

A Systematic Review of Team Formulation in Clinical Psychology Practice:  
Definition, Implementation, and Outcomes

Running head: TEAM FORMULATION IN PRACTICE

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## **Purpose**

Team formulation is promoted by professional practice guidelines for clinical psychologists. However, it is unclear whether team formulation is understood/implemented in consistent ways – or whether there is outcome evidence to support the promotion of this practice. This systematic review aimed to (1) synthesise how team formulation practice is defined and implemented by practitioner psychologists and (2) analyse the range of team formulation outcomes in the peer-reviewed literature.

## **Methods**

Seven electronic bibliographic databases were searched in June 2016. Eleven articles met inclusion criteria and were quality-assessed. Extracted data were synthesised using Content Analysis.

## **Results**

Descriptions of team formulation revealed three main forms of instantiation: (1) a structured, consultation approach; (2) semi-structured, reflective practice meetings; and (3) unstructured/informal sharing of ideas through routine interactions. Outcome evidence linked team formulation to a range of outcomes for staff teams and service users, including some negative outcomes. Quality appraisal identified significant issues with evaluation methods, such that overall, outcomes were not well-supported.

## **Conclusions**

There is weak evidence to support the claimed beneficial outcomes of team formulation in practice. There is a need for greater specification and standardisation of ‘team formulation’ practices, to enable a clearer understanding of any relationships with outcomes and implications for best-practice implementations.

## **Practitioner Points**

- Under the umbrella term of ‘team formulation’, three types of practice are reported: (1) highly structured consultation; (2) reflective practice meetings; and (3) informal sharing of ideas.
- Outcomes linked to team formulation, including some negative outcomes, were not well-evidenced

- Future research using robust study designs is required to investigate the process and outcomes of team formulation practice.

## Background

### Team Formulation

Working psychologically with teams is reported to be a fundamental role of practitioner psychologists (Health and Care Professions Council; HCPC, 2015). Using formulation with staff groups has become an increasingly popular way of engaging and working collaboratively with teams (Division of Clinical Psychology; DCP, 2011). Team formulation has been broadly described as the “process of facilitating a group of professionals to construct a shared understanding of a service user’s difficulties” (Johnstone & Dallos, 2014, p. 5). It is argued that team formulation is one way for practitioner psychologists to improve service effectiveness (Onyett, 2007) and develop a leadership role within teams (Skinner & Toogood, 2010). Thus, team formulation is widely encouraged, from clinical psychology training (British Psychological Society, 2015) to consultancy-level (Skinner & Toogood, 2010). It is notable that much of the extant team formulation literature has been developed in the UK, and the current authors orient to the practice from a UK context; notwithstanding this, the literature clearly has wider (international) implications for practitioners developing case conceptualisations within treatment-teams (Sperry & Sperry, 2012) and fostering team-working more broadly. Moreover, the implications of this literature are not limited to practitioner psychologists: psychological therapists and other psychological practitioners may lead on facilitating team formulation practice (Christofides, Johnstone, & Musa, 2012; Summers, 2006).

However, it is unclear if the extant research supports the use of team formulation in services. Team formulation is a developing area of research and several issues have emerged. There is no homogeneous definition of formulation (Johnstone & Dallos,

2014) and this general definitional issue likely extends to the more specific form of team formulation. Congruent with this, there appear to be inconsistencies in the way that team formulation is carried out in services (Cole, Spendelow, & Wood, 2015). If team formulation is understood and implemented in different ways (without systematic delineation of different forms) it becomes difficult to draw evaluative conclusions about 'team formulation' as a unitary practice. There is a need to clarify the: (a) definition, (b) implementation, and (c) outcomes of team formulation.

### **Definition of Team Formulation**

The general practice of formulation has been broadly defined as “a hypothesis about the causes, precipitants, and maintaining influences of a person’s psychological, interpersonal and behavioural problems” (Eells, 2006, p. 4). However, variation in factors such as the practitioner’s training, theoretical preference, and work context means that there are inconsistencies in how formulation is interpreted and operationalised (Dawson & Moghaddam, 2016; Flinn, Braham, & das Nair, 2015).

This general definitional issue likely also holds in the context-specific application of formulation to teams and may potentiate/lead to imprecise and heterogeneous operationalisations of 'team formulation' within research and practice – which would obfuscate understanding of team formulation as a singular phenomenon.

### **Team Formulation in Practice**

A related, but discriminable, question arises around consistency of implementation. Practice labelled as 'team formulation' may be implemented in diverse ways. Diverse practices might stem from diverse definitions, but it is possible that implementation varies independently of definitions – due to e.g., translational difficulties or contextual

adaptations. Two practitioners could identify with the same definition but interpret and implement this in disparate ways; thus, dissociated examination of implementation seems pertinent.

A recent, non-systematic narrative review (Cole et al., 2015) aimed to describe what psychologists do when they implement team formulation within services. Cole et al. (2015) indicated that there were contrasting modes used – e.g. whether practiced through a formal meeting (Ingham, 2011) or through informal conversations (Christofides et al., 2012). The non-systematic nature of the Cole et al. (2015) review raises questions about quality and repeatability as it is unclear how studies were selected or how conclusions were derived; moreover, retrieved studies were not considered in the light of structured critical appraisal. Therefore, further *systematic* identification, appraisal, and synthesis of studies describing team formulation practices is warranted (Mulrow, Cook, & Davidoff, 1997).

Heterogeneity in the practices that are collated under the umbrella term of ‘team formulation’ has implications for understanding the outcome evidence (Glasziou et al., 2014). For example, any inconsistencies in outcomes may simply reflect inconsistent practices; conversely, consistent outcomes may arise from distinct mechanisms (making it difficult to identify core/active components of team formulation).

### **The Outcomes of Team Formulation**

As most of the extant research consists of single-service pilot evaluations (e.g. Ingham, 2011), a broader understanding of utility – to what extent, and for whom, team formulation may be useful – is needed. Outcomes are defined as changes that result from receiving an intervention (Department of Health, 2016) and can relate to services, staff, and service-users. Reviewing team formulation outcomes, rather than the

hypothetical benefits presented by the DCP (2011), allows for both positive and negative findings. The possibility of adverse outcomes seems important to consider given evidence that individual service-users can report negative experiences of receiving a formulation (Redhead, Johnstone, & Nightingale, 2015). In the absence of robust outcome evidence, the rationale for using team formulation in practice would be weakened.

### **Rationale for Current Review**

Formulation outcomes research, in general, is reported to “be lacking” (DCP, 2011, p. 26). Despite this, the DCP (2011, p. 9) list several putative benefits of team formulation at organisational- (e.g., enhanced psychological thinking) and individual staff-levels (e.g., increased positive attitudes towards service-users) and guidelines for practitioner psychologists emphasise the important contribution of team formulation. However, the above-identified questions – about how team formulation is defined, implemented, and evaluated – restrict the potential for understanding whether/how team formulation can be beneficially implemented within services. Given the rise in popularity of this practice (Johnstone & Dallos, 2014) it is timely to review the peer-reviewed literature considering these issues.

This review extends the work of previous reviews by exploring how psychologists define team formulation (which was not an aim of Cole et al., 2015), and how these descriptions translate into practice; and by synthesising outcomes at a broader level than Blee (2015), who solely focussed on outcomes for non-psychologist staff members.

This review focuses on the formulation approaches of practitioner psychologists, recognising that the conceptual models, role contributions, and formulation products

of other professional groups may be distinct (e.g., evidence pertaining to formulation by psychiatrists; Mohtashemi, Stevens, Jackson, & Weatherhead, 2016) and obfuscate synthesis. Nonetheless, whilst the a priori interest was in understanding psychologist approaches, and selection criteria were circumscribed to this effect, the review has potentially transferrable implications for other professions engaged in team formulation practices (Baird et al., 2017).

### **Aims and Review Questions**

This review aimed to synthesise the peer-reviewed literature in order to enhance understanding of how team formulation is defined and practiced. The review further aimed to synthesise outcome data arising from published examples. The review sought to answer the following questions:

1. How do psychologists define team formulation?
2. How do psychologists implement team formulation?
3. What are the outcomes from team formulation?



## Method

### Search Strategy

Seven electronic bibliographic databases covering pertinent topic areas were searched on 18<sup>th</sup> June 2016: AMED, HMIC, MEDLINE, PsycINFO, PsycARTICLES, Scopus, and CINAHL. Reference lists of accepted articles were also screened.

Search terms were developed by assimilating keywords on the topic of formulation, as highlighted by published articles (Christofides et al., 2012; Flinn et al., 2015) and theses (Blee, 2015; Stewart, 2014). Terms used to describe collective professional-working were selected from published psychological literature. Search statements were tested and refined through scoping searches within the selected databases.

Formulation terms were: psychological formulation; case formulation; case conceptualisation; shared formulation; and shared understanding. These were used in addition (using an 'AND' Boolean operator) to team-working terms: team; staff; group; professional; multi-disciplinary; meeting; reflective practice and consultation. The unqualified term "formulation" demonstrated decreased specificity and so the 'psychological' prefix was used in line with the focus of this review (e.g. "psycholog\* formulat\*\*"). Full search statements are available from the corresponding author on request.

### Selection Criteria

The screening and selection process is summarised in Figure 1. A total of 2,764 titles/abstracts were considered against eligibility criteria outlined in Table 1. Following this, 100 articles were selected for full-text review, and appraised for eligibility using a screening tool (based on Table 1). Eleven articles met full criteria and were included in the synthesis.

[Insert Figure 1 about here]

[Insert Table 1 about here]

### **Data Extraction**

A data extraction form was developed using the three review questions as an organising framework. Information on the definition, implementation, evaluation, and outcomes of team formulation was the focus of data extraction. Key descriptive information about each article was also recorded.

### **Quality Appraisal**

The Critical Appraisal Skills Programme (CASP, Public Health Resource Unit, 2013) checklists for cohort studies, qualitative research, randomised controlled trials, and case studies were employed. The Joanna Briggs Institute Critical Appraisal Checklist for Narrative, Expert Opinion, and Text (McArthur, Klugárová, Yan, & Florescu, 2015) was used to assess the quality of opinion articles. To assess each article in line with this review's questions, the quality of team-formulation descriptions was assessed using two extra items. Item A considered whether definition and implementation were based upon relevant literature or theory, and if descriptions allowed for replication and outcome measurement. Item B scrutinised whether appropriate evaluation methods and materials were used, and whether confounding variables were considered.

Each quality-item was graded as either 'yes', 'partial', 'no', or 'unclear.' Overall article quality was appraised as 'high', 'moderate', or 'low', based on the pattern of ratings throughout the checklist (rather than generating a total score which assumes that all items are equally weighted). An a priori decision was made to retain studies of all quality. It was assumed that the number of articles would be limited and that including all articles would help to build an overall picture of the phenomenon of interest.

## **Data Synthesis**

Considering this review's three, distinct and descriptive areas for synthesis, an integrative method of analysis was chosen: specifically, a mixed-methods integrative synthesis (Whittemore & Knafl, 2015) by way of content analysis (as outlined below). Integrative analyses aim to remain close to authors' primary data by aggregating findings into categories in order to synthesise the results overall (Hannes & Lockwood, 2012).

A content analysis was used to synthesise quantitative and qualitative text into categories, organised by meaning (Cavanagh, 1997). Content analysis can be useful when synthesising data which are known to be varied and multifaceted (Elo & Kyngäs, 2008). Data are analysed and pooled for the purposes of communicating the recurrence of findings using a synthesised, concise form (Elo & Kyngäs, 2008). There are some potential drawbacks to this (somewhat reductive and unweighted) approach but it enables integrative synthesis of mixed-methods findings, and is arguably apt when dealing with more descriptive data (Snilstveit, Oliver, & Vojtkova, 2012). Content analysis has previously been used to systematically review healthcare practice (Evans & Fitzgerald, 2002).

To answer the first and second review questions, verbatim units of text from each article which described what team formulation was (definition) and how team formulation was carried out (implementation) were extracted from any part of the article – these descriptive aspects were not a direct focus of articles and thus extracted as incidental details. Data regarding the definition were pooled and categorised deductively, using the DCP (2011) transtheoretical aspects of formulation (summarising and linking presenting difficulties; using psychological theory to explain the development and maintenance of these difficulties; deriving a responsive

intervention plan; and remaining open to revision and reformulation). Data were also processed inductively by coding the text to describe the content of the information. Data were then grouped and organised into categories based on their meaning. Categories were distinct from each other and were generated to produce a novel understanding of team formulation definition. The inductive process was repeated for team formulation implementation data.

To answer the third review question, outcome data from the results section of each study were extracted. Both qualitative (author-generated themes, sub-themes, and supporting quotations) and quantitative data (descriptive, numerical values and statistical findings) were deductively categorised as occurring either at the service, staff, or service-user level and further grouped by the type of outcome domain. The findings were coded as either positive or negative (according to whether they supported beneficial or detrimental functions of team formulation).

For quantitative data, the strength of change was coded as either statistically significant or not. The effect-size for outcomes was calculated where means and standard deviation values were provided. Meta-analysis was not undertaken due to the heterogeneity of the outcome variables measured, the measurement methods, the settings in which team formulation was practiced, and the form/content of team formulation practices; in the context of such diversity, pooled estimates lack interpretability (Higgins & Green, 2011).

Descriptive articles (e.g., opinion pieces) were excluded from analysis pertaining to the third review question, as it was considered inapt to accord evidential weight to any reported 'outcome' information from these articles.

## Results

Table 2 provides descriptive information for the 11 articles included in the review. Five quantitative (Berry, Barrowclough, & Wearden, 2009; Berry et al., 2015; Ingham, 2011; Ramsden, Lowton, & Joyes, 2014; Whitton, Small, Lyon, Barker, & Akiboh, 2016), three qualitative (Christofides et al., 2012; Murphy, Osbourne, & Smith, 2013; Summers, 2006), and three descriptive (Davenport, 2002; Rowe & Nevin, 2013; Wilcox, 2013) articles were retained. From articles providing information, at least 300 staff (predominantly qualified nursing and support staff), 10 clinical psychologists, and 41 service-users were represented. Despite no specified time-limit of publication, eight articles were published within the last five years. All articles were published in the United Kingdom from various mental health, intellectual disability, and forensic services.

[Insert Table 2 about here]

### Quality of Included Articles

Table 3 provides a summary of quality appraisal ratings. Two articles were rated as low quality (Ramsden et al., 2014; Summers, 2006) and consideration was made during the analysis as to whether their contributions had undue influence on the overall findings of the review (i.e., where inconsistent with information from other, higher-quality studies, their contributions were accorded lesser weight in the integrative account). The remaining nine articles were rated to be of moderate quality.

Berry et al. (2015) had a number of good quality characteristics (e.g. non-significant results were reported). However, the lack of measurement of confounding variables and scheduling of measurements across quantitative studies may have introduced bias into evaluations of team formulation. It was unclear if the reported changes were

associated with team formulation or other factors. This omission significantly limits the extent to which quantitative outcomes can be linked back to the team formulation.

Regarding descriptive and qualitative articles, the level of transparency of reporting by authors varied. Two studies using a Thematic Analysis provided statements on their epistemological positions and rationale for choosing qualitative methods (Christofides et al., 2012; Murphy et al., 2013). Although, both authors reported favourable opinions of team formulation in their stance as researchers. Summers (2006) was judged to be of low quality due to information which was either missing or unclear e.g. the process of using Grounded Theory was not reported, raising concerns as to how data were handled. Two opinion articles did not consistently substantiate their arguments as to the benefits of team formulation (Davenport, 2002; Wilcox, 2013). This issue poses a problem for readers who are unable to assess how well-supported the results or opinions regarding team formulation are.

[Insert Table 3 about here]

### **1) How do Psychologists Define Team Formulation?**

Two studies (Rowe & Nevin, 2013; Whitton et al., 2016) did not specify what team formulation was and were not included in the synthesis for the review's first question. Definitions were found to be descriptions of implementation (how team formulation should be used) as opposed to offering an understanding of what team formulation meant. Content analysis of nine studies revealed four categories of definitional terms which appeared to differ by study design, as shown in Table 4.

#### **Terms for Team Formulation**

One study (Christofides et al., 2012) described team formulation as an informal, on-going process. This included 'chipping in' hypotheses during interactions with team

members, although participants acknowledged that this was hard to define. This study recruited clinical psychologists, other studies sampled non-psychology professionals, which may account for why informal team formulation was only reported by this study.

The remaining studies defined team formulation as a shared understanding. Staff contributed their ideas and experiences to generate a set of hypotheses (Wilcox, 2013) which formed a formulation product (Berry et al., 2009; 2015 Ingham, 2011; Ramsden et al., 2014) to explain the service-user's presentation in the context in which they were receiving care (Davenport, 2002; Murphy et al., 2013; Summers 2006).

Four authors defined team formulation as 'formulation focussed consultation' or similar (Ingham, 2011; Murphy et al. 2013; Ramsden et al., 2014; Wilcox, 2013). Likewise, Berry et al. (2009; 2015) presented team formulation as a service-level intervention to help staff develop skills, confidence, and effective relationships with service-users.

[Insert Table 4 about here]

Team formulation as 'reflective practice' was reported within qualitative and descriptive studies. Exploring individual's interactions with service-users generated formulatory ideas in two studies (Davenport, 2002; Summers, 2006). Two additional articles reported using reflective practice in the context of consultancy (Murphy et al., 2013; Wilcox, 2013). A subtle difference was that team-level difficulties (e.g. 'splitting') when working with service-users were the focus of reflections.

### **Transtheoretical Aspects of Team Formulation**

General definitions of formulation were often provided in place of team-specific explanations. As shown in Table 4, descriptions included four elements indicated by the DCP (2011) as central to formulation. None of the articles considered reformulation.

Summarising the service-user's presenting problems was present in the description of team formulation in nine articles. For example, Berry et al. (2015) elicited staff's observations of the service-user's indicators of distress and ways of coping.

The service-user's life events were reviewed through discussion (Berry et al, 2009; 2015; Davenport, 2002; Murphy et al., 2013; Summers, 2002; Wilcox, 2013) and through hypothesising about the predisposing factors to the presenting problem (Ingham, 2011; Ramsden et al., 2014).

Psychological theory was used in two ways: to explore material arising from the team formulation session through psychodynamic (Christofides et al., 2012; Davenport, 2002; Summers, 2006) or systemic approaches (Ingham, 2011; Wilcox, 2013) and; to produce a diagrammatic/written formulation, typically using cognitive-behavioural models (Berry et al., 2009; 2015, Murphy et al., 2013; Ramsden et al., 2014).

Interventions were highlighted through agreed changes to care planning (Berry et al., 2015; Davenport, 2002; Murphy et al., 2013; Summers, 2002), risk management (Ramsden et al., 2014; Wilcox, 2013), and engagement strategies (Berry et al., 2009; Ingham, 2011). However, the quality of this definitional aspect was weakened in four articles (Berry et al., 2009; Ramsden et al., 2014; Summers, 2006; Wilcox, 2013) as it was unclear as to whether hypothetical agreements translated into actual changes.

## **2) How do Psychologists Implement Team Formulation?**

Ten articles were included in the synthesis for the review's second question as outlined in Table 5. Whitton et al. (2016) did not detail how team formulation was implemented and so was not included. One study considered to be of a low quality provided the least amount of detail of the implementation process (Summers, 2006).



In contrast, studies of higher quality provided a rich account outlining the specific steps of the process (Berry et al., 2009; 2015; Ingham, 2011).

Mirroring the definition, Christofides et al. (2012) implemented team formulation as an ongoing, informal approach. The remaining articles used a meeting format either as a fixed component of usual care (Berry et al., 2009; 2015; Davenport, 2002; Murphy et al., 2013; Rowe & Nevin, 2013; Summers, 2006; Wilcox, 2013) or contingent on the emergence of difficulties (Ingham, 2011; Ramsden et al., 2014).

The purpose of team formulation was multifaceted. This was reported as a way to: increase psychological understanding (Christofides et al., 2012); change existing perceptions of service-users (Berry et al., 2009; Ingham, 2011; Summers, 2006); improve the staff-service user relationship (Davenport, 2002, Berry et al., 2015) and; support staff to feel equipped to work directly with service-users who were experienced as challenging (Ramsden et al., 2014; Murphy et al., 2013). The intended objective of team formulation was only assessed as an outcome by four studies (Berry et al., 2009; 2015; Ingham, 2011; Ramsden et al., 2014).

The level of responsibility and expertise adopted by the psychologist varied. For example, in one study psychologists were cautious of respecting other team member's experience and presented themselves as fellow team members (Christofides et al., 2012). In stark contrast, formal training on formulation and its function within the service-user population was evident in two studies (Ingham, 2011; Murphy et al., 2013).

A high level of collaboration in team formulation was typical, with a partnership between the staff members and the psychologist described by six articles (Berry et al., 2009; 2015; Ingham, 2011; Davenport, 2002; Murphy et al., 2013; Wilcox, 2013).

Two studies appraised as low quality reported a lesser degree of collaboration where the formulation was completed independent from the session (Ramsden et al., 2014; Summers, 2006).

Highly structured methods of implementation where systematic, procedural frameworks were followed were reported by quantitative studies (Berry et al., 2009; 2015; Ingham, 2011; Ramsden et al., 2014). Three articles (Davenport 2002; Murphy et al., 2013; Summers, 2006) used a semi-structured sequence to team formulation meetings. The degree to which the authors adhered to these described processes was not reported.

[Insert Table 5 about here]

### 3) What are the Outcomes from Team Formulation?

For the purposes of the review, we addressed the question of team formulation outcomes by extracting any reported findings that pertained to the sequelae/potential (intended or unintended) impact of formulation – we did not limit our focus to author-defined a priori ‘outcomes’. By this definition, five studies presented quantitative outcome data and three studies presented descriptive outcome data qualitatively analysed. Content analysis revealed nine outcome domains which are detailed in Table 6.

[Insert Table 6 about here]

#### 3a) Quantitative Outcomes

Cohen’s (1988) conventions were used to interpret effect sizes for three of the six studies (Berry et al., 2009; 2015; Whitton et al., 2016). Two studies did not provide the relevant numerical data and so effect size calculations were not possible (Ingham, 2011; Ramsden et al., 2014).

**Staff-related outcomes.** There was a medium effect ( $d=-0.5$ ) of time on the degree to which staff perceived team formulation as a useful practice (Whitton et al., 2016). The questionnaire used to measure this variable was developed and analysed by the author, meaning that data were of an unknown reliability or validity.

Studies which evaluated staff attitudes towards service-users (Berry et al., 2009; 2015; Ramsden et al., 2014) also typically measured staff understanding of service-user’s presentations (Berry et al., 2009; Ramsden et al., 2014). There was some evidence for positive change in these domains, although the evidence was weakened by methodological issues.

Ramsden et al. (2014) highlight an increased willingness to work with service-users and an increased understanding of service-users and risk over time, measured by the Personality Disorder Knowledge and Skills Questionnaire (Shaw et al., 2011). Although, this finding emerged in a study with only 12 participants and an unexplained attrition rate.

There was a medium effect ( $d=0.65$ ) of time on 30 staff member's increased tolerance and reduced blame towards service-users via an author-developed questionnaire (Berry et al., 2009). As the pre- and post- measures were collected on the same day it was unclear if changes were sustained. Berry et al. (2015) found a large effect ( $d=-0.84$ ) of time on reducing depersonalised and cynical attitudes towards service-users (Maslach Burnout Inventory; Maslach, 1986). Considering this, change in staff attitudes and perceptions as a direct outcome of team formulation should be viewed cautiously.

**Service user-related outcomes.** There was no strong evidence of change for service-users following team formulation. Staff perceived frequency and severity of one service-user's 'challenging behaviour' decreased over time (Ingham, 2011). However, the relationship between the introduction of team formulation and the point of change in staff perception was not directly measured, limiting the internal validity of this finding. At follow-up, service-users in Berry et al. (2015) reported slightly improved mental health (Positive and Negative Syndrome Scale; Kay, Fiszbein, & Opler, 1987) but slightly worse functioning (Global Assessment of Functioning; Hall, 1994).

**Staff-service user relationship.** Change on this domain differed according to whose perspective was measured. A large effect ( $d=-1.75$ ) of time on reducing service-user reports of feeling criticised by staff (Perceived Criticisms Scale; Hooley &

Teasdale, 1989) was observed. Service-user Working Alliance Inventory (Tracey & Kokotovic, 1989) scores improved slightly post-team formulation, but the change did not reach statistical significance. Staff reported a slightly worse relationship on both measures post-team formulation (Berry et al., 2015).

**Service-related outcomes.** A similar pattern emerged for service level outcomes. There was a large effect ( $d=0.80$ ) of time on improving service-user views of the therapeutic milieu (Ward Atmosphere Scale: Moos, 1974) but no effect on staff ratings (Berry et al., 2015). Factors independent of team formulation may have arisen within the intervention arm of this study, which included both NHS and private provider units. This indicates that there may have been organisational differences and thus, variations in care. As confounding variables were not accounted for, this methodological flaw must be held in mind when considering these outcomes.

### **3b) Descriptive Outcomes, Qualitatively Analysed**

Three studies employed qualitative analyses of interviews with professionals. Both Murphy et al. (2013) and Summers (2002) reported positive and negative team formulation themes. Christofides et al. (2012) recruited clinical psychologists who used team formulation and data were analysed by a researcher with a positive stance on the topic; reported themes were of a positive dimension only.

Qualitative studies offered mixed opinions regarding whether team formulation fostered consistency between team members. For example, under Murphy et al. (2013) theme of 'team efficiency', one participant reported: "a plan where we all give the right, the same answers. There was continuity all the time, before we didn't have continuity" (p. 445). However, staff in the same study indicated that when they could

not attend the team formulation meeting, they were left feeling unsupported by colleagues, or felt that they had unfairly missed out.

Views on team formulation differed as to the type of professional being interviewed. Dissatisfaction with team formulation was reported by inpatient nursing staff due to: “some people wanting to be right or more powerful” (Summers, 2006, p. 342). In contrast, clinical psychologists believed that staff valued team formulation: “they are actually saying ‘you do us a session on formulation’” (Christofides et al., 2012, p. 430). Likewise, perceived changes in understanding service-user presentations differed according to whether this was the perspective of the person facilitating or attending the formulation. Psychologists thought that team formulation offered: “more understanding about why a person is doing what they’re doing rather than it’s just their illness” (Christofides et al., 2012, p. 430). In contrast, one professional from a dementia service felt that particular information remained unexplained by the formulation: “when they’re physically unwell.... It seems to ignore that completely” (Murphy et al., 2013, p. 444).

Increased empathy was evident within each qualitative study’s themes: “You saw ‘em in a different light really. You saw them as being people rather than patients” (Murphy et al., 2013, p. 444). Although, a minority of individuals seemed to have unchanged views, perceiving that formulation provided an ‘excuse’ for service-user’s behaviour (Summers, 2006). However, it is unclear if such data were a result of direct team formulation experience as only a sub-sample of staff in Summers (2006) attended the team formulation.

Views as to whether team formulation led to changes in care provision were inconsistent. Instances of changes were reported by Summers (2006) and Murphy et

al. (2013), for example: “We had to manage him so we weren’t perceived as a threat to him. And that’s why we had these boundaries” (Murphy et al., 2013, p. 444). Although, staff expressed concern that team formulations: “need to guide care plans more.” (Summers, 2006, p. 342).

Further, team formulation was experienced by staff as a way to help limit ruptures in relationships with service-users: “It stops me straying into sensitive areas, blundering in through lack of knowledge” (Murphy et al., 2013, p. 444).

### **Overall Comment**

Collectively, studies conveyed a degree of positive change over time. Some staff report improved psychological understanding and attitudes towards service-users. A small number of service-users perceived changes to the therapeutic relationship and ward atmosphere. Importantly, studies presented outcomes as directly linked to team formulation. This is concerning given that quality appraisal identified that this relationship was not established across studies, therefore limiting the extent to which outcomes can be said to be linked to team formulation. Considering these inconsistencies and limitations, positive outcomes appear to have been overemphasised in the team formulation literature.

### **Discussion**

This review aimed to understand how team formulation is defined and implemented in practice. The outcomes which were reported to have arisen from team formulation were reviewed and synthesised.

With respect to the more descriptive (first and second) questions of our review: Overall, there was no uniform definition or singular implementation of team formulation reported across studies. This review identified three instantiations of team formulation.

A shared understanding was a common focus of practice, although each delineation had considerable differences, as shown in Figure 2.

[Insert Figure 2 about here]

Firstly, team formulation-focussed consultation aimed to enhance the quality and effectiveness of services (Berry et al., 2009; 2015; Ingham, 2011; Ramsden et al., 2014). This highly collaborative approach explicitly applied psychological theory through protocol-driven implementation. Evaluation of this practice indicated increased, positive attitudes towards team formulation (Whitton et al., 2016) and service-users (Berry et al., 2009; 2015; Ramsden et al., 2014). This finding is consistent with Mattan and Isherwood (2009) where non-psychology staff valued consultation for enhancing their understanding of service-users who were experienced as complex. A novel finding within this type of team formulation was that service-users, but not staff, perceived the environment as increasingly therapeutic over time (Berry et al., 2015). The authors suggest that staff may have become more aware of the difficulties in their relationships with service-users, thus providing lower ratings. However, staff views of the therapeutic relationship have been found to correlate with outcomes from inpatient care (Berry, Gregg, e Sa, Haddock, & Barrowclough, 2012) suggesting that this important outcome requires further investigation. This review observed that a reliance on self-reported methods, lack of measurement of non-team formulation factors, and small sample sizes, meant that the strength of the evidence for team formulation-focussed consultation was weakened.

Secondly, team formulation as a semi-structured reflective practice meeting focused on the emotional impact of working with service-users (Davenport, 2002; Murphy et al., 2012; Summers, 2002; Wilcox, 2013). 'Reflective practice' has been found to be a



broad term, which clinical psychologists report as useful for enabling flexibility in their approach in order to respond to staff needs (Heneghan, Wright, & Watson, 2013). In contrast, staff groups report valuing consistency and structure (Collins, 2014) and the vagueness of this term has been found to give rise to challenges in engaging teams in this process (Heneghan et al., 2013). Whilst this review found that some staff experienced an emotional or cognitive change following reflective practice (Summers, 2002; Murphy et al., 2013) others viewed this experience as dissatisfactory or incomplete. Clearly, more research is needed to examine which particular components of reflective practice are effective for teams.

Thirdly, Christofides et al. (2012) described that informal team formulation was implemented flexibly through an array of interactions with team members. This instantiation indicates that individuals merged their professional (clinical psychology) identity with their role as a team member in order to practice team formulation. Informal team formulation was broader in scope than other forms and clinical psychologists struggled to define this unstructured approach. The absence of evaluative evidence means that outcomes of informal team formulation for non-psychologists are unknown.

Taken together, the results of this review support the idea that team formulation is currently an unfocused, 'catch-all' term. Including a variety of practices under the umbrella term of 'team formulation' may be a way to evidence a range of activities which: (1) reach multiple people in a short space of time and (2) are reported to be unique to clinical psychology (DCP, 2011). Indeed, clinical psychologists have reported feeling compelled to demonstrate the value of the profession as a way to justify their position within teams (Murphy, Vedger, Sandford, & Onyett, 2013). There may be particular demands to do so in the current NHS context, where there is pressure to 'do more' with fewer resources, and a drive to evidence the effectiveness

of contributions through outcomes (Alderwick, Robertson, Appleby, Dunn, & Maguire, 2015).

### **State of the Outcomes Evidence**

Noting that outcomes research in this area is still in its infancy, some positive findings in the literature were observed – although not well evidenced. An important discovery was that the lack of robust study designs meant that outcomes could not be directly linked to team formulation (controlling for threats to internal validity/alternative explanations for change in outcome variables). Further, a novel finding was that several negative outcomes were also reported. As such, there appears to be incongruence between the promotion of team formulation as a fundamental practice – by professional (DCP, 2011) and regulatory (HCPC, 2015) bodies – and the absence of consistent, positive outcomes evidencing the effectiveness of team formulation within services. Consequently, the rationale for using team formulation requires further consideration – and current findings suggest a need to review/revise relevant DCP (2011) guidance.

### **Clinical and Research Implications**

A priority for future research should be to adopt study designs that allow for systematic measurement of the factors expected to mediate and moderate team formulation outcomes. This may inform the development of standardised definitions and models of team formulation to facilitate appropriate evaluation of practice. Dismantling studies may help to investigate if any components of team formulation are active contributors to change. In turn, this may inform the development of updated clinical practice guidelines specific to team formulation.

In light of the number of author-developed questionnaires used to capture staff views of team formulation, future research should seek to measure effectiveness using methods other than staff self-report. Indeed, independent ratings were considered more accurate than self-report methods of assessing psychological mindedness and formulation skills amongst non-psychologists (Hartley et al., 2016). The development of standardised, valid, and reliable tools to measure the effectiveness of team formulation would improve evaluations of this practice.

Clinical psychologists should carefully consult research specific to their work areas, and its limitations, before embedding team formulation. As this review indicated that outcomes can differ according to whose views are represented, pilot work should be evaluated from multiple stakeholder perspectives (e.g., non-psychology staff members, service-users, and carers).

### **Limitations**

Consideration against the AMSTAR checklist (Shea et al., 2007) identifies several quality issues with this review. Firstly, only one person undertook the review process: potential for bias is increased by the lack of dual and independent screening, quality appraisal, and data extraction. In addition, exclusion of grey literature limits the scope of this review and increases the risk of publication bias. Despite an extensive search of electronic databases, some articles may have been missed. Given that all studies were published in mental health or forensic services in the United Kingdom, and related to clinical psychology practice only, transferability of findings beyond this context is questionable.

## **Conclusion**

There is weak evidence to support the claimed beneficial outcomes of team formulation in practice. There is a need for greater specification and standardisation of 'team formulation' practices (i.e., in terms of how this practice is defined and implemented) to enable meaningful evaluation and thereby inform best-practice in services. Based on our review of existing operationalisations, we can offer a working definition of the intended *function* of team formulation: to enable team members to develop a shared psychological understanding of presenting difficulties; which summarises their nature, explains their development and maintenance, and guides intervention planning. Moreover, we have identified that the practiced *form* of team formulation can vary substantially along dimensions of structure and hierarchy (e.g., from unstructured peer discussions to highly structured, psychologist-led consultation). Further research using robust study designs is needed to allow for the systematic investigation of any relationships between team formulation and outcomes – and their sensitivity to differential forms of team formulation practice.

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\*Denotes articles included in the review

Table 1  
*Inclusion and Exclusion Selection Criteria*

Inclusion Criteria	Exclusion Criteria	Rationale
<b>Population</b>		
Setting or population relevant to practitioner psychologists (e.g. offender health, mental health, physical health, neuropsychology etc.)	Setting or population not relevant to practitioner psychologists	To reflect the broad work contexts of practitioner psychologists
<b>Intervention</b>		
<p>Article contains a description of at least one of the three review areas:</p> <ul style="list-style-type: none"> <li>a) Team formulation as a concept</li> <li>b) Information about how team formulation was put into practice</li> <li>c) The outcome evidence reported as arising from team formulation</li> </ul>	<p>Articles which did not include information on at least one of the three review areas.</p> <p>One professional receiving supervision from another only</p>	<p>To answer the three review questions. (No a priori definition of team formulation was used given that this was the nature of the first review question).</p> <p>Individual supervision was considered a different practice to team (i.e. more than two people) formulation</p>
Is created for, or with, a service user (or difficulties associated with working with the service user/population)	Use of fictional case examples or articles which presented staff training in formulation only	The review focused on clinical practice in context and not on teaching formulation skills
Involves a psychologist	Team formulation implementation by a non-psychologist	Formulation is a practitioner psychologist competency (HCPC, 2015), thus this review was restricted to such professionals
<b>Study Characteristics</b>		
Articles written in the English language and accessible before 1 <sup>st</sup> July 2016		Pragmatic reasons
In-press, in-preparation or published article in a peer-reviewed journal		Minimum threshold for quality. Acknowledging the potential for publication bias within the review, there have been no known published systematic reviews which have focused on this body of literature.
Any study design		Assumed that methods of describing and evaluating team formulation would be heterogeneous
Any publication date		To yield enough studies for cross-comparisons

Table 2  
Key Characteristics and Findings of Included Articles

Author (Year) Study Design	Population, Setting	Study Aim	Definition of Team Formulation	Implementation of Team Formulation	Evaluation Methods	Outcomes of Team Formulation Practice
Berry et al. (2015) Cluster Randomised Design	Adult Mental Health, Inpatient Rehabilitation	To assess the feasibility and potential efficacy of team formulation	Framework to: link developmental and maintenance factors of problems; inform intervention; facilitate psychological thinking amongst staff; support SU recovery	One-hour meeting, psychologist led. Formulation includes SU's strengths, history, triggers, coping strategies, impact on staff and intervention plan	Length of Stay; Medication reductions; Relapse in mental health; Risk management; WAI; WAS; MBI; PCS; SU symptoms and functioning. N = 74 ward staff N = 36 SU	<b>Staff:</b> Intervention group rated sig. ↓ depersonalisation (MBI) than control group at outcome ( $d = -0.84$ ) <b>SU:</b> Intervention group rated WAS sig. ↑ than control group at outcome ( $d = 0.83$ ). Reported feeling ↓ criticised by staff than control group at outcome ( $d = -1.75$ )
Berry, Barrowclough, & Wearden (2009) Cohort Study	Adult Mental Health, Inpatient Rehabilitation	To develop formulations of SU mental health needs with staff teams and explore the effects of the formulation process on staff appraisals	Drawing together developmental and maintenance factors of problems including SU-staff interactions	90-minute meetings during handover period; psychologist led. Formulation includes SU's strengths, history, triggers, coping strategies, impact on staff and intervention plan	Likert Scales, based on IPQ and developed by authors. N = 30 ward staff	<b>Staff related:</b> Sig. ↑ positive perceptions of SU over time ( $d = 0.65$ )
Christofides, Johnstone, & Musa (2012) Qualitative	Adult Mental Health, Community and Inpatient Teams	To explore clinical psychologists' accounts of their use of psychological case formulation in MDTs	Creating a shared formulation guides SU care through informal discussions as part of an on-going process	Informal process of sharing ideas; 'chipping in' hypotheses on an ad- hoc basis (e.g., informal discussions); joint working	Interviews analysed using Thematic Analysis. N = 10 clinical psychologists	<b>Service related:</b> Psychologists viewed that staff value team formulation, have ↑ psychological understanding as a result
Davenport (2002) Opinion article	Adult Mental Health, Acute Inpatient Rehabilitation	To describe specialised practice	Creating a shared understanding around a SU and locating this within ward dynamics. 'Map or script' for both staff and SUs	SU's core care team meet with psychologist to develop the formulation of SU. Current and desired interactions with the SU are considered	None specified	<b>Staff related:</b> Author perceived ↑ levels of staff self- reflection <b>Service related:</b> Author perceived improved management of staff-SU dynamics, ↑ team collaboration
Ingham (2011)	IDD, Residential unit.	To pilot formulation workshops with direct care staff	BPS (2004) definition of formulation.	2x 3-hour workshops; psychologist led. Review of history via a timeline;	Idiosyncratic behavioural observations; Staff perceptions of impact of	<b>SU related:</b> ↓ staff perception of challenging behaviours; no

Author (Year) Study Design	Population, Setting	Study Aim	Definition of Team Formulation	Implementation of Team Formulation	Evaluation Methods	Outcomes of Team Formulation Practice
Single Case Design			Developing an understanding in collaboration with staff involved in the presenting problem	education on formulation; exploration of factors in the occurrence and management of challenging behaviour	behaviour via likert scales; formulation workshop effectiveness via an author-developed questionnaire. N = 7 direct care staff	longer at risk of placement breakdown <b>Staff related:</b> ↓ perception of severity and impact of behaviour; ↑ understanding of SU's problems; satisfied with team formulation
Murphy, Osbourne, & Smith (2013) Qualitative	Older Adults, Inpatient Dementia and Mental Health	To explore staff perceptions of psychological formulation consultation. To explore the ways in which formulation consultation impacted on staff's daily practice, and the mechanisms of change involved	BPS (2001) definition. Sharing formulation within consultation and creating a reflective space	Based on Dexter-Smith (2007) model including CBT formulation training. Weekly psychologist led sessions. MDT bring assessment information to jointly develop formulation. Further informal consultation provided	Interviews, analysed using Thematic Analysis. N = 10 ward staff	<b>Staff related:</b> Author viewed that the nature of SU problem impacted on staff's perceived usefulness of formulation; Staff reported intent to modify interactions with SU <b>Service related:</b> mixed views about impact on perceived team efficiency
Ramsden, Lowton, & Joyes (2014) Cohort study	Criminal Justice Staff, Personality Disorder Offender Pathway	To evaluate how formulation-focused consultation impacted upon staff understanding of SU, attitudes towards working with SU and confidence in their risk management of SU	Consultation; Collaboratively constructed case formulation to promote change, effective risk management and skills for working with SU	Highly structured, 1-2 hour meeting; psychologist led; systematically answering a series of questions about the SU; subsequent consultation report	Staff self-reported understanding, competency, and attitudes to working with SU (PDKASQ); Consultation Satisfaction Survey developed by the authors. N = 46 criminal justice staff	<b>Staff related:</b> Sig. ( $p < .01$ ) ↑ in self-reported understanding, capability and positive attitudes to working with SU; No numerical data for supervision questionnaire
Rowe & Nevin (2013) Case series	IDDD, challenging behaviour inpatient unit	To assess the feasibility of developing patient voice in formulation. To provide a person-centred bespoke solution for each SU to achieve this	BPS (2007) definition, with a focus on SU involvement in the formulation	Meeting led by psychology with MDT and external professionals. Inclusion of SU voice through visual and verbal modes of communication as well as functional analysis of presenting problems	Number and nature of action points arising from the meeting; Author perceived extent to which SU voice is understood and included within the formulation. N = 4 SU	<b>SU related:</b> SU views were perceived to have been systematically included within the formulation; perceived ↑ in SU focused actions <b>Service Related:</b> Intended to include SU voice into care pathway as standard

Author (Year) Study Design	Population, Setting	Study Aim	Definition of Team Formulation	Implementation of Team Formulation	Evaluation Methods	Outcomes of Team Formulation Practice
Summers (2006) Qualitative	Adult mental health, High dependency inpatient unit	To describe staff views of team formulation practice. To understand the benefits and limitations of this practice	Hypotheses about what happens in the SU's mind; making links between present and past; 'map' for SU and staff to make sense of care processes	Twice-weekly meetings. Review of SU history and focused on staff experience of the SU. Written up into a summary or diagram	Interviews analysed using Grounded Theory. N = 25 ward staff	<b>Staff related:</b> ↑ self-reported knowledge, being heard; valued the process for bringing the team together, some staff reported negative views of the formulation and its impact
Whitton et al. (2016) Cohort study	Forensic IDD, Medium and low secure inpatient units	To evaluate the usefulness of team formulation and consider the implications for care and treatment	Hypotheses linking problems together; provides predictions about SU; embedded in theory	Routine meetings, psychologist led, attended by a range of staff	Questionnaire developed by the author. N = 89 ward staff	<b>Staff related:</b> Negative views of team formulation ↓ over time ( $d = -0.50$ )
Wilcox (2013) Opinion Article	IDD, Community Team	To share information and reflections on the process of setting up team formulation meetings	'Multi-disciplinary reflective practice meeting.' Consultation when the team are stuck, split or scared	Focus on reflective practice, using a consultancy approach. Introduced at a time of transition. Monthly 2-hour meetings, psychologist led. Includes a focus on risk; limited use of psychological jargon	Author's reflections on the challenges and solutions to the meetings. Pre- and post-meeting questionnaires designed by the author. N = 19 community team members	<b>Staff:</b> Mean scores remained stable over time. No statistical tests used (sample underpowered)

*Note.* BPS = British Psychological Society; IDD = Intellectual and Developmental Disability Note; IPQ = Illness Perception Questionnaire; MBI = Maslach Burnout Inventory; MDT = Multi-Disciplinary Team; PCS = Perceived Criticisms Scale; PDKASQ = Personality Disorder Knowledge and Skills Questionnaire; SU = Service User; WAI = Working Alliance Inventory; WAS = Ward Atmosphere Scale



Table 3  
*Quality Appraisals of Included Studies by Study Type*

	1	2	3	4	5	6	7	8	9	10	11	12	A	B	Rating	Comments
<b>Randomised Control Trials Checklist (CASP, 2006)</b>																
Berry et al. (2015)	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	-	Y	P	Moderate	Cluster design: confounding variables in the intervention clusters were not considered
<b>Cohort Study Checklist (CASP, 2006)</b>																
Berry et al. (2009)	Y	Y	N	U	N	P	Y	Y	N	P	Y	Y	Y	N	Moderate	Unclear if staff views were a product of desirability bias and whether change was sustained over time.
Ramsden et al. (2014)	Y	Y	N	N	P	N	U	U	P	P	Y	U	Y	P	Low	No valid baseline measurement and a large, unexplained attrition rate at outcome
Whitton et al. (2016)	Y	Y	N	P	Y	P	Y	P	P	Y	Y	P	N	P	Moderate	Outcome of interest was present at the start of the study. Exposure to team formulation varied widely.
<b>Case Study Checklist (CASP, 2006)</b>																
Ingham (2011)	Y	Y	U	Y	Y	N	Y	N	P	Y	Y		Y	P	Moderate	Confounding variables were not considered. Unclear why and how the single case was recruited
Rowe & Nevin (2013)	Y	Y	Y	U	U	U	Y	Y	Y	P	U		N	P	Moderate	Confounding variables were not considered and description of team formulation lacked detail
<b>Qualitative Study Checklist (CASP, 2006)</b>																
Christofides et al. (2012)	Y	Y	Y	Y	Y	Y	P	Y	Y	Y			P	P	Moderate	Ethical information was unclear. Researcher had a positive view of team formulation
Murphy et al. (2013)	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	Y		P	U	Moderate	Implementation process lacked detail. Unclear why only n=2 from Ward A compared to n=8 from Ward B were recruited
Summers (2006)	U	U	N	N	N	N	N	N	N	N	N		N	P	Low	Details unclear throughout e.g. recruitment, data collection and analysis. Themes were not well substantiated in some instances
<b>Expert Opinion Checklist (Joanna Briggs Institute, 2015)</b>																
Davenport (2002)	Y	Y	Y	N	N	P							P	N	Moderate	Positive impact of team formulation appears to be personal opinion and is not supported by evidence
Wilcox (2013)	Y	Y	Y	Y	P	Y							P	P	Moderate	Author developed questionnaire is unclear. Used with different numbers of staff at different points in time

*Note.* CASP = Critical Appraisal Skills Programme; Y = Criteria met; P = Criteria partially met; U = Unclear if criteria met; N = Criteria not met. A = item rating quality of team formulation descriptions; B = item rating quality of evaluations of team formulation

Table 4  
*Categories of Definitions of Team Formulation*

	Terms for Team Formulation				Transtheoretical Aspects of Formulation <sup>a</sup>			
	Shared understanding	Informal sharing of ideas throughout practice	Consultancy	Reflective Practice	Summary and explanation of SU problems	Explanation of development of problems	Use of psychological theory /principles	Intervention plans
<b>Quantitative Articles</b>								
Berry et al. (2009)	✓		✓		✓	✓	✓	✓
Berry et al. (2015)	✓		✓		✓	✓	✓	✓
Ingham (2011)	✓		✓		✓	✓	✓	✓
Ramsden et al. (2014)	✓		✓		✓	✓	✓	✓
<b>Qualitative and Descriptive Articles</b>								
Christofides et al. (2012)		✓			✓		✓	
Davenport (2002)	✓			✓	✓	✓	✓	✓
Murphy et al. (2013)	✓		✓	✓	✓	✓	✓	✓
Summers (2006)	✓			✓	✓	✓	✓	✓
Wilcox (2013)	✓		✓	✓	✓	✓	✓	✓

*Note.* <sup>a</sup>= As identified by the Division of Clinical Psychology (2011)

Table 5  
*Categories of Implementation of Team Formulation*

	Purpose	Format	Psychologist's Role	Level of Structure	Level of Collaboration
<b>Quantitative Articles</b>					
Berry et al. (2009)	Change staff appraisals of SU and enhance staff skills to work with SUs	Consultation: Weekly meetings open to all staff	Facilitator	High: Manualised	High: Jointly developed
Berry et al. (2015)	Improve Staff-SU relationship as a way to improve care	Consultation: Weekly meetings open to all staff	Facilitator	High: Manualised	High: Jointly developed
Ingham (2011)	Change staff appraisals of a SU and enhance staff skills to work with a challenging SU	Consultation: 2x 3-hour workshops for SU's core care team	Trainer and facilitator	High: Protocol Driven	High: Jointly developed
Ramsden et al. (2014)	Enhance staff understanding and skills to work with challenging SUs	Consultation: Part of existing team meeting, when requested	Consultant	High; Protocol Driven	Moderate: Staff ideas may inform a written guidance report
<b>Qualitative and Descriptive Articles</b>					
Christofides et al. (2012)	Facilitate staff to develop their own psychological understandings	Informal discussions integrated into routine practice	Peer/team member	Low: Unstructured	Various
Davenport (2002)	Increase staff understanding of staff-SU relationship	Reflective practice: Twice-weekly meetings, SU core care team	Facilitator	Moderate: Semi-structured	High: Jointly developed
Murphy et al. (2013)	Increase staff understanding and skills to work with challenging SUs	Reflective practice/consultation; Weekly meetings open to all staff	Trainer and facilitator	Moderate: Semi-structured	High: Jointly developed
Rowe & Nevin (2013)	Inform idiosyncratic interventions	Meeting as standard part of care pathway	Not reported	Not reported	Includes SU voice
Summers (2006)	Increase staff understanding of SUs and inpatient care	Reflective practice: Twice-weekly meetings for SU core care team	Facilitator	Moderate: Semi-structured	Moderate: Staff ideas may inform written formulation
Wilcox (2013)	Provide a formal, reflective space	Reflective practice: Monthly meetings, open to all staff	Facilitator	Moderate: Semi-structured	High: Jointly developed

Table 6

Summary of Quantitative and Qualitative (Descriptive) Outcomes from Team Formulation Studies

	Service Related			Staff-Related			Service User-Related		
	Team cohesion	Risk Management	Therapeutic Milieu	Satisfaction with Team Formulation	Understanding of SU Presentation	Attitude/empathy towards SU	Influence on treatment/care	Staff-SU Relationship	Problem Severity
<b>Quantitative Data</b>									
Berry et al. (2009)					++	++			
Berry et al (2015)									
Staff ratings			NC			++		-	
SU ratings			++					++	-/+
Ingham (2011)									+
Ramsden et al. (2014)		+			++	++			
Whitton et al. (2016)				++					
<b>Qualitative Data</b>									
Christofides et al. (2012)	+			+	+	+			
Murphy et al. (2013)	-/+			-/+	-/+	+	+	+	
Summers (2006)	+			-/+	+	-/+	-/+		

Note. SU=service user; ++ statistically significant positive finding; + positive finding; - negative finding; -/+ positive and negative findings reported within the study; NC=no observable change

Figure 1. PRISMA flow diagram

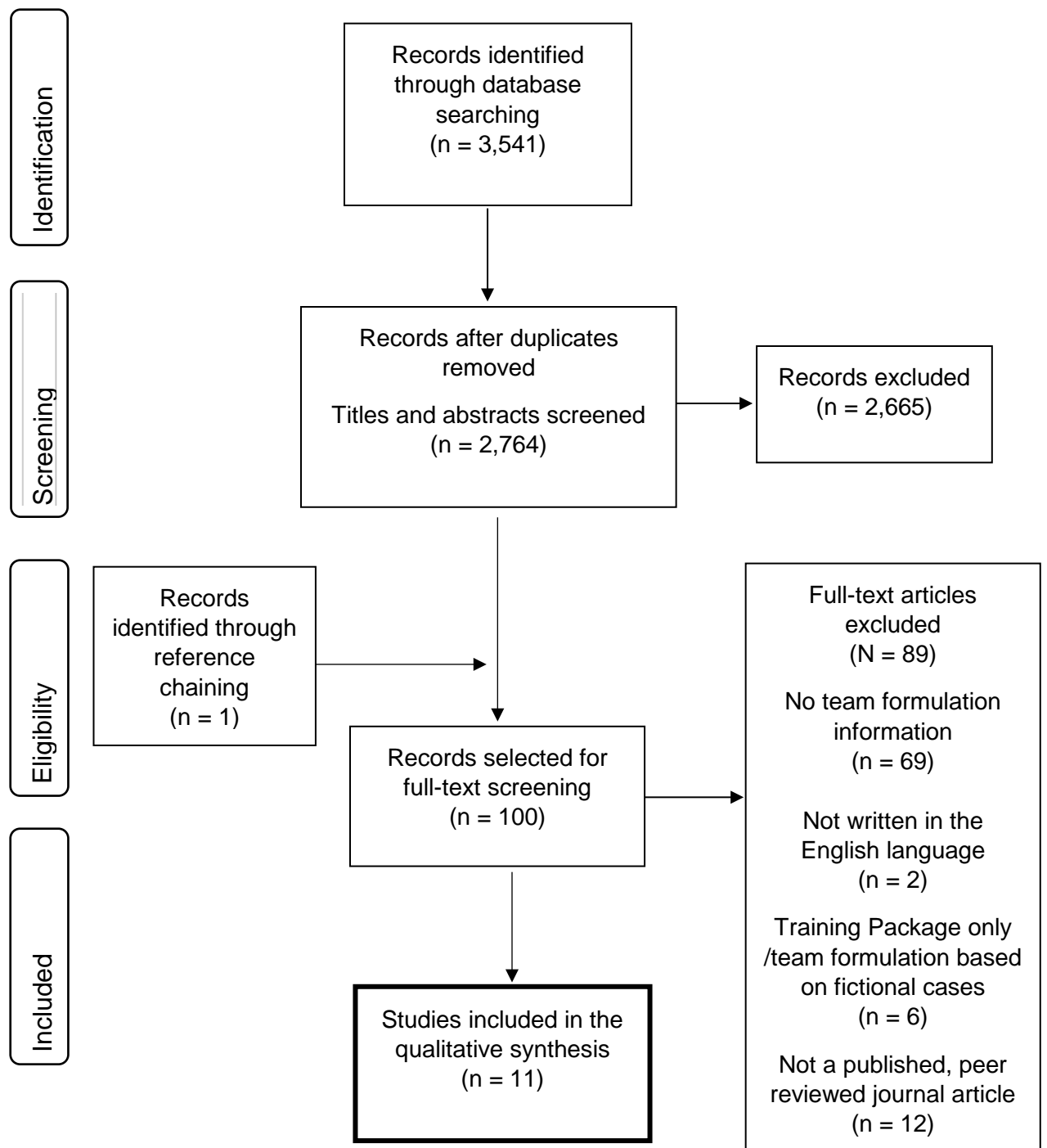


Figure 2. Venn Diagram of Team Formulation Descriptions from Peer Reviewed Literature

