li>No interrater check at full-text eligibility stage.</li> </ul>	Weak – 0 Moderate – 6 Strong – 1  <b>Overall - Moderate</b>

Article	Study Group / Scale	Target Population	Sample Size	Data Collection	Data Analysis	Findings / Domains / Components of Care Continuity	Study Limitations	Quality Appraisal Rating (CASP & COSMIN)
Tomita & Herman (2015)	Not grouped	Participants recruited from transitional residencies located on the grounds of two state-operated psychiatric hospitals in the New York City area.	<i>n</i> = 150	Participants' status followed over an 18 month period after discharge.  Critical Time Intervention (CTI) implemented for three process outcomes:  - Perceived access to care - Stability of patient-service provider relationship - Severity of instability of patient-service provider relationship	Perceived access to care analysed by comparison of median group ratings at nine-month and 18-month follow-up.  Service provider stability assessed using chi-square test for comparison between groups.  Severity of instability of patient-service provider relationship assessed through non-parametric quintile regression model with bootstrap methods.  Correlation of 9-month CoC measures with homelessness and psychiatric re-hospitalisation outcomes.	Assignment to CTI associated with more CoC over several domains: CTI associated with higher perceived access to care; lengths of working relationships with psychiatrist and case manager significantly higher for those assigned to CTI; quintile regression models indicated those assigned to CTI had more favourable physician transition rating.  Several nine-month CoC measures correlated with lower risk of homelessness and re-hospitalisation.	<ul style="list-style-type: none"> <li>Ethical approval not specified.</li> <li>Small sample size.</li> <li>Caregiver's perspective on CoC not included in study.</li> </ul>	Weak – 1 Moderate – 8 Strong – 2  <b>Overall - Moderate</b>
Poremski et al. (2016)	Not grouped	Service users and service providers involved in Coordinated Access to Care from Hospital Emergency Departments (CATCH-ED).	<i>n</i> = 13	Semi-structured interviews	Thematic analysis restricted to CoC dimensions given by Haggerty et al. (2003) and Bacharach (1981).	Facilitators and barriers for experienced CoC concept given by Haggerty et al. (2003) and Bacharach (1981) confirmed by analysis: <u>Facilitators:</u> <ul style="list-style-type: none"> <li>Coordinated service navigation; facilitation of services by care coordinator, especially community based ones.</li> <li>Seamless transitions, for instance in discharge planning.</li> <li>Therapeutic alliance.</li> </ul> <u>Barriers:</u> <ul style="list-style-type: none"> <li>Difficulty engaging with services – either new or sustained.</li> <li>Short service duration.</li> <li>Multiple providers not coordinated; confusion about accountability since distributed between multiple providers.</li> </ul>	<ul style="list-style-type: none"> <li>Study based on multidimensional CoC definition given by Haggerty et al. (2003) and Bacharach (1981). These are seminal though potentially dated definitions of CoC within the literature.</li> <li>No section on impact and further research.</li> <li>Quantitative outcomes and qualitative analysis not matched.</li> <li>Thematic analysis was restricted to CoC dimensions given by Haggerty et al. (2003) and Bacharach (1981).</li> </ul>	Weak – 1 Moderate – 3 Strong – 5  <b>Overall - Strong</b>