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# Author's Accepted Manuscript

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# A systematic mixed-methods review of interventions, outcomes and experiences for midwives and student midwives in work-related psychological distress

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Abstract: Abstract

Background

Within challenging work environments, midwives and student midwives can experience both organisational and occupational sources of work-related psychological distress. As the wellbeing of healthcare staff directly correlates with the quality of maternity care, this distress must be met with adequate support provision. As such, the identification and appraisal of interventions designed to support midwives and student midwives in work-related psychological distress will be important in the pursuit of excellence in maternity care.

Objectives

To identify interventions designed to support midwives and/or student midwives in work-related psychological distress, and explore any outcomes and experiences associated with their use. Data sources; study eligibility criteria, participants, and interventions This systematic mixed-methods review examined 6 articles which identified interventions designed to support midwives and/or student midwives in work-related psychological

distress, and reports both the outcomes and experiences associated with their use. All relevant papers published internationally from the year 2000 to 2016, which evaluated and identified targeted interventions were included.

### Study appraisal and synthesis methods

The reporting of this review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines. The quality of each study has been appraised using a scoring system designed for appraising mixed-methods research, and concomitantly appraising qualitative, quantitative and mixed-methods primary studies in mixed reviews. Bias has been assessed using an assessment of methodological rigor tool. Whilst taking a segregated systematic mixed-methods review approach, findings have been synthesised narratively.

### Results

This review identified mindfulness interventions, work-based resilience workshops partnered with a mentoring programme and the provision of clinical supervision, each reported to provide a variety of both personal and professional positive outcomes and experiences for midwives and/or student midwives. However, some midwives and/or student midwives reported less favourable experiences, and some were unable to participate in the interventions as provided for practical reasons.

### Limitations

Eligible studies were few, were not of high quality and were limited to international findings within first world countries. Additionally, two of the papers included related to the same intervention. Due to a paucity of studies, this review could not perform sensitivity analyses, subgroup analyses, meta-analysis or meta-regression.

### Conclusions and implications of key findings

There is a lack of evidence based interventions available to support both midwives and student midwives in work-related psychological distress. Available studies reported positive outcomes and experiences for the majority of participants. However, future intervention studies will need to ensure that they are flexible enough for midwives and student midwives to engage with. Future intervention research has the opportunity to progress towards more rigorous studies, particularly ones which include midwives and student midwives as solitary population samples

**Keywords:** Midwives; Job Satisfaction; Employee Assistance Programs; Burnout, Professional; Systematic Review; Stress, Occupational

## Introduction

Midwives and student midwives experience both organisational and occupational sources of work-related psychological distress (Pezaro et al., 2015). Negative working cultures, a lack of staff support, bullying, burnout, uncaring behaviours, compassion fatigue and high staff turnovers have been observed in the midwifery profession (Begley, 2002; Chokwe and Wright, 2013; Douglas, 2011; Farrell and Shafiei, 2012; Hall et al., 2016). This set of circumstances may hinder excellence in maternity care (Hall et al., 2016; The Royal College of Physicians, 2015; West et al., 2015).

The latest review of maternity services within the United Kingdom draws attention to the fact that midwives are more likely to report work-related stress than other healthcare professionals (Cumberlege, 2016). As such, it is becoming ever more pressing for research to identify and evaluate support interventions for the benefit of service users, the public and the midwifery profession as a whole.

Many have cited the need to identify efficacious interventions to support midwives (Cameron et al., 2011; Curtis et al., 2006; Kalicińska et al., 2012; Sullivan et al., 2011).

However, it is not yet known what interventions are available, how effective they are, and how users experience them. Towards achieving this, a systematic mixed-methods review was performed with the main objectives being to identify interventions designed to support midwives and/or student midwives in work-related psychological distress, and explore any outcomes and experiences associated with their use.

## Rationale

A more comprehensive understanding of the quality and outcomes of the literature on interventions designed to support midwives and/or student midwives in work-related psychological distress is required to establish a strong foundation for further research and understand the best evidence for the most effective interventions. Previous reviews of this type have not included either midwives and/or student midwives as an isolated study population sample (Awa et al., 2010; Guillaumie et al., 2016; Murray et al., 2016; Regehr et al., 2014; Romppanen and Häggman-Laitila, 2016; Ruotsalainen et al., 2015). Therefore, this review adhered to methodological standards to examine the literature on interventions designed to support midwives and/or student midwives in work-related psychological distress.

## Objectives

The objectives of this review were to identify interventions that have been designed to support midwives and/or student midwives in work-related psychological distress and to explore any outcomes and/or experiences associated with their use. Meeting these objectives did not require control groups or any particular study type or study comparators, enabling a larger number of potential studies to be included.

The research questions addressed within this review are: 1) What interventions have been developed to support midwives and/or student midwives in work-related psychological distress? and 2) What are the outcomes and experiences associated with the use of these interventions?

## Methods

The segregated systematic mixed-methods review design, as described by Sandelowski, has been employed (Sandelowski et al., 2006). This methodology is described as ‘the design of choice’ where a synthesis presents qualitative and quantitative findings separately. This method also allows the researcher to subsequently organise findings into a short line of argument synthesis, which provides a contemporary ‘picture of the whole’ (Barnett-Page and Thomas, 2009; Noblit and Hare, 1988).

### Protocol and registration

The protocol for this review has been registered within PROSPERO, at [http://www.crd.york.ac.uk/PROSPERO/display\\_record.asp?ID=CRD42016036978](http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42016036978). This review has been reported in compliance with the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines (Moher et al., 2009). A detailed PRISMA checklist can be found in appendix one.

Protocol registration number: CRD42016036978

### Eligibility Criteria

All independent, peer reviewed studies published in English between 2000 and 2016 were considered to reflect a more contemporary workplace.

All types of interventions and length of follow up were considered. Selected papers had to identify at least one intervention designed to support midwives and/or student midwives in work-related psychological distress. Any studies that met these criteria also had to report at least one outcome measure.

## Participants/ population

This review defined the 'midwife' in line with the definition given by the International confederation of midwives definition that a midwife is a person who has acquired the requisite qualifications to be registered and/or legally licensed to practice midwifery and use the title 'midwife' (ICM International Confederation of Midwives, 2011). Student midwives were included due to the fact that they perform midwifery work, experience similar work-related episodes and are the successors of the profession (Coldridge and Davies, 2017; Davies and Coldridge, 2015). Although it was recognised that student midwives effectively practise within a different role and may encounter different manifestations of work-related psychological distress, they were also considered by the research team to form a part of the midwifery workforce.

## Intervention(s), exposure(s)

To be included, studies had to evaluate an intervention designed to support midwives and/or student midwives experiencing work-related psychological distress.

Psychological distress refers to a unique, discomforting, emotional state experienced by an individual in response to a specific stressor or demand that results in harm, either temporary or permanent, to the person (Ridner, 2004). Therefore, in line with this description, we defined work-related psychological distress as a unique, discomforting, emotional state experienced by an individual in response to a specific work-related stressor or demand that results in harm, either temporary or permanent, to the person.



#### Comparator(s)/ control

So that a larger number of potential studies could be included, studies were not required to include either a comparator or control group.

#### Outcome(s)

##### Primary outcomes

The identification of interventions designed to support midwives and/or student midwives in work-related psychological distress.

##### Secondary outcomes

Any quantitative and/or qualitative outcomes and/or experiences relating to intervention use were considered to be secondary outcomes.

#### Information sources

Searching was conducted between March 31 and May 24, 2016, using 6 electronic databases; namely PsycINFO, PsycARTICLES, MEDLINE, Academic Search Complete, Scopus and CINAHL. The use of these multiple databases is recommended for conducting a more comprehensive search (Abdulla et al., 2016). In addition, the reference lists of identified studies were manually searched in an attempt to identify additional publications. The authors of papers identified for inclusion were also contacted to enquire about any further papers relevant for inclusion. Paper retrievals concluded on June 6, 2016.

#### Search

This search strategy was formulated subsequent to a broad scoping review of the literature in relation to intervention research, the midwifery workforce and work-related psychological distress. During this scoping review, the abstracts and key words of significant papers were

scanned and identified. Recurring phrases and key words were then taken and applied to this search. This search strategy was designed in line with contemporary best practices to be broad in nature, and capture as many studies relating to the research questions as possible (Machi and McEvoy, 2016).

Initially, terms relating to the identification of the midwifery profession were employed. Secondly, terms available which broadly related to any of the outcomes that were considered to be generally associated with 'work-related psychological distress' were used. Lastly, terms relating to work, employment, occupation and professional health were used in conjunction with terms associated with the management of general wellbeing, interventions, treatments, therapies and coping behaviours.

This search strategy was modified to suit the various syntax, subject headings, MeSH headings and thesauruses utilised by the 6 databases used to conduct the search. Table 1 details our CINAHL with Full Text search, the complete search strategy used for all databases is included in our registered protocol.

Table 1: CINAHL with Full Text Search

<p><b>Interface</b> - EBSCOhost Research Databases  <b>Search Screen</b> - Advanced Search</p>		
<p>Database: CINAHL with Full Text</p>		
<p><b>Search</b></p>		
<p><b>Limiters</b> - Published Date: 20000101-20161231; Scholarly (Peer Reviewed) Journals  <b>Search modes</b> - Find all my search terms</p>		
#	Query	Results
S14	S5 AND S9 AND S13	211

S13	S10 OR S11 OR S12	673,083
S12	AB (work* OR job OR occupation* OR employment OR Profession*) AND AB ("Employee Assistance Programs" OR MM "Workplace Intervention" OR "Resilience (Psychological)" OR "Coping Behavior" OR "Coping behaviour" OR "Psychological Endurance" OR "Stress and Coping Measures")	105
S11	TI (work* OR job OR occupation* OR employment OR Profession*) AND TI ("Employee Assistance Programs" OR MM "Workplace Intervention" OR "Resilience (Psychological)" OR DE "Coping Behavior" OR "Coping behaviour" OR "Psychological Endurance" OR "Stress and Coping Measures")	37
S10	(MH "Coping+") OR (MH "Help Seeking Behavior") OR (MH "Employee Assistance Programs") OR "Employee Assistance Programs" OR (MH "Occupational Health Services") OR (MH "Peer Assistance Programs") OR (MH "Self Care") OR (MH "Stress Management") OR "Workplace Intervention" OR "anxiety management" OR "Cognitive Techniques" OR (MM "Disciplines, Tests, Therapy, Services+") OR (MH "Relaxation Techniques") OR (MH "Behavior Therapy") OR (MM "Therapeutics+") OR (MH "Mind Body Techniques+") OR (MH "Alternative Therapies+") OR "coping measures" OR "resilience"	672,917
S9	S6 OR S7 OR S8	150,853
S8	AB ((work* OR job* OR occupation* OR employ* OR Profession*)) AND AB ((stress* OR burnout OR pressure* OR compassion fatigue OR wellbeing OR well being OR well-being OR psychosomatic health OR cognitive wellbeing OR cognitive well being OR cognitive well-being OR professional wellbeing OR professional well being OR professional well-being))	29,758
S7	TI ((work* OR job* OR occupation* OR employ* OR Profession*)) AND TI ((stress* OR burnout OR pressure* OR compassion fatigue OR wellbeing OR well being OR well-being OR psychosomatic health OR cognitive wellbeing OR cognitive well being OR cognitive well-being OR professional wellbeing OR professional well being OR professional well-being))	4,254
S6	(MM "Stress, Occupational") OR (MH "Job Satisfaction") OR (MH "Impairment, Health Professional") OR (MM "Stress, Psychological+") OR (MM "Burnout, Professional") OR (MH "Depersonalization") OR (MH "Mental Fatigue") OR "compassion fatigue" OR (MH "Anxiety+") OR (MH "Depression") OR (MM "Stress Disorders, Post-Traumatic+") OR (MH "Organizational Culture+") OR (MM "Quality of Working Life") OR (MM "Occupational Health") OR (MH "Psychophysiologic Disorders+") OR (MH "Substance Use Disorders")	128,314
S5	S1 OR S2 OR S3 OR S4	23,998
S4	AB midwif* OR midwives	10,886
S3	TI midwif* OR midwives	11,964
S2	(MM "Midwifery+")	9,183

## Study selection

All retrieved articles were exported into a RefWorks database and duplicate articles were removed. Firstly, the primary review author performed an initial assessment of the retrieved articles to identify potentially eligible studies. Titles and abstracts were screened for relevance. The secondary reviewer then cross checked and assessed 10% of the screened articles for accuracy of selection. Any discrepancies in opinion were resolved through discussion. The full texts of eligible articles were assessed against the inclusion criteria. Articles which did not meet the inclusion criteria were excluded.

## Data Collection process

Data was extracted from selected studies using the MASTARI data extraction instrument from JBI-NOTARI (Pearson, 2004). This tool is presented within appendix two. Any discrepancies at this stage were again resolved through discussion. Any anecdotal findings were omitted from the data collected.

## Data items

Study population information, study methods and outcomes of significance to both the primary and secondary outcomes of this review were extracted from the data.

## Quality Appraisal

Both the primary and secondary reviewer assessed the methodological quality of all eligible articles identified. This was done using the scoring system for appraising mixed-methods

research, and concomitantly appraising qualitative, quantitative and mixed-methods primary studies in mixed reviews, as published by Pluye and colleagues (Pluye et al., 2009). Overall quality scores are presented in table 2.

#### Risk of bias in individual studies

The assessment of methodological rigor tool devised by Hawker and colleagues was applied at study level (Hawker et al., 2002).

#### Summary measures

Cohen's  $d$ , and 95% confidence intervals (CI) were calculated using pre-and post-intervention data where possible. CI for the effect size between pre-and post-intervention data were calculated for the quantitative results reported by both Wallbank, and Foureur and colleagues (Foureur et al., 2013; Wallbank, 2010). For the study presented by Warriner and colleagues (Warriner et al., 2016), 95% CI for the proportion that reported positive impact were calculated using the Wilson procedure with corrections for continuity (Wilson, 1927). These are presented in table 4.

#### Synthesis of results

Results were presented in line with the segregated systematic mixed-methods review approach (Sandelowski et al., 2006). Here, the qualitative and quantitative results of each study were presented separately.

#### Risk of bias across studies

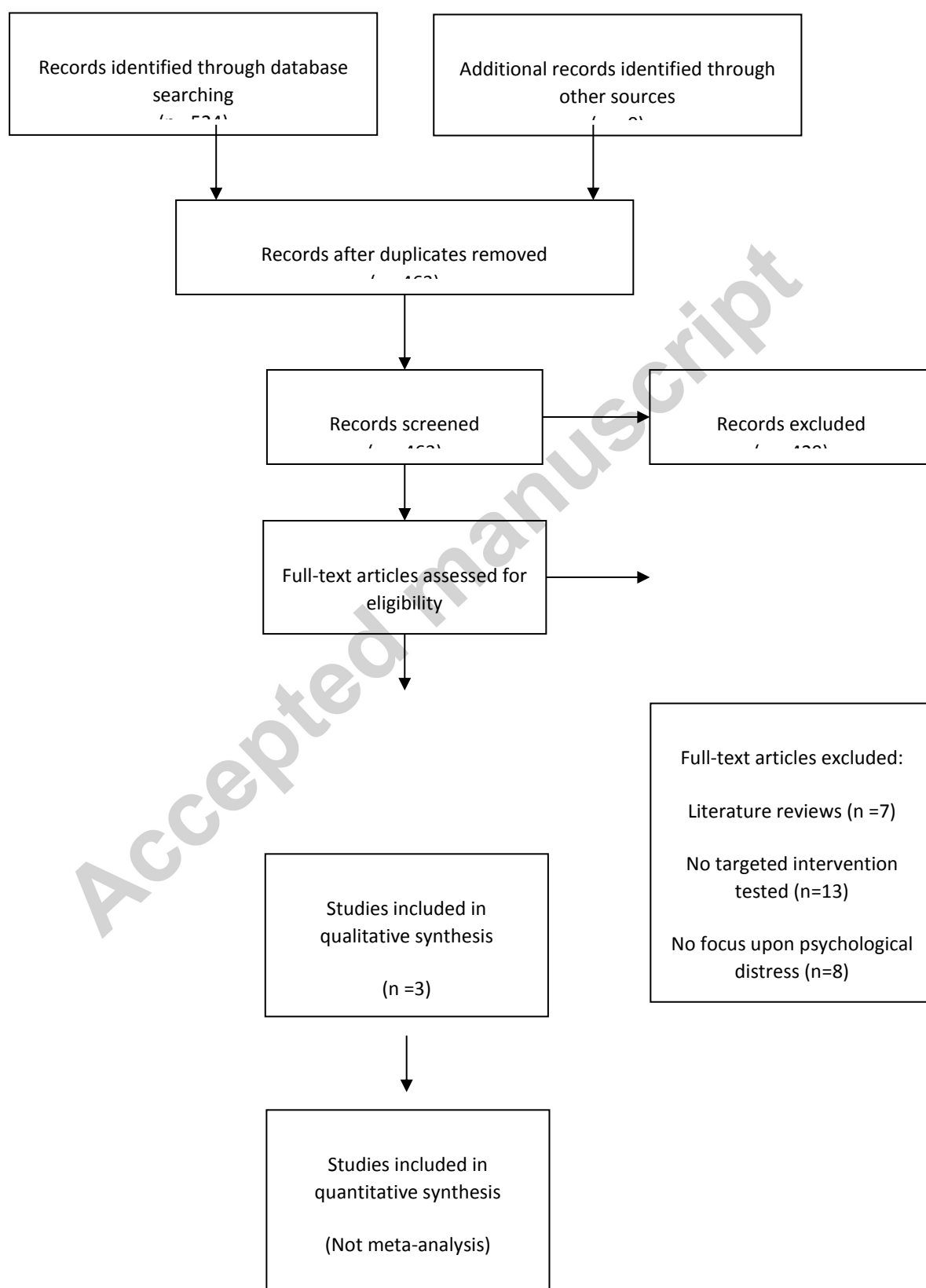
Publication, time lag, selective outcome reporting and language biases were considered throughout the process of review.

## Results

### Study selection

The search strategy identified 524 articles. Sixty-one duplicate articles were removed to reveal 463 articles for further screening. Subsequently, 429 articles were excluded as they fell outside the scope of this review. This left 34 articles to screen for eligibility, 6 of which were selected for inclusion. Articles were excluded because they either did not test a targeted intervention ( $n=13$ ), did not focus on psychological distress ( $n=8$ ) or presented themselves as a literature review ( $n=7$ ). The study selection process was outlined in Figure 1. Table 2 presented the papers selected for inclusion.

Fig 1. PRISMA Flow Diagram





Total number of studies  
included

Table 2: Study overviews and characteristics

Paper Retrieved	Sample Number	Period of Study	Sample Type	Study Design	Intervention	Measurement Tools	Country of Study	Quality Score*
Foureur et al (2013)  (Foureur et al., 2013)	40	8 weeks and 1 day intervention period  4-8-week follow up period	Nurses (50%) and midwives (50%)	Mixed-methods pilot study (No comparison group)	Mindfulness based stress reduction programme (MBSR)	-Log books -GHQ-12 -SOC – Orientation to Life scale -The DASS scale -Qualitative interviews -Qualitative focus group	Australia	67%
van der Riet et al (2015) (van et al., 2015)	14	7-week intervention period  2-week follow up period	First year nursing and midwifery students	Cohort study	7-week stress management and mindfulness course	-Qualitative semi-structured focus group interviews	Australia	50%
Wallbank (2010) (Wallbank, 2010)	30	6 'sessions of supervision'	Midwives and Doctors working in obstetrics and gynaecology	Pilot study  (2 randomised samples)	6 sessions of clinical supervision given by a clinical psychologist	-Positive and negative affect schedule (PANAS) scale -Professional Quality of Life scale (ProQol) -Impact of Event Scale (IES)	United Kingdom	67%



Warriner et al (2016) (Warriner et al., 2016)	46	8 weeks and 6 days intervention period  4–6-month follow up period	Hospital (30%), community (30%) and research midwives (9%), maternity support workers (18%), student midwives (9%), doctors (2%) and lecturers (2%)	Cohort study	Mindfulness Course	-Immediate post follow-up quantitative questionnaire  -4–6-month follow-up quantitative questionnaires	United Kingdom	33%
McDonald et al (2013) (McDonald et al., 2013)	14	6-month intervention period  6-month follow up period	Nurses and midwives	Qualitative case study	Work-based resilience workshops partnered with a mentoring programme	-Qualitative interviews - Participant evaluations -Field notes	Australia	67%
McDonald et al (2012) (McDonald et al., 2012)	14	6-month intervention period  Immediate post-intervention data collection	Nurses and midwives	Qualitative case study	Work-based resilience workshops partnered with a mentoring programme	-Qualitative interviews -Field notes -Research journal	Australia	33%

\*Quality score: [(number of 'quality criteria presence' responses divided by the number of 'relevant criteria') × 100].

### Study Characteristics

Six papers were selected for inclusion, resulting in a total of 144 participants being included in this review (assuming the same 14 participants were included within 2 papers relating to the same study) (McDonald et al., 2012; McDonald et al., 2013). All studies included population samples of either midwives and/or student midwives. However, some also

included nurses, doctors, maternity support workers and lecturers in their study samples (McDonald et al., 2012; McDonald et al., 2013; Wallbank, 2010; Warriner et al., 2016).

#### Interventions delivered

In total, n=100 (69%) participants were delivered mindfulness interventions, n=14 (10%) participants were delivered work-based resilience workshops partnered with a mentoring programme, and n=30 (21%) participants were either randomly allocated to a control group or delivered the intervention of clinical supervision.

Intervention delivery periods varied from 7-8 weeks (Foureur et al., 2013; van et al., 2015; Warriner et al., 2016) to 6 months (McDonald et al., 2012; McDonald et al., 2013). One study did not specify the period of evaluation (Wallbank, 2010). Of those that did, follow up periods varied between 2 weeks (van et al., 2015) and 6 months (McDonald et al., 2013; Warriner et al., 2016).

#### Study design

Some of these studies were described as either pilot or feasibility studies, yet only two (Foureur et al., 2013; Wallbank, 2010) were found to conform to the standardised definitions of either a pilot or a feasibility study (Abbott, 2014; Arain et al., 2010). As such, some studies were redefined as cohort studies (van et al., 2015; Warriner et al., 2016), where both a comparison and/or control group are not a necessary feature (Dekkers et al., 2012), as they each analysed either repeated outcome measures and/or observed a cohort of participants distinguished by some variable (DiPietro, 2010; Doll, 2004; Hellems et al., 2006). Two of the papers retrieved (McDonald et al., 2012; McDonald et al., 2013) each

fittingly reported themselves to be one part of a larger collective case study in which midwifery cohorts were included (Gerring, 2004).

## Outcomes

Data within the study by Foureur and colleagues (Foureur et al., 2013) was extracted via log book entries, qualitative interviews and a focus group, the GHQ-12 questionnaire, the SOC – Orientation to Life scale, and the DASS scale. The study by Wallbank used the PANAS scale, the ProQol scale and the IES scale to extract data (Wallbank, 2010). Other studies used a research journal and field notes, ‘evaluations’ and qualitative interviews (McDonald et al., 2012; McDonald et al., 2013), qualitative focus group interviews (van et al., 2015) and evaluation questionnaires (Warriner et al., 2016).

All studies reported evidence for positive outcomes. These positive outcomes related to an improved sense of wellbeing (Warriner et al., 2016), reduced stress (Wallbank, 2010; Warriner et al., 2016), enhanced confidence, self-awareness, assertiveness and self-care (McDonald et al., 2012; McDonald et al., 2013). Improvements were also noted in general health, sense of coherence (Foureur et al., 2013), and compassion satisfaction scores (Wallbank, 2010). Sustained positive impacts on anxiety, resilience, self-compassion mindfulness (Warriner et al., 2016), and concentration were also reported (van et al., 2015). Increased clarity of thought and a reduction in negative cognitions (van et al., 2015), compassion fatigue and burnout were also observed (Wallbank, 2010).

Risk of bias assessments for the individual studies were presented in table 3 using the assessment of methodological rigor tool devised by Hawker and colleagues (Hawker et al., 2002).

Table 3: Risk of bias within studies using the assessment of methodological rigor tool

Item of assessment	Foureur et al (2013) (Foureur et al., 2013)	van der Riet et al, (2015) (van et al., 2015)	Wallbank (2010) (Wallbank, 2010)	Warriner et al (2016) (Warriner et al., 2016)	McDonald et al (2013) (McDonald et al., 2013)	McDonald et al (2012) (McDonald et al., 2012)
Abstract and title	Fair  No structured abstract	Good  Structured abstract with full information and clear title	Fair  Abstract with most of the information	Poor  Inadequate abstract	Fair  Abstract with most of the information	Poor  Inadequate abstract
Introduction and aims	Poor  Some background but no objectives or research questions	Poor  Some background but no specific research questions	Poor  Some background but no specific aim	Poor  Some background but no aim/objectives/questions	Poor  No research questions outlined	Poor  Some background but no aim/objectives/questions
Methods and data	Fair  Method appropriate, description could be better	Good  Clear details of the data collection and recording	Fair  Method appropriate, description could be better	Good  Method is appropriate and described clearly	Good  Clear details of the data collection and recording	Poor  Method described inadequately
Sampling	Poor  Sampling mentioned but few descriptive details	Good  Response rates shown and explained (small sample size)	Fair  Most information given, but some missing	Fair  Most information given, but some missing	Fair  Most information given, but some missing	Fair  Most information given, but some missing
Data analysis	Fair  Descriptive discussion of analysis	Good  Description of how themes derived	Fair  Descriptive discussion of analysis	Fair  Quantitative	Fair  Descriptive discussion of analysis	Poor  Minimal details about analysis
Ethics and bias	Fair  Lip service was paid	Fair  Lip service was paid	Very poor  No mention of issues	Very poor  No mention of issues	Good  Ethical issues addressed (no mention of bias)	Poor  Brief mention of issues
Findings/results	Good  Sufficient data are presented to support	Poor  presented haphazardly	Fair  Data presented relate directly	Good  Results relate directly to aims	Good  Findings explicit, easy to	Poor  Findings presented

	findings		to results		understand	haphazardly
Transferability/ generalizability	Fair Some context and setting described	Poor Minimal description of context/setting	Fair Some context and setting described	Good Sufficient data are presented to support findings	Fair More information needed to replicate	Fair Some context and setting described
Implications and usefulness	Fair No implications for policy considered	Poor No suggested implications	Fair Did not suggest ideas for further research	Fair No suggestions for further research	Good Contributes something new	Fair Does not suggest ideas for further research

## Results of individual studies

Findings from mindfulness based interventions were reported by 3 of the studies included (Foureur et al., 2013; van et al., 2015; Warriner et al., 2016). Another two papers report the effects of work-based resilience workshops partnered with a mentoring programme (McDonald et al., 2012; McDonald et al., 2013), and one study examined the effectiveness of clinical supervision (Wallbank, 2010). All interventions were delivered face-to-face. Interventions were facilitated by experienced psychologists, the Oxford Mindfulness Centre and books (Warriner et al., 2016), a workshop facilitator (Foureur et al., 2013), counsellors (van et al., 2015), a clinical psychologist (Wallbank, 2010) and invited 'expert presenters' (McDonald et al., 2012; McDonald et al., 2013).

Table 4: Outcomes considered, summary findings, effect estimates and confidence intervals

Study	Outcome	95% Confidence Interval for effect size	Cohen's d	Summary of findings
Wallbank (2010) (Wallbank, 2010)	Treatment Group			-A reduction in staff stress, burnout and compassion fatigue
	Total stress impact of events (IES) and (PANAS)	(-3.64 to -1.67)	2.66	-Increase in compassion satisfaction
	Compassion fatigue (ProQol)	(-1.50 to -0.01)	0.76	-No statistically significant difference in the scores of the control group compared with their earlier scores.
	Compassion satisfaction (ProQol)	(0.15 to 1.65)	-0.90	
	Burnout (ProQol)	(-2.95 to -1.17)	2.06	
	Control Group			
	Total stress impact of events (IES) and (PANAS)	(-0.63 to 0.80)	-0.09	
	Compassion fatigue (ProQol)	(-0.60 to 0.82)	-0.10	
Foureur et al (2013) (Foureur et al., 2013)	Compassion satisfaction (ProQol)	(-0.84 to 0.58)	0.13	
	Burnout (ProQol)	(-0.33 to 1.11)	-0.39	
	Orientation to life (SOC)	(0.23 to 1.23)	-0.75	-Improved general health and sense of coherence
	Comprehensibility (SOC)	(0.12 to 1.11)	-0.62	-Lower stress levels
	Manageability (SOC)	(-0.11 to 0.84)	-0.37	
	Meaning (SOC)	(-0.29 to 0.66)	-0.18	
	Depression (DASS)	(-0.82 to 0.14)	0.33	
	Anxiety (DASS)	(-0.72 to 0.24)	0.29	
	Stress (DASS)	(-1.16 to -0.18)	0.67	

	General health (based on sum of Likert ratings) (GHQ12)	(0.38 to 1.38)	-0.88	
	General health (based on dichotomous scoring) (GHQ12)	(-1.10 to -0.11)	0.61	
van der Riet et al, (2015) (van et al., 2015)	Attending to self	-No statistical data available		-Stress reduction
	Attending to others			-An enhanced ability to attend to self and others
	Cognitive function			
	Stress			
	Self-awareness			
Study	Outcome	95% confidence interval for proportion positive	Cohen's d	Summary of findings
Warriner et al (2016) (Warriner et al., 2016)	Stress (based on Positive impact n (%)Likert ratings)	(0.60 to 0.94)	No mean differences available	-Sustained positive impact on stress, anxiety, resilience, self-compassion and mindfulness
	Depression (based on Positive impact n (%)Likert ratings)	(0.12 to 0.52)		-Positive impact on depression
	Resilience (based on Positive impact n (%)Likert ratings)	(0.47 to 0.85)		-Benefit in home life, work life and workplace culture
	Self-Compassion (based on Positive impact n (%)Likert ratings)	(0.51 to 0.88)		
	Anxiety (based on Positive impact n (%)Likert ratings)	(0.45 to 0.85)		
	Mindfulness (based on Positive impact n (%)Likert ratings)	(0.70 to 0.98)		
	Benefit to home life (based on dichotomous scoring)	(0.65 to 0.96)		
	Benefit to work life (based on dichotomous scoring)	(0.70 to 0.98)		

	Benefit to workplace culture (based on dichotomous scoring)	(0.36 to 0.78)	
McDonald et al (2013) (McDonald et al., 2013)	Confidence	-No statistical data available	-Reduced experience of stress
	Self-awareness		-Increased assertiveness at work, collaborative capital and understanding self-care practices
	Self-care		-Improved relationships, communication and wellbeing
	Assertiveness		
McDonald et al (2012) (McDonald et al., 2012)	Workplace culture	-No statistical data available	-A closer group dynamic, more supportive communication, assertiveness and confidence
			-Growth in knowledge of personal resilience
			-Increased conflict resolution skills

## Quantitative study findings

Foureur and colleagues presented a pilot study in which 20 nurses and 20 midwives from two metropolitan teaching hospitals in New South Wales, Australia took part in a mindfulness-based stress reduction (MBSR) programme (Foureur et al., 2013). This intervention was designed to increase the of coherence and improve the health of midwifery and nursing populations and also to decrease depression and anxiety. The workshop facilitator delivered this one day workshop, introduced the research, then went on to discuss the impact of stress on being in the present moment, introduce the concept of mindfulness, describe grounding and diffusion strategies and report how participants might form 'effective habits' (Foureur et al., 2013).

Participants also received a copy of a 'mindfulness practice CD', and were asked to complete three questionnaires prior to workshop attendance and again 4–8 weeks after participation. Of those who participated in follow up surveys, N = 14 (50%) provided log books of their



experiences, N=28 (70%) of participants returned the post-intervention surveys, and N=10 (35.7%) of those participants contributed their experiences within either a focus group or individual interview (Foureur et al., 2013). Participants reported that they practised their newly learnt techniques over 44.4% of the available daily practice periods. A reduction in stress levels for some participants was also reported (Foureur et al., 2013). Here, statistically significant differences were found on scores for the GHQ12 measure, the SOC-Orientation to life scale and the stress subscale of the DASS, where improvements were seen in the general health of midwives, their sense of coherence and orientation to life.

An evaluation of the 'Mindfulness: Finding Peace in a Frantic World' course recruited 38 midwives out of a cohort of 43 healthcare staff to participate in an 8-week course (Warriner et al., 2016). This study reveals a set of practices that can help break the cycle of unhappiness, stress, anxiety and mental exhaustion. The course runs for 60-90 minutes weekly, and participants are invited to commit to 30 minutes of home practice daily for 6 days a week. For this study, 46 participants were recruited, with 43 completing the course. Of these participants, 78% (n= 36) were identified as midwives. Course attendance averaged 87% for available sessions.

Immediate post-intervention evaluation questionnaires indicated that 97% of participants found the course helpful, useful and would recommend it to others. Ongoing benefits were observed via a 4-6-month post-intervention questionnaire, where participants reported a sustained positive impact on stress (83%, n=19), anxiety (68%, n=15), resilience (70%, n=16), self-compassion (74%, n=17) and mindfulness (91%, n=21) (Warriner et al., 2016). At the end of the 4-6 month follow up period, 50% (n=6) of the participants who reported that

depression was relevant to them, also reported a positive impact on their mood. Overall, this study reports significant and ongoing positive impacts for staff, as respondents reported benefit in home life (87%, n=20) work life (91%, n=21) and the culture of their workplace (59%, n=13) (Warriner et al., 2016).

In the delivery of clinical supervision, Wallbank reports a significant reduction in subjective stress levels, burnout and compassion fatigue for midwives in distress (Wallbank, 2010). The clinical supervision being delivered here was 'restorative' in nature, and applied the Solihull approach (Douglas, 2006). Thirty midwives and doctors participated in this study, and were allocated (presumably equally) to either a control (n=15) or treatment (n=15) group. The treatment group received 6, one-hour clinical supervision sessions delivered by a clinical psychologist.

Within the treatment group, there was a significant difference in the amount of subjective stress scores ( $p < 0.0001$ ), with average scores decreasing from 29 to 7. There was also a significant difference found in compassion satisfaction scores, as average scores increased from 37 to 41 ( $p = .001$ ). Additionally, average burnout scores decreased from 27 to 14 ( $p < 0.0001$ ) and compassion fatigue/secondary trauma average scores decreased from 16 to 12 ( $p = .004$ ). For the control group, follow up results showed no statistically significant differences between post-study scores and earlier scores, apart from those relating to compassion fatigue, where scores slightly increased, yet were still not significant ( $p = 0.846$ ).

#### Interpretation of confidence intervals and effect sizes

Of the 6 papers retrieved, 3 provided enough statistical data to calculate CI and/or effect sizes for the outcomes measured (Foureur et al., 2013; Wallbank, 2010; Warriner et al.,

2016). As shown in table 4, only two studies were suitable to calculate effect sizes via Cohen's  $d$  (Foureur et al., 2013; Wallbank, 2010). Raw data were not available for these calculations.

In line with more recent classifications (Sawilowsky, 2009), the study by Wallbank has demonstrated a 'large' effect size in measurements of compassion satisfaction and a 'medium' effect size in measurements of compassion fatigue for the intervention group (Wallbank, 2010). 'Huge' size effects were also noted for this group in measurements of burnout and the composite scores associated with the total stress impact of events. However, for the control group, all size effects were calculated to be either 'small' or 'very small'.

In the study by Foureur and colleagues (Foureur et al., 2013), 'medium' size effects were calculated in scores relating to participants' orientation to life, stress, comprehensibility and general health based on dichotomous scoring. 'Large' size effects were calculated for scores relating to general health based on the sum of likert ratings, and scores relating to manageability, meaning, depression and anxiety were calculated to be 'small'. A positive or negative Cohen's  $d$  represents the direction of the effect. For example, a negative effect size indicates an increase between the mean values, and a positive effect size indicates a decrease between the mean values.

In line with more recent classifications, none of the CI presented in table 4 can be defined as narrow (Schünemann et al., 2008). The wider intervals calculated demonstrate uncertainty in the estimated range within which one can be reasonably sure that the true effect or result actually lies.

## Qualitative Study Findings

In Foureur and colleague's qualitative analysis, 8 participants described feelings of being relaxed, calmer and more focused. Participants also described a new-found realisation of the importance of self-care, an increased capacity to be more aware of people, a tendency to seek help more freely, and be able to control thoughts and stress more effectively (Foureur et al., 2013). However, for a small minority of participants, there was a view that their participation had done little to ameliorate workplace stress. Overall, this study reports that the majority of participants experienced short term insights into the impact of stress on cognition, emotions and behaviour, and developed strategies for being in the present moment (Foureur et al., 2013).

Van der Riet and colleagues piloted another 7-week stress management and mindfulness intervention (van et al., 2015). Here, 14 nursing and midwifery students were invited to participate in seven, weekly 1-hour sessions. Each session involved a didactic component and an experiential component. During these sessions, the practice of sitting mindfulness was taught. Participants were trained to scan their bodies and focus upon various physical sensations. Students were then encouraged to practise exercises regularly in-between sessions (van et al., 2015).

Two weeks after the concluding session, 10 participants joined in a 60-minute semi-structured, focus group interview. Many reported that they could not wholly engage with this intervention, and only 1 student attended all seven sessions. However, others reported becoming more attentive towards themselves and others and better able to care for themselves and others in conjunction with an increased self-awareness (van et al., 2015).

Overall, this study reported that participants experienced increased concentration and clarity of thought, in conjunction with increased awareness and a reduction in negative cognitions (van et al., 2015).

McDonald and colleagues explored the efficacy of an intervention consisting of 6 work-based resilience workshops partnered with a mentoring programme delivered over a 6-month period (McDonald et al., 2013). At three phases of study: pre-intervention; immediately post-intervention; and at 6 months' post-intervention, 14 nurses and midwives were invited to participate in face-to-face, semi-structured interviews.

This intervention encouraged participants to use art, music, journaling and creative movement as learning tools. Creative expression was used to explore constructs and emotional responses that were difficult to express by words alone. During workshops, hand massage, relaxation techniques and aromatherapy were introduced to promote work-related stress relieving strategies. Explicitly, this workshop series explored the topics of mentoring, establishing positive nurturing relationships and networks, building hardiness, maintaining a positive outlook, intellectual flexibility and emotional intelligence, achieving work/life balance, enabling spirituality, reflective and critical thinking, and moving forward and planning for the future with participants.

Participants included a combination of enrolled nurses, registered nurses and registered midwives, some holding dual qualifications. Following participation, both personal and professional gains were described as experiential learning opportunities, creative self-expression, exposure to new ideas and strategies, increased assertiveness at work, improved workplace relationships and communication, increased collaborative capital, and an

increased understanding of self-care practices (McDonald et al., 2013). In another paper, referring to the same intervention, the 14 nurses and midwives reported an improved sense of wellbeing and a reduction in stress when interviewed following its delivery (McDonald et al., 2012). Participants also reported being able to communicate better with staff whom they feel may be hostile or manipulative towards them.

Those who engaged reported that they were able to develop self-care strategies and adopt a more self-caring attitude (McDonald et al., 2013). Through creative activities, participants also reported that they were better able to develop an internal dialogue, drawing attention to their individual strengths and the hostile aspects of working healthcare (McDonald et al., 2013). Participants also reported a willingness and improved ability to monitor and maintain resilience strategies for both themselves and their colleagues (McDonald et al., 2012).

Professionally, colleagues noted a closer group dynamic, more supportive communication, assertiveness and confidence at work. Overall, these two papers reporting on the same intervention, stated that work-based, educational interventions that focus on personal resilience have significant potential to empower, improve wellbeing and reduce stress.

#### Line of argument synthesis

For these samples, participating in these interventions can have a positive effect on a variety of outcomes in relation to work-related psychological distress. However, the experiences of a small minority are less favourable, and others are unable to engage wholly in these interventions as provided. Clinical supervision may produce short-term positive benefits, yet those who practice newly learnt mindfulness techniques regularly, and participate in

resilience workshops partnered with a mentoring programme may experience positive effects over a longer period of time.

Midwives and student midwives who engage with interventions designed to support them can experience increased cognitive function, improved working relationships with colleagues and a greater appreciation of self-care practices. Feelings of being relaxed and facing the present moment with a sense of clarity can also be experienced. Additionally, as midwives and student midwives develop strategies to manage their own psychological and workplace experiences, they can also develop assertiveness, improved communication skills and workplace resilience. The consensus of these studies was that interventions designed to support midwives and/or student midwives in work-related psychological distress can provide a range of both personal and professional benefits for users. However, given the lack of data for comparison, small sample sizes and a lack of high quality studies, this line of argument synthesis is tentative.

#### Risk of bias across studies

As the studies within this review reported either significant or favourable results, they may have been at risk of publication bias. Time lag and selective outcome reporting biases may also have been present within the studies selected, however, due to lack of relevant information, these could not be explored.

#### Discussion

This review found that clinical supervision, the formal provision by senior/qualified health practitioners of intensive, relationship-based education and training, that is case-focused and which supports, directs and guides the work of colleagues (supervisees) (Milne, 2007),

can result in a marked reduction in subjective stress levels (Wallbank, 2010). Here, medium, large and huge effect sizes were noted for the treatment group, whereas either small or very small effect sizes were calculated for the control group.

Work-based resilience workshops partnered with a mentoring programme evaluations were found to enhance confidence levels, increased self-awareness, improved assertiveness and an increased focus upon self-care in midwifery populations (McDonald et al., 2012; McDonald et al., 2013). The delivery of this intervention was also found to produce a sustained positive effect upon stress, anxiety, resilience and self-compassion (McDonald et al., 2013).

Participation in a mindfulness intervention was associated with short term insights into the impact of stress on cognition, emotions and behaviour, an increased sense of wellbeing, increased self-awareness and a reduction in negative cognitions for midwives in distress (van et al., 2015). Mindfulness can be highly acceptable to midwives, who reported ongoing and significant benefits in both their home and work life, and upon the culture of their workplace (Warriner et al., 2016). Mindfulness practice was also seen to result in better general health; a more positive orientation to life; improved comprehensibility; and lower stress levels (Foureur et al., 2013). For these outcomes, 'medium' and 'Large' size effects were calculated, yet effect sizes relating to manageability, meaning, depression and anxiety were calculated to be 'small'.

However, these studies were too few in number to form a recommendation that providers of health care services should implement these interventions to support midwives and/or student midwives in work-related psychological distress. Here, some participants also found



it challenging to attend sessions and complete any 'homework' given (Foureur et al., 2013; van et al., 2015; Warriner et al., 2016). As such, any future research would only be feasible if midwives are offered more flexible interventions to use.

None of the studies within this review solely related to either qualified midwives or student midwives. Given that there are interventions designed exclusively to support the wellbeing of other groups of healthcare professionals at work, future intervention research could usefully account for the fact that the midwifery profession is a separate profession, which may also require targeted support.

Additionally, none of the interventions identified focussed upon either the organisational or the societal aspects of supporting staff in work-related psychological distress. This paucity of attention may lead to the conceptualisation that the management of work-related psychological distress is primarily an individualised responsibility, rather than a corporate or societal responsibility. This may enhance levels of work-related stress, rather than ameliorate them. Future intervention studies may be improved by recruiting larger samples to focus upon longer-term outcomes for midwifery populations. It will also be important for any new or ongoing pilot studies to progress towards undertaking adequately powered randomised controlled trials (RCT's).

#### Limitations

This review was limited to international findings captured within first world countries, although studies conducted in low-and middle-income countries were not excluded from selection. Other studies may have been evaded, as this search strategy was conducted using only the English language. Owing to a paucity of information, it has not been possible to

conduct additional analysis such as sensitivity, subgroup analyses, meta-analysis or meta-regression.

Two of the papers retrieved provided case studies in relation to one single intervention. This may have altered the weight of evidence in this regard. This has also meant that the same 14 participants have been studied within 2 of the papers retrieved.

There is no clear understanding of how these particular interventions lead to the outcomes they produce, some baseline data is absent and it is unclear whether treatment fidelity measures have been used to assess delivery. Interventions are also not described in such a way that these studies could be accurately replicated (Craig et al., 2008). Moreover, workplace distress, and any change in the experience of or response to workplace distress, was not directly measured.

Sample sizes were small. Additionally, the heterogeneity of these samples made some findings difficult to extrapolate solely to midwifery populations. The retrieved studies are not of high quality, and only one study included a control group. Therefore, some of the outcomes apparent may be due to other factors such as social desirability effects or the therapeutic alliance with those administering the intervention rather than the type of intervention or mode of delivery per se.

## Conclusion

This was the first mixed-methods systematic review to report the outcomes and experiences associated with the use of interventions designed to support midwives and/or student midwives in work-related psychological distress. All selected studies reported a variety of both personal and professional benefits for midwives.

Similar reviews of interventions designed to support the psychological wellbeing of healthcare professionals in the workplace report encouraging results (Guillaumie et al., 2016; Murray et al., 2016; Regehr et al., 2014; Romppanen and Häggman-Laitila, 2016; Ruotsalainen et al., 2015). Yet likewise, these other reviews do not identify high quality studies in relation to interventions designed to support midwives and/or student midwives in work-related psychological distress. Targeting midwifery populations for future intervention research may permit more concrete conclusions about the most effective design and delivery of such interventions.

One other review in relation to preventing stress in the healthcare workforce has included midwifery populations, and found that a variety of mindfulness interventions were beneficial to a variety of healthcare professionals (Burton et al., 2016). In line with the current review, this review also suggests that future intervention studies may wish to explore the provision of more flexible and accessible interventions. Yet in relation to midwifery populations, this review was restricted to the findings presented by Foureur and colleagues (Foureur et al., 2013).

Additional research is needed to build on this early foundation of evidence, and clarify which interventions or combinations of interventions might be most effective in addressing the pervasive problem of work-related psychological distress in midwifery populations. More flexible interventions, which provide a larger number of midwifery populations with wider access to support, perhaps online or away from scheduled sessions may secure greater adherence rates and isolate effects to determine which elements are affecting which

outcome measures. To secure excellence in maternity care, more rigorous, well-designed and generalisable studies in this area of intervention research are required.

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## Appendix One: PRISMA Checklist

Section/topic	#	Checklist item	Reported on page
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			#
<b>TITLE</b>			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known.	
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	
<b>METHODS</b>			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data	



		from investigators.	
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., $I^2$ ) for each meta-analysis.	

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	
<b>RESULTS</b>			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	

Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	
<b>DISCUSSION</b>			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	
<b>FUNDING</b>			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

## Appendix Two: MASTARI data extraction instrument

**JBI Data Extraction Form for  
Experimental / Observational Studies**

Reviewer ..... Date .....

Author ..... Year .....

Journal ..... Record Number .....

**Study Method**RCT ☐ Quasi-RCT ☐ Longitudinal ☐Retrospective ☐ Observational ☐ Other ☐**Participants**

Setting .....

Population .....

**Sample size**

Group A ..... Group B .....

**Interventions**

Intervention A .....

Intervention B .....

Authors Conclusions:

.....  
.....  
.....

Reviewers Conclusions:

.....  
.....  
.....

**Study results****Dichotomous data**

Outcome	Intervention ( ) number / total number	Intervention ( ) number / total number

**Continuous data**

Outcome	Intervention ( ) number / total number	Intervention ( ) number / total number