Use of Systematic Review Terminology and Methodological Quality in Children's Social Care

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We have no known conflicts of interest to disclose.

This work was supported by the Department for Education, England, UK under Grant 41070002828.

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Abstract

***Purpose*:** What Works for Children's Social Care has developed an 'Evidence Store' to improve awareness of evidence from systematic reviews in children's social care. During review selection, some reviews were excluded due to methodological flaws, which this paper considers. ***Methods*:** Reviews were identified using a systematic search and screening process. Where reviews were identified as systematic reviews or meta-analyses, exclusion reasons were recorded and analysed. ***Results*:** The main methodological issue related to quality assessment, which was not conducted in the majority of cases. Several different types of quality assessment tools were used: scales, checklists, and domain-based approaches. ***Conclusions*:** This is the first study to examine the use of systematic review terminology in combination with the use of quality assessment tools in reviews in children's social care. Consideration of appropriate systematic review methods will enable researchers to generate high quality evidence and support delivery of evidence-based care.

***Keywords*:** methodology, quality assessment, critical appraisal, social work, child welfare

Use of systematic review terminology and methodological quality in children's social care

A common challenge across the human services is how to navigate the ever expanding research base to identify what works and to deliver evidence-informed practice. Researchers and in particular practitioners in the children's social work and social care sector are not absolved of this problem. There is less consensus in social work about what constitutes the most useful evidence for practice than there is in health care. Some social work academics argue for a model of evidence-based practice broadly similar to that which is widely accepted in health care (Gambrill, 1999; Sheldon & Macdonald, 2010). However, others disagree for various reasons, raising philosophical and practical objections to a privileging of experimental evidence (Webb, 2001; Adams et al., 2009). There are challenges in practice with achieving any awareness of evidence amongst practitioners and managers in social care, whether critical or otherwise. For those working in children's social care, whose priority must be casework and whose information literacy skills may be limited, easy access to reliable evidence is particularly important.

To overcome these challenges, What Works for Children's Social Care, a centre for the promotion of evidence in practice, has developed an 'Evidence Store' as part of the website (https://whatworks-csc.org.uk/evidence-store/). As well as providing easier access to evidence about children's social care interventions, the Evidence Store also acts as an entry point for evidence-based practice by focusing on high-quality systematic reviews. Systematic reviews and meta-analyses of randomised controlled trials represent the highest level of evidence of intervention effectiveness (Howick, 2009). The systematic reviews chosen for the

Evidence Store provide a synthesis of what is known in a specific area by evaluating all of the evidence in that area.

It should be noted that there are various different traditions of evidence synthesis in social work and social care as compared with health care. It is not surprising in light of the debate about evaluation hierarchy referred to above that there will be a range of views. The traditional medical model of systematic review, focused almost exclusively on randomised controlled trial evidence, is represented by Cochrane and The Campbell Collaboration, which both have groups covering social care. However, an approach to social care evidence synthesis that is informed by realist theory (Pawson, 2002) is recommended by some (e.g. Sharland & Taylor, 2006). Realist approaches have pioneered consideration of not only the question 'what works?' but also who interventions work for, why they work and how they are implemented; questions which are now widely embraced by Cochrane and Campbell. A recent development in the UK of a realist approach to systematic reviews is the EMMIE framework (Johnson et al., 2015) which has also been adopted by the What Works Centre for Crime Reduction. Another issue for social care is the involvement of people who use services. Cochrane have involved members of the public in steering their reviews from the outset (Bastian, 1994) but the UK Social Care Institute for Excellence went further in including service user testimony in the review process, alongside other sources of evidence, when research evidence on user views was lacking (Fisher, 2016).

As noted, What Works for Children's Social Care uses the EMMIE framework for summarising review evidence in its Evidence Store. This framework goes beyond effect results (the first '**E**') to also consider **M**echanisms, **M**oderators, **I**mplementation and **E**conomic cost. However, many reviews contain little information other than intervention

effect. A basic criterion for inclusion in the Evidence Store is, therefore, synthesis of evidence on intervention effect.

Whilst identifying reviews for the Evidence Store, it became clear that, although a number of reviews were relevant to children's social care and may have been useful additions to the Evidence Store, they had methodological flaws that raised questions about their reliability and thus were excluded. This paper considers the methodological reasons for exclusion of those articles that identified themselves as systematic reviews or meta-analyses in the title or abstract and met the remaining aspects of our inclusion criteria. Further, this paper aims to provide some methodological insight for those conducting systematic reviews on the effectiveness of interventions in children's social care.

Systematic Review Methodology

The Database of Abstracts of Reviews of Effects (DARE) criteria suggest that the following five elements should be present in systematic reviews: (i) reporting inclusion/exclusion criteria; (ii) providing an adequate search strategy; (iii) synthesising included studies; (iv) assessing quality of studies; (v) presenting sufficient details of included studies. Similarly, Grant and Booth (2009) define a systematic review as including a systematic search, quality assessment and synthesis of the research. Their typology of reviews clarifies terminology in relation to different types of literature review and defines a meta-analysis as a review that includes the aspects of a systematic review along with a statistical analysis of quantitative results to provide a greater estimate of the effect of interventions (Grant & Booth, 2009).The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement suggests that systematic reviews and meta-analyses

should be identified as so in their titles (Moher et al., 2009) in order for easier identification and indexing (Liberati et al., 2009). Whilst scoping reviews follow similar methods to systematic reviews, they may have broader research questions and include a wider range of study designs (Arksey & O'Malley, 2005). Scoping reviews may also omit the step of quality assessment of the studies included (Grant & Booth, 2009).

In the next sections, we briefly discuss methodological aspects of conducting a systematic review in order to give readers insight into the process and the aspects we considered. For further detail on methodology for systematic reviews of intervention effectiveness, guidelines are available from Cochrane (Higgins et al., 2019), the Campbell Collaboration (2019), Joanna Briggs Institute (Aromataris & Munn, 2017) and the Centre for Reviews and Dissemination (CRD, 2009). Developing a protocol for a review provides transparency in the methods used and can support reproducibility of the review. Additionally, disseminating review protocols minimises the possibility of unnecessary review duplication and protocols can be registered on the PROSPERO register of systematic reviews (e.g. Brand et al., 2019). Elements of the review that should be defined within the protocol include the inclusion and exclusion criteria, search strategy, procedure for quality assessment, and how the results will be synthesised and presented.

Inclusion and Exclusion Criteria

The inclusion and exclusion criteria should be developed at the protocol stage and reported in the methods of the review. The inclusion criteria should detail references that will meet the scope of the review in terms of population(s), intervention, comparator, outcome/exposure (PICO). In addition, aspects of study design, country and date may be

defined in the inclusion criteria. The exclusion criteria can be used to provide clarity on studies that are outside the scope of the review. The inclusion and exclusion criteria are used by reviewers to screen citations at various stages of the review. A small set of citations can be used for calibration to ensure that all reviewers interpret the criteria in the same way. Following this, screening is conducted as guided by the protocol and may be done independently in duplicate (i.e. multiple reviewers screening the same citations) or independently with a check (i.e. single reviewer screening and second reviewer checking) or independently (i.e. single reviewer).

Search Strategy

The search should include all relevant databases for the topic which are available to the research team (e.g. Medline, PsycINFO, Scopus, Social Policy and Practice). The terms for the electronic search strategy may be developed from the research question considering aspects such as the population, intervention and outcome. Additional synonyms are added to reflect the topic area. Where available on the platform, indexed terms (e.g. Medical Subject Headings) can be included in the search strategy to aid with capturing relevant literature. Databases can be searched from inception or, if appropriate, limiters may be placed in the search strategy such as date filters or country filters. In addition to database searching, supplemental search methods may be used to assure the completeness of the search approach. This is particularly important in fields where publishing research in academic journals is not standard practice. Such methods may include reference list checking, citation tracking, grey literature searching, electronic table of contents searching and contacting experts.

Quality Assessment

Quality assessment, often used interchangeably with the preferred Cochrane phrase 'risk of bias assessment', is conducted in order to assess the quality of studies included within reviews and illuminate biases within these studies (Verhagen et al., 2001). Cochrane state that considering 'risk of bias' more accurately reflects how a study was conducted rather than what was reported. We have used the phrase 'quality assessment' here to describe all forms of risk of bias and quality assessment. Bias may introduce inaccuracies in the results of included studies and lead to under- or over-estimation of the efficacy of an intervention (Page et al., 2016). This, in turn, has an impact on the confidence that can be placed in the results of reviews. The process of quality assessment leads to an informed judgement on the evidence base, which can support the weight of the review findings. Further, quality assessment is useful for the consumers of systematic reviews, such as commissioners and policymakers, as the relevance of particular biases to the specific context are highlighted.

Presentation of Included Study Details

Sufficient details of the studies included in a systematic review are necessary for readers to make an informed judgement of the applicability of the results to the topic and related fields. These details are noted during the data-extraction phase of the review and the results are often reported in a tabular format. Key areas of the included studies to present include details on population, intervention, outcomes, study design (if appropriate), effect, and country.

Method

In order to select high-quality systematic reviews and meta-analyses for the Evidence Store a protocol was developed. The results were screened by three authors (FM, HM, SW) against pre-defined inclusion and exclusion criteria. Selected full-text reviews were then forwarded to other What Works for Children's Social Care researchers who appraised them for inclusion in the Evidence Store – this further selection focused on relevance to practitioners in England.

Protocol

The authors developed a protocol to determine the search strategy, inclusion and exclusion criteria and process for selecting reviews to be considered on the Evidence Store.

Eligibility Criteria

Population

To be eligible for inclusion the review interventions needed to have an impact on children and young people. This could be achieved through the direct effects of the study (i.e. interventions directly targeting children and young people) or through indirect effects (i.e. interventions targeting parents or those working with children and young people, such as social care workers/carers). We defined children and young people as those aged 21 or younger. Where the young person was engaged in education or training, they were included if they were 25 or younger. Reviews were excluded where a significant proportion (≤50%) was older and it was not possible to disaggregate the data. Reviews that included populations of incarcerated youths were also excluded, on the basis that our focus was community-based interventions.

Intervention

Interventions needed to be concerned with child welfare, including child protection and the care system. Eligible reviews were required to report evidence of the effect of the intervention. Because of our focus on social work and social care, studies of reviews looking at interventions taking place in healthcare settings or where healthcare practitioners delivered the intervention were excluded.

Study design

To be eligible for consideration for the Evidence Store, papers had to be reports of systematic, meta-analytic or scoping reviews. Systematic reviews had to meet all five criteria developed by the Database of Abstracts of Reviews of Effects (DARE):

1. Reported inclusion/exclusion criteria
2. Adequate search strategy
3. Synthesised included studies
4. Assessed quality of studies
5. Presented sufficient details of included studies

Country

Reviews were eligible for inclusion where a majority of included studies were from the following countries: England, Wales, Scotland, Northern Ireland, USA, Canada, Australia, New Zealand, France, Germany, Sweden, Finland, Norway, Denmark, Netherlands, and Ireland. These countries were chosen on the basis of similarity of culture and political system with the UK, as the main audience for the Evidence Store was to be people working in the social care sector in England.

Search Date

In order to ensure relevance to current practice review searches needed to be conducted later than 2005 and the review published no earlier than 2008. The included papers in the reviews needed to be published after 1990, in accordance with the enactment and introduction of the UK Government's Children Act in 1989 (Gov.UK., 1989).

Search Strategy

The search strategy included three sets of terms related to children and adolescents, social care, and systematic reviews. The following databases were searched: ASSIA, British Education Index, Child Development & Adolescent Studies, CINAHL, Embase, Epistemonikos, ERIC, HMIC, IBSS, Medline (including Medline in Process and Medline ePub), PsycINFO, Scopus, Social Policy & Practice, Sociological Abstracts (including Social Services Abstracts), Web of Science (Social Sciences Citation Index, Conference Proceedings Citation Index - Social Science & Humanities, Emerging Sources Citation Index). Database searching for the first wave of systematic review identification was completed in February 2019.

We searched the following websites for additional grey literature: Action for Children, Barnardo's, Care Leavers' Association, Children's Commissioners' offices for four UK nations, Children's Society, Child Welfare Information Gateway, Department for Education, Early Intervention Foundation, Joseph Rowntree Foundation, National Institute for Health and Care Excellence (NICE), OpenGrey, Rees Centre, Samaritans, Thomas Coram Foundation, Spring Consortium. Grey literature searching was completed in February 2019.

Study Selection

Reviews were screened by three reviewers (FM, HM, SW). For calibration purposes, two random sets of 250 citations were generated and were screened by all reviewers at title and abstract against the inclusion criteria. Following this, titles and abstracts were screened independently by one reviewer. Articles that progressed to full-text screening were screened independently and checked by a second reviewer. Reasons for exclusion were recorded on an inclusion/exclusion form.

Data Extraction

Reasons for exclusion were transferred into a database; we assessed only those that were identified as systematic reviews or meta-analyses in the title or abstract in order to assess authors' adherence to methodological guidelines for systematic reviews and meta-analyses. Where publications were excluded only for methodological reasons (i.e. they failed to meet the DARE criteria (see section 2.2.3)), then the failure criteria was specifically recorded.

A large proportion of these studies were excluded because they did not quality assess the included studies. Additionally, where reviews were empty (i.e. no studies were identified for inclusion in the review), they were excluded as it was not possible to conduct quality assessment. Therefore, data extraction of the critical appraisal tools used in systematic reviews that met our inclusion criteria was conducted. Data extracted included tool name, type of critical appraisal tool and the study design(s) the tool was used to assess. In regards to type of critical appraisal tool, we used the approach taken by Page et al., (2018) and coded the tool as one of the following: scale, checklist or domain-based. Scales included those tools

where each item was scored numerically and a total score was calculated (Moher et al., 1995). Checklists included tools with several items without a numerical scoring system (Olivo et al., 2008). Within domain-based tools, researchers were required to make a judgement about risk of bias in relation to a particular domain (e.g. selection bias; Higgins et al., 2011).

Results

A total of 11,259 citations were identified from the database searches and a further 167 through grey literature searching. After deduplication, a total of 5,029 citations remained. Of these, 593 references were screened at full-text with 79 eligible review publications to be considered for prioritisation by the What Works for Children's Social Care stakeholder team for inclusion on the Evidence Store. Of these, 57 stated they were systematic reviews or meta-analyses in the title or abstract. Of the reviews excluded at full-text, 260 were excluded for methodological reasons, of which 33 met the remaining inclusion criteria and identified themselves as systematic reviews or meta-analyses in the title or abstract (see Figure 1). We discuss the methodological reasons for exclusion of the 33 publications that identified themselves as systematic reviews or meta-analyses in the title or abstract alongside the 57 included reviews that also used systematic review terminology to describe themselves.

>>>>>>>**INSERT FIGURE 1 HERE**

Figure 1: ~~PRISMA~~ Study Selection Flow Diagram (Adapted from Moher et al., 2009)

Methodological reasons for excluding reviews were: i) non-reporting of inclusion/exclusion criteria (n=2); inadequate search strategy (n=4); limited synthesis of included studies (n=0); inadequate quality assessment (n=28); and insufficient details presented (n=8). In relation to presenting details of studies, several of the excluded reviews did not report the countries of the included studies, which made the relevance of the review to the U.K. social care system unclear. Each review was assessed against all five DARE criteria and all reasons for exclusion were coded, meaning that some articles were coded for multiple exclusion reasons. In addition, there were two empty reviews, which were not coded.

Quality assessment

As inadequate or no quality assessment was the main methodological reason for exclusion of reviews (n=28), this aspect will be the focus of our discussion. Of those excluded for a methodological reason, the majority were excluded solely on the basis that no form of quality assessment was conducted (n=18), and in two of these instances reporting standards were used to facilitate judgements on the quality of studies: Goyal et al. (2013) used a combination of CONSORT (Schulz et al., 2010) and STROBE (von Elm et al., 2007) reporting standards, whilst Kanine et al. (2015) used CONSORT (Schulz et al., 2010). Additionally, the critical appraisal tools used in three reviews were unclear and it was not possible to assess whether the tools were adequate (Lin, 2014; van der Put et al., 2017; Moynihan et al., 2018). In the remaining five reviews, quality assessment was insufficient and only limited aspects were considered (Nieuwboer et al., 2013a, b; Austin et al., 2017; Murphy et al., 2017; Uretsky & Hoffman, 2017). As noted in the introduction, quality assessment is an important aspect of the systematic review process, which illuminates

limitations to methodology and associated biases in the included studies. Reviews that lack sound conduct may lead to biased results, which could mislead practitioners.

Considering those reviews that met the inclusion criteria, a range of quality assessment tools were used (see Table 1). The majority of reviews (52%) used a tool that was author-developed, despite existing tools being available for the types of study designs that were included in these reviews. Several author-developed tools were created by combining items from multiple existing critical appraisal tools.

Considering those critical appraisal tools that were categorised as scales, seven different tools were used, which included the Downs and Black Quality Index (Downs & Black, 1998), the Jadad Scale (Moher et al., 1996; Olivo et al., 2008) and the Newcastle-Ottawa Scale (Wells et al., 2009). The Downs and Black Quality Index is a 27-item tool, which can be used to assess randomised and non-randomised controlled trails. Items relate to reporting, external validity, internal validity, selection bias and power. Reviewers score each item and create a total score for the study. Whilst scoring in this manner seems to offer a logical solution to assessing the quality of a study, Higgins et al. (2011) advocate against this method as it is unclear how items are weighted, which may lead to an inadequate assessment of bias within a study (Jüni et al., 1999).

Four different ‘checklist’ tools were used to conduct quality assessment, including the Joanna Briggs Institute Meta-Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI; Nwogu et al., 2015), Law’s Critical Review Form (Law et al., 1998), and Scottish Intercollegiate Guidelines Network (SIGN, 2011). The JBI-MAStARI tools include different checklists for each type of study design. Taking the randomised or pseudo-randomised controlled trials checklist as an example, reviewers answer *yes*, *no*, *unclear* or *not*

appropriate to items related to randomisation, blinding, intervention, reporting, outcomes, and statistical analysis. Guidance is available on the use of JBI tools for quality assessment (Aromataris & Munn, 2017).

A total of three different domain-based tools were used for critical appraisal: the Cochrane Risk of Bias Tool (Higgins et al., 2011); the Risk of Bias Assessment Tool for Nonrandomised Studies (RoBANS; Kim et al., 2013) and the Swedish Agency for Health Technology Assessment and Assessment of Social Services Standardised Tool (SBU, 2017). Of these, The Cochrane Risk of Bias Tool was used the most frequently (13 studies) and assesses the following aspects of bias within randomised controlled trials: selection bias, performance bias, attrition bias, detection bias, reporting bias, and other bias. Guidance for making judgements on each bias domain is provided in the updated Cochrane Handbook (Higgins et al., 2019) and authors are required to extract relevant information to support their judgement. We note that the Cochrane Risk of Bias Tool has been recently revised (RoB 2; Sterne et al., 2019).

[Table 1 near here]

Discussion

The process of conducting a systematic review aims to reduce the effects of bias on the research findings. This is achieved through the implementation of transparent and replicable research methods. For those conducting systematic reviews of intervention effectiveness, there are methodological guidelines available from Cochrane (Higgins et al., 2019), the Campbell Collaboration (2019), Joanna Briggs Institute (Aromataris & Munn

2017,) and the Centre for Reviews and Dissemination (CRD, 2009) amongst others. For those interested in systematic reviews specifically in the field of social care, Social Care Institute for Excellence provide guidance (Macdonald, 2003; Rutter et al., 2010). Systematic reviews are resource intensive in terms of labour and cost, and it is imperative that this work contributes to a robust evidence base.

In addition, it is important that appropriate reporting standards are used during the publication of systematic reviews. The PRISMA Statement (Moher et al., 2009) provides guidelines on items to include when reporting a systematic review and a further rationale for the inclusion of each item is available (Liberati et al., 2009). Reporting guidelines, such as the PRISMA Statement (Moher et al., 2009), should be used to ensure that all appropriate details are included in publications. It is important to note that the PRISMA Statement does not provide methodological guidance on how to conduct a systematic review.

Within our study, we considered the terminology of reviews within the field of children's social care and found 33 reviews that included the words *systematic review* or *meta-analysis* in their titles or abstracts, but did not meet the DARE criteria for a systematic review due to methodological reasons. We acknowledge there are critical appraisal tools available for judging the quality of systematic reviews such as the AMSTAR 2 (Shea et al., 2017) and ROBIS (Whiting et al, 2016). Both of these tools have accompanying guidance documents with details on how to assess the risk of bias for different aspects of systematic reviews. For practical reasons we chose the DARE criteria to assess if articles that described themselves as systematic reviews were indeed systematic reviews; this was a pragmatic approach to assess potential reviews for inclusion in the Evidence Store and the DARE criteria were not used per se as a tool to judge quality. However, as detailed information is

not provided for assessing each aspect of a review, our interpretation of the criteria may have led to bias in the selection of systematic reviews.

The main methodological issue we identified in systematic reviews and meta-analyses in children's social care was in relation to quality assessment. In many cases there was no quality assessment, and in others the process for assessment was insufficient to support judgement on risk of bias. It is important to note that reporting guidelines for specific study designs, such as those available via the EQUATOR Network, are not the same as critical appraisal tools. These guidelines should not be used to assess the quality of studies included in systematic reviews as they may not give consideration to all aspects of a study that can lead to bias.

Within those reviews that met our criteria and were identified as systematic reviews or meta-analyses in the title or abstract, a range of scales (24%), checklists (14%) and domain-based (10%) tools were used. Author-developed tools counted for 52% of the quality assessment tools examined. There are limitations associated with the use of author-developed tools, including a potential lack of rigour in their development and limited guidance for reviewers in the assessment of bias. This may cause difficulties with inter-rater agreement and providing an adequate assessment of bias. Further investigation of the choice of quality assessment tools used in the systematic reviews would be of interest although authors rarely report this for any systematic review. However Barlow et al. (2012) stated that no validated quality assessment tool existed for their evaluation of tools for analysing whether children are suffering, or are likely to suffer significant harm. Also an understanding of why some authors chose not to use the 'gold-standard' Cochrane risk of bias tool for RCTs even though they included RCTs and were published after Higgins et al. (2011) would be of interest. For other

systematic reviews such as Bullen at al., (2017) identified studies were primarily descriptive and/or quasi-experimental service evaluations without comparison groups. Unlike in health related research the social care field is not always conducive to conducting RCTs; therefore, discussion needs to take place as to the design of research conducted in this field as well as a consensus to the appropriate tools to conduct quality assessment of non-comparative research. We also must take note that systematic reviews often include research that was published prior to the establishment of more rigours methods. In identifying which systematic reviews have conducted a form of quality assessment it would be of further importance to understand how the quality assessment was used to inform the results of the review.

When choosing an appropriate tool for quality assessment, it is necessary to consider the research design of included studies and the types of biases that such research design may introduce. The use of checklists that provide a numeric summary score for quality is discouraged by Higgins et al. (2011) due to the limited rationale for weighting items within the scale and the lack of reliability (Jüni et al., 1999). Scales and checklists have now evolved into more robust domain-based tools, such as the RoB 2 (Sterne et al., 2019). Such domain-based tools are recommended for use (in the field of health care) when assessing controlled trials to provide a fuller description of the risk of bias, ensure transparency and guide the discussion on the implications (Jüni et al., 2001). This method of assessing study quality can take a significant amount of time as the emphasis is on the reviewers to consider the impact of study conduct on the risk of bias and reviewers are required to possess an understanding of both methodology and the subject area. Therefore, using domain-based tools for quality assessment, such as the RoB 2 (Sterne et al., 2019) and RoBANS tool (Kim et al., 2013), may seem at odds with the rise in requirement to conduct reviews rapidly (Ganann et al., 2010).

Whilst there are other tools available that can be completed in a shorter amount of time, we urge reviewers to consider their appropriateness in light of producing reviews that are reliable and provide a full assessment of the quality of included studies.

To our knowledge, this is the first study that has examined the use of systematic review terminology in combination with quality assessment tools in social care. The systematic methodology used provides a comprehensive picture of the current state of reviews within this field and through conducting this study, a wide scope of the research in this field has been identified and screened. The reliance on authors to fully report information in relation to their review methodology and quality assessment procedures is a limitation of this paper. Where reviews were unclear in terms of quality assessment, we sought to obtain information through further searches or by contacting the authors.

We hope these results will lead to a discussion of the use of appropriate study design terminology (i.e. systematic review/meta-analysis), with the understanding that this can facilitate the identification of relevant research by stakeholders. We further hope that this study provides impetus for discussion around systematic review methods for those conducting research in children's social care and provides initial guidance, particularly in relation to quality assessment tools. Further discussion should also include deciding which quality assessment tools are appropriate if RoB 2 (Sterne et al., 2019) and RoBANS tool (Kim et al., 2013) are not relevant to the included studies; consideration should also be given to determining external validity (applicability) as set out in GRADE (Guyatt et al., 2008). Whilst much of the responsibility lies with individual researchers in conducting studies that are methodologically robust, we believe that journals and publishers have a responsibility for signposting appropriate reporting standards throughout the publication process and to uphold

good practice. This is aligned with recommendations from the International Committee of Medical Journal Editors (ICMJE) that encourage authors to follow formal reporting standards.

Conclusion

Although debates will continue about the types of evidence to prioritise in this field, it is in everyone's interests for research to be thoroughly conducted in its own terms and on this basis, we argue there is some way to go in maximising the quality of systematic reviews of intervention effectiveness in children's social care. Through the consideration of study design terminology and quality assessment, we hope this paper is able to benefit the creation of high quality evidence.

We have noted the limitations in terms of quality assessment within systematic reviews and made suggestions for best practice for those wishing to conduct reviews in children's social care. Additionally, editors and peer-reviewers should ensure that appropriate reporting guidelines such as PRISMA are adhered to before the publication of systematic reviews and meta-analyses (Simera, 2014), which will enable the development of robust and useable evidence in the field of children's social care.

Declaration of Interest Statement

None

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Table 1

Critical Appraisal Tools Used in Systematic Reviews and Meta-Analyses in Children's Social Care

Critical appraisal tool	Tool type	Target study design	Citation(s)
Cochrane risk of bias tool (Higgins et al., 2011)	Domain-based	RCT	Coren et al., 2018 Drozd et al., 2018 Evans et al., 2017 Gardner et al., 2017 Howarth et al., 2016 Kemmis-Riggs et al., 2018 Leenarts et al., 2013 Levey et al., 2017 Macdonald & Turner, 2008 Macdonald et al., 2012 Miller et al., 2011 Prosman et al., 2015 Sanders et al., 2014 Vlahovicova et al., 2017 Walsh et al., 2015 Winokur et al., 2014
Downs and Black Quality Index (Downs & Black, 1998)	Scale	RCT Non-RCT	Al et al., 2012 De Swart et al., 2012 Kinsey & Schlosser, 2013 Strijbosch et al., 2015 Ziviani et al., 2012
Effective Public Health Practice Project (EPHPP): Quality Assessment Tool for Quantitative Studies. (Thomas et al., 2004)	Scale	Any quantitative	Bailey et al., 2019 Dijkstra et al., 2016
EPPI Centre Weight of Evidence (Gough, 2007)	Scale	Any	Carpenter et al., 2013 Newman et al., 2012 Parker, 2012
Jadad Scale	Scale	RCT	Milligan et al., 2010

Critical appraisal tool	Tool type	Target study design	Citation(s)
(Moher et al., 1996; Olivo et al., 2008)			Milligan et al., 2011a Milligan et al., 2011b Niccols et al., 2012 Passarela et al., 2010
Joanna Briggs Institute Meta-Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI)	Checklist	RCT & non-RCT	Nwogu et al., 2015 Riitano & Pearson, 2014
Law's Critical Review Form (Law et al., 1998)	Checklist	Any quantitative	Doab et al., 2015
Maryland Scale of Scientific Methods (Sherman et al., 1997)	Scale	Any	Bronson et al., 2009
Newcastle-Ottawa Scale (Wells et al., 2009)	Scale	Case-control Cohort	Li et al., 2017 Milligan et al., 2010 Milligan et al., 2011a Milligan et al., 2011b Niccols et al., 2012
Quality Assessment of Tools of Diagnostic Accuracy QUADAS-1; (Whiting et al., 2003)	Checklist	Diagnostic Accuracy	Bailhache et al., 2013
Risk of Bias Assessment Tool for Nonrandomized Studies (RoBANS; Kim et al., 2013)	Domain-based	Non-RCT	Sanders et al., 2014
Scottish Intercollegiate Guidelines Network (SIGN, 2011)	Checklist	Any	Wilson et al., 2014
SBU standardized checklists (SBU, 2017b)	Domain-based	RCT Cohort	Langstrom et al., 2013 Bergstrom et al., 2019
What Works Clearinghouse	Scale	RCT Non-RCT	Avellar & Supplee, 2013

Critical appraisal tool	Tool type	Target study design	Citation(s)
(WWC, 2011)			
Author-developed *NB not extracted if scale, checklist or domain as often combination of tools used.*	Checklist (n=6) Domain-based (n=2) Scale (n=7) *NB 3 reviews developed their quality assessment tool by adapting and combining other published tools (Bullen et al., 2017; Dalziel and Segal 2012; Woods et al., 2011)*	Ranged from specifically for RCT or any quantitative study design	Barlow et al., 2012 Bond et al., 2013 Bullen et al., 2017 Dalziel & Segal, 2012 Fraser et al., 2013 Hambrick et al., 2016 Kerr & Cossar, 2014 Kim, 2014 Liabo et al., 2013 MacLean & et al., 2016 McCrae & Brown, 2018 Peacock et al., 2013 Peadon et al., 2009 Vrolijk-Bosschaart et al., 2018 Woods et al., 2011
	Frequency of each type of tool used, n (%): Checklist: 4 (14) Domain-based: 3 (10) Scale: 7 (24) Author developed: 15 (52)		