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Literature Review Manuscript: Facilitators and hindrances to competence development among students, newly qualified nurses, midwives and medical doctors: A global perspective.

--Manuscript Draft--

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| Article Type: | Original research |
| Keywords: | Facilitators and hindrances’, Competence and confidence development ‘Nurses’, ‘Midwives’, and ‘Medical Doctors’, ‘Student and newly qualified’ |
| Abstract: | **Background**  The availability of a skilled health professional (nurse midwife or doctor) who has been trained and fit for practices to provide maternity care is fundamental in scaling down and ending preventable maternal and child deaths. Knowing the determinants of development of ideal skills for effective practice ensures that women and their babies receive quality maternity care services from skilled birth attendants fit for practice.  **Methods**  To find and build on the existing evidence addressing aspects linked to competence and confidence development among students, newly qualified nurses, doctors and midwives education from a global perspective, a literature review was undertaken, using the ‘SPIDER’ search strategy to identify relevant papers from multiple databases.  **Results**  A core category ‘Learning environment’ emerged with two overarching subcategories ‘Internal environment’ and ‘External environment’.  **Conclusion**  Facilitators and hindrances to competence development are centred on the learning and practice environment and difficult to separate as they are driven by either the student’s or the newly qualified professional’s experience with the learning and practice environment subsequently. This highlights the need for diversity and open mindedness among mentors and administrators in manipulating the environment to the benefit of either the student or the newly qualified professional so that mothers and their babies receive quality care |
|  | Areas highlighted by reviewers and corrected.  Reviewer #5:  1.  The title should be:  Facilitators and hindrances to competence development among students, newly qualified nurses, midwives and medical doctors: A global perspective. The and between students and newly qualified should be removed. See pages 2 and 4  2. Abstract: There should be sub title background, methods, result, and conclusion. See pages 3 and 4  3. Table 1 and 3: Title should be on top while the source should be under the table. See pages: Sheets 7 and 11.  4. Some of the suggestion I made before where not corrected. A reference that should be 2000 was written 200, was not corrected: Corrected see page 14.  Reviewer #6:  I am glad to say you really did a great job attending to all indicated areas. Just add the students as part of population of study under participants section on Table 1. Some studies searched in your literature review section show that they had students as population for example studies by Tsele Muller 2000, Hofsten et al (2010), etc.  See page 7. |

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Topic Literature Review Manuscript: Facilitators and hindrances to competence development among students, newly qualified nurses, midwives and medical doctors: A global perspective.

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# Abstract

**Background**

The availability of a skilled health professional (nurse midwife or doctor) who has been trained and fit for practices to provide maternity care is fundamental in scaling down and ending preventable maternal and child deaths. Knowing the determinants of development of ideal skills for effective practice ensures that women and their babies receive quality maternity care services from skilled birth attendants fit for practice.

**Methods**

To find and build on the existing evidence addressing aspects linked to competence and confidence development among students, newly qualified nurses, doctors and midwives education from a global perspective, a literature review was undertaken, using the ‘SPIDER’ search strategy to identify relevant papers from multiple databases.

**Results**

A core category ‘Learning environment’ emerged with two overarching subcategories ‘Internal environment’ and ‘External environment’.

**Conclusion**

Facilitators and hindrances to competence development are centred on the learning and practice environment and difficult to separate as they are driven by either the student’s or the newly qualified professional’s experience with the learning and practice environment subsequently. This highlights the need for diversity and open mindedness among mentors and administrators in manipulating the environment to the benefit of either the student or the newly qualified professional so that mothers and their babies receive quality care

**Keywords**: ‘facilitators and hindrances’, competence and ‘confidence development’ ‘Nurses’, ‘Midwives’, ‘Medical Doctors‘, ‘Student and newly qualified’.

**Background**

Teaching and learning processes among health professionals such as midwives, nurses and doctors includes helping them to acquire core competences needed for them to give quality care at qualification (Greiner and Knebel 2003). Qualifying teaching and learning among doctors, nurses and midwives to be an interactive process. Consequently, it is imperative for the teacher/ mentor of these professionals to be skilled in supporting the learner or the newly qualified professional to acquire the requisite competencies and confidence needed for them to be fit for practice. Such skills includes appreciating students’ or the newly qualified professionals’ learning styles and characteristics to be able to manipulate the environment to the advantage of the learner or newly qualified personnel to have a smooth transition into their learning environment and new role respectively (Greiner and Knebel 2003) . It has been argued that the social processes involved in teaching, learning and facilitating a new practitioner into their role may either facilitate or hinder competence and confidence development among learners and newly qualified medical professionals respectively (Greiner and Knebel 2003).

The availability of skilled health professionals (nurses, midwives and doctors) who have been trained and fit for practice to provide maternity care is fundamental in scaling down (WHO 2017) and ending preventable maternal and child deaths (UN 2015). Knowing the determinants of the development of ideal skills for effective practice ensures that women and their babies receive quality maternity care services from skilled birth attendants fit for practice (WHO 2018).

The ability of the skilled birth attendants in reducing maternal mortality and morbidity and ending preventable maternal and child mortality is embedded in the provision of quality care directly related to the quality of the education offered to health professionals training (WHO 2018) as well as transitioning newly qualified personnel into the professional environment. The success of the training programme revolves around its structure which enables it to produce professionals fit for practice. Knowing the determinants of development of ideal skills for effective practice ensures that the right people are endorsed for practice (ICM 2017; WHO 2018; Butler et al 2018). In general, it is accepted that teaching and learning is an interactive process imbued with emotions, behaviours, and reactions and occurs within a given environment determining the experiences of the learners and teachers (Brunstad and Hjälmhult, 2014) and newly qualified personnel. The purpose of the current structured narrative literature review was to find and build on the existing evidence addressing aspects linked to facilitators and hindrances to competence and confidence development among students and newly qualified nurses, midwives and medical doctors’ during training and transitioning into the profession from a global perspective.

**Question addressed by the review**

What is the accumulated evidence on the facilitators and hindrances of competence and confidence development among student and newly qualified nurses, midwives and medical doctors during training and transitioning into the profession?

Methods

**Search strategy**

The SPIDER search strategy was more suited to the review purpose and disparate data since it included a ‘phenomenon of interest’ (the ‘PI’ of SPIDER), which was more relevant for qualitative study designs (Cooke et al 2012). The gathering of evidence focused on articles published in English from 2000 to 2017. The search was conducted between 2014 and 2017 as part of the first author’s PhD thesis. However the studies from 2000 to 2015 informed the review whilst those from 2016 to 2017 were included for discussion. The decision to include articles between 2000-2017 was reached because: 1) Around the year ‘2000’ is the time when training of health care professionals such as nurses, midwives and doctors was suggested to be collaborative and emphasis put on development of core competencies (Greiner and Knebel 2003). 2) This period is believed to be long enough to capture the trend of facilitators and hinderances to competence and confidence development among these health care professionals during training and transitioning into the profession since the inception of the core competences in their curriculae globally. The SPIDER search strategy (Table 1) was used to comb through the following databases: OVID-MEDLINE, CINAHL, ProQuest, Web of Science, OVID-Maternal and New-Born Health and SCOPUS for both published and unpublished articles, and the ICM, WHO, UNICEF, and Zimbabwe Nurses Council websites.

Table.1 SPIDER search strategy

|  |  |
| --- | --- |
| Sample | midwi\* OR studen\* OR graduate\* OR nurs\* OR medical doctor |
| Phenomenon of Interest | competen\* OR prepare\* OR confiden\* OR self-efficacy OR self-esteem\* OR fit\* OR skil\* OR master\* OR experien\* AND |
| Design | questionnaire\* OR survey\* OR interview\* OR focus group\* OR case stud\* OR observ\* AND |
| Evaluation | view\* OR experience\* OR opinion\* OR attitude\* OR perce\* OR knowledg\* OR international confederation formidwives OR social\* OR process\* OR curricul\* AND |
| Research type | quantitative OR qualitative OR mixed method\* |
|  | Qualitative, quantitative, and mixed methods search using [ S AND P of I ] AND [ D OR E OR R] |

(Cooke et al 2012).

#### Inclusion and exclusion criteria

#### **Inclusion criteria**

Studies which included midwives, nurses or medical doctors when they were students, newly qualified and after they had been working for three to four months in the clinical area. The reason for including doctors, nurses and midwives as skilled use the same clinical environment, teaching and assessment methods in training and developing professional skills (Sawyer et al 2015) and they work in collaboration (WHO 2003). In addition, the definition of skilled birth attendant by the WHO (2006) reflects that midwives, nurses and doctors should be equipped with midwifery skills both in antenatal, labour and birth and postpartum care, making them all skilled birth attendants. Empirical articles in English and published from 2000 to 2017 were included.

#### **Exclusion criteria**

Studies were excluded if they were including competence and confidence development of other health professionals besides nurses, midwives and doctors as they are not defined as skilled birth attendants. Articles not in English were excluded even if they included nurses, midwives and medical doctors, opinion, non-empirical papers, editorials and conference papers and empirical articles with abstracts only after failing to get full articles.

* BSCO: CINAHL: N=119
* Ovid: Medline: N=262
* Ovid: Infant & maternal care: N=119
* ProQuest: N=399
* Web of Sciences: N=1054
* SCOPUS: N=333
* Potential papers: N=2281

Duplicate studies excluded:

N= 1287

Titles reviewed: N=994

Studies excluding midwives, nurses and medical doctors: N=546

Abstracts reviewed: N=448

Excluded irrelevant and abstracts without full text: N=348

100 articles referenced, searched and relevant: N=4

Articles retrieved for assessment: N= 104

Non empirical research and opinion articles excluded: N=42

Articles included in the review: N=62

Figure 1 Summary of the results of the search process

The search (Figure 1) yielded 2281 articles, leaving 994 prospective articles after eliminating duplicates. After scrutinising titles, 448 potential articles were identified after which 100 articles remained after abstracts were screened. The references were hand searched and four extra articles were identified giving a total of 104 articles. Of these 42 articles did not meet the inclusion criteria as they were non-empirical, editorials and opinion papers and 10 of them were abstracts without full articles and were excluded leaving 62 articles for data extraction.

# Overview of the included studies

***Distribution of the studies across the globe***

Midwifery and nursing students’ proficiency and competence development over the years appears to be an extensively researched area as shown by the large (2281) number of studies initially scoped with a significant number (62) remaining in the synthesis. The distribution of studies across the globe was as follows: Europe 35 (56, 5 %), Australia 11(17, 4%), Asia six (9.7 %), America five (8, 1%), Africa five (8, 1%). Europe contributed more than 50% of the studies, while Africa contributed less than 1%. The most frequently used research approach was qualitative 30 (48%) with only five (8, 1%) mixed method studies, none (0%) of which were from Africa and the data collection approaches were inclusive and diverse (table 2).

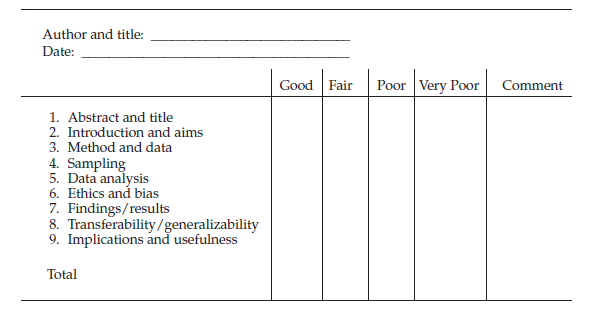
**Table 2 Summary of the included studies by region and by study design**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Region/country | Qualitative | Quantitative | Mixed method | Participants | Systematic review |
| Africa | 3 | 2 | Nil | RGNs and Midwives | 0 |
| America | 2 | 3 | Nil | RGNs and Doctors | 0 |
| Asia | 1 | 5 | Nil | RGNs and Midwives | 0 |
| Australia | 4 | 5 | 1 | Doctors, RGNs and Midwives | 1 |
| Europe | 20 | 10 | 4 | Doctors, RGNs and Midwives | 1 |
| Total number of studies | 30 | 25 | 5 | RGNs, Midwives and Doctors | 2 |

***Quality Assessment of the included studies***

There is a variety of quality assessment tools with inbuilt checklists making critical appraisal manageable (Cullum 2000) depending on the type of articles retrieved for appraisal. Among others, the Hawker et al (2002) protocol ( Table 3 and Appendix 4) was ideal for critically apraising disparate studies and was found to be the best to evaluate the quality of this review articles for that purpose. All the authors independently critically appraised the articles and compared them and reached a consensus after prolonged discussion. The quality of the studies is shown in (Appendix 2) and quality criteria Table 3.

**Table 3: Critical Appraisal Tool**



**Hawker et al 2002**

**Data extraction**

After quality assessment, data were extracted by all the authors independently and cross checked with each other to ensure that all the relevant data were extracted from the primary articles guided by the data extraction templates designed by the same author Hawker et al (2002). The data were validated to ensure that all the data related to facilitating and or hindering competence development of nurses, midwives, and medical doctors as students and newly qualified was gathered (See appendix 1).

**Synthesis of the literature search findings**

A qualitative content analysis framework by Field and Morse (1995) was used to analyse the text data extracted from the 62 research articles. The identified factors hindering and facilitating competence and confidence development were then categorised to identify the relationship between the teaching process and facilitating or hindering competence and confidence development. It was difficult to classify them as either facilitating or hindering competence and confidence development as students’ or qualified professionals’ experiences with the processes prompted some to perceive these processes as having facilitated whilst others perceived them as hindering learning. Such a phenomenon was influenced by the experience they had with the learning environment, since students’ experiences which affected their perception differed towards the same process. Thus, the same process could be identified as a facilitator by some, and a hindrance to competence and confidence development by either student or qualified professionals. As a result, it became difficult to explicitly classify the social processes involved in teaching and learning as facilitators or hindrances to competence development. As such these were presented under the auspices of the student’s experiences and perceptions towards the environment showing how one aspect could either hinder or facilitate learning.

One core category ‘Learning Environment’ emerged with 2 overarching subcategories: ‘Internal Environment’ and ‘External Environment’. The internal environment was related to the student’s knowledge and behaviour towards learning whilst the external environment was centred on teaching and assessment methodologies and physical environment. These will be discussed in the ensuing paragraphs under ‘internal’ and ‘external environment’ focussing on each of them bringing out how the experience in the environment impacted on the student’s perception of the environment as facilitating or hindering learning.

**Discussion of findings**

**Learning environment**

Both student midwives (Licqurish and Seibold 2008) and student nurses (Thorkildsen and Råholm 2010; O'Mara, 2013) valued the clinical environment as they realised the importance of the learning environment (Lake and McInnes 2012; Longworth 2013, O’Mara et al 2013) in learning professional related competencies. Accordingly, two kinds of learning environment were viewed to be critical for student learning and relationship-building as revealed in Rawnson et al (2006); O’Mara (2013) and Gidman (2013) studies. These are the external environments and the internal environments (Thorkildsen and Råholm 2010; Tsele and Muller 2002). The internal environment encompassed student psychosocial characteristics. Perceived isolation was described as either social or psychological isolation depending on how it would have manifested in the student according to Skirton et al (2012) and for the qualified staff according to van de Putten (2008) for the qualified midwives and qualified nurses by Donovan (2008) respectively. The external environment comprised of teaching and assessment methodologies and the physical learning environment (Tsele and Muller, 2000), enshrined in student experiences and perceptions towards the interactions, which affected their learning experiences both positively and negatively (Thorkildsen and Råholm 2010, Bradshaw et al (2012; Barry et al 2012). A study by Joubert and Villiers (2014) revealed that relationship building and the associated learning experiences are critical in the learning or practise environment as this determined whether the learning would be facilitated or hindered as indicated in previous studies (Brunstad and Hjälmhult (2014; van der Putten, 2008; Tsele and Muller 2000; Thorkildsen and Råholm 2010; Yuan et al 2011; Gilmour et al 2013). This implies that the individuals are interacting or engaging with their environment socially and psychologically as reflected in these individuals’ experiences and perceptions. Such experiences or engagements were similar across the three professions both as students (Morgan 2006; Fiedler et al 2012; Edwards et al 2004; Tsele and Muller; 2000) and newly qualified practitioners van der Putten, 2008; Donovan 2008; Valdez 2008; Laven et al 2014). Though there was no article to that effect retrieved for qualified medical Problems were largely associated with social interactions and psychological reactions (O’Mara 2013; Brunstad and Hjälmhult 2014; Yuan et al 211 Gilmour et al 2013; Bradshaw e t al 2012; Valdez 2008; Morgan 2006; Raymond e t al 2013; Lavender et al 2013, Clanton et al 2014) towards what is happening within the learning or practice environment which included interacting with mentors for both students and newly qualified midwives and nurses. These were perceived by the student to either facilitate or hinder their learning (Licqurish and Seibold 2008) making the environment unpredictable (Brunstad and Hjälmhult 2014) and, at times, difficult for the students to fit in the environment (Löfmark and Wikblad 2001). The problems made the students self-isolate both socially and psychologically as they reflected and contemplated how best to navigate both the internal and the external environment to their advantage through accommodation and conformity depending with the situation (O’ Mara 2013; Löfmark and Wikblad 2001; Brunstad and Hjälmhult 2014).

For the qualified professionals, social engagement is when they report for work physically whereas social engagement implies they are motivated to start their new profession while transitioning into the practice environment. Psychological isolation is when they are met with reality shock and fail to engage themselves with work activities or left alone to find their own way without mentors to scaffold them. Whilst their social isolation comes in when they discovered that they did not have the required skills and confidence to practice. Such an experienced created problems for both the students and newly qualified midwives and nurses.

However, for some of the students the environment associated problems diminished with time (Bradshaw et al 2012; Baird, 2007), as the students learnt how to navigate around the clinical area and mentors to build positive working relationships which facilitated learning of the required skills revealing that both social and psychological isolation are protective measures. Though it was not easy for some students to emerge from isolation and they would display this by avoiding the external environment (Gilmour et al 2013). Thus, this review revealed that those students who failed to deal positively with their internal environment and remain in social isolation would end up regressing into psychological isolation (Licqurish and Seibold 2008). Consequently they failed to function meaningfully and benefit from the learning environment (Gilmour et al 2013; Licqurish and Seibold 2008; Baird 2007). Nonetheless, perceptions towards and experiences with the environment emerged as the biggest predictors of facilitators and hindrances to confidence and competence development through the interplay between engagement and isolation. Similarly the newly qualified midwives, nurses and medical students who were overwhelmed with reality shock would quit the profession after failing to cope with the situation in the practice environment (van der Putten, 2008; Donovan 2008; Valdez 2008; Laven et al. 2014; Sawyer 2015). Isolation and engagement will be discussed in the ensuing paragraphs in the context of students and newly qualified nurses, doctors and midwives driven by their experience and perception towards the learning or practice environment (internal or external).

**Internal environment**

***Perceived isolation***

Tanaskanen and Antilla (2016) argued that isolation could be viewed as not having meaningful relationships for one to reach their maximum functional capacity within any given context. In the context of teaching and learning the intention is to develop competence and confidence ensuring one is fit for practice in one’s profession (Sawyer et al 2015). The isolation could be defined in the social or psychological context and could be perceived by the affected person measured against time and occurrence of expected activities (Tanaskanen and Antilla 2016). In this review social isolation refers to the lack of social connection between the internal environment (students and newly qualified professionals) and their external environment (teaching and assessment methodologies and physical environment ) which may lead to perceived loneliness hindering learning (Brunstad and Hjälmhult 2014; Tsele and Muller 2000) or connectedness (Martin et al 2006; Houghton et al 2007; Warland and Smith 2012) facilitating learning subsequently (Muldoon et al 2014; Noble and Pearce 2014).

***Perceived social isolation***

Student related social isolation emerged as students in this review were describing issues in relation to inadequate supervision, mentors threatening students, intolerance evoked by mentor irritation brought about by overwork and busy wards in addition to practice related conflicts (Baird 2007, Tsele and Muller 2000; Brunstad and Hjälmhult 2014; Bradshaw et al 2012). Whilst for newly qualified personnel perceived isolation was provoked by lack of support when they were left alone in the working environment or when accompanied by unsupportive mentors hindering their smooth transition into the practice environment (Sawyer, 2017) Such isolation reduced functioning capability of both the students and the newly qualified nurses and midwives due to stress related cognitive decline which hindered learning and practicing respectively (Chenery-Morris 2012; Skirton et al 2012; Houghton et al 2007; Rawnson et al 2006; Muldoon et al 2006; Warland and Smith 2012). A student with poor social ability failed to correlate theory and practice, initiate positive relationship building and this, coupled with dissonance in practice and lack of constant supervision due to busy wards, ultimately hindered learning (O’Mara 2013). In addition, students recognized matters rooted in daily social interactions and in real life circumstances which were linked to conflict development (Deegan and Terry, 2013; Tully 2010) as a driver of student related social isolation (Bard 2007; Chabeli 2002; Armstrong 2010; Deegan and Terry 2013). The qualified midwives and nurses’ experiences of real life situation related to their socio –economic standing and servicing of their loans. However the social and psychological isolation effects were similar to those of students. There were no studies for all the three qualified professionals which were retrieved for this review reflected on conflict and conflict resolution unlike those for students.

Conflict issues among students included unexpected responses from mentors or colleagues such as differing perceptions, blame shifting and associated emotions. These conflicts caused students to avoid engage in learning activities as expected (Hughes et al 2014). Conflicts were more common when the student’s views and the teacher’s perception were differing, particularly if the teacher viewed the student as being uncooperative and/or failed to accommodate the differences as student uniqueness (O’Mara et al 2013; Longworth 2013; Jordan and Farley 2008; McMullan 2008; Löfmark and Wikblad 2001). In addition students’ perceived isolation where they had a lack of understanding of environmental policies and failure to deal with the stresses of the job requirements exposing them to tension, which in turn, stalled learning (Tsele and Muller, 2000). Such problems were worsened by a medical hierarchy which put midwives’ status and role lesser to those of doctors, stifling the independence of midwifery students to appreciate the midwifery-led care (Baird 2007).

Conflict resolution is required to release the associated tensions and emotions for continuity of learning’s sake (Deegan and Terry 2013). In this review it was revealed that the way the conflict was resolved determined whether learning would be facilitated or not. Conflict resolution strategies such as accommodation (Deegan and Terry 2013) and conformity, developing coping strategies and dialogue (O’Mara 2013), debriefing and feedback (Deegan and Terry 2013; Longworth 2013) and avoidance (O’ Mara 2013; Brunstad and Hjälmhult 2014) were revealed.

Conflict associated with differing perceptions and administrative issues related to day to day engagement in activities and related emotions between the student and the mentor involved a power dynamics interplay. In this aspect conformity and coping mechanisms on the part of the student were the best strategies to facilitate teaching and learning (O’Mara 2013). This prompted students to understand the controlling power differences and this helped them to develop coping mechanisms. However, in such situations, students were left with no choice but to conform (Deegan and Terry 2013; Longworth 2013) to what the clinical supervisors require for harmony to prevail. Such a response was critical for building a positive mentor-student relationship with which facilitate learning (Deegan and Terry 2013; Löfmark and Wikblad 2001; Warland and Smith2012).

***Perceived Psychological Isolation***

In this review it emerged that the psychological well-being of the student is critical for facilitating development of professional skills making them fit for practice. If this wellbeing is threatened the student may exhibit poor cognitive and psychomotor performance (Houghton et al 2007; Martin e t al 2006; Deegan and Terry, 2013, Löfmark and Wikblad 2001; Valdez 2008; Bradshaw et al 2012; Gilmour et al 2013; Yuan et al 2011; Tsele Muller, 2000 Licqurish and Seibold 2008; van de Putten 2008). The psychological well-being of the student was affected by the use of students to cover staff shortages, a sense of belonging, a lack of understanding and dealing with work related stress and administrative policies (Tsele Muller 2000). Under such circumstances it emerged that students would present with the psychological challenges such as fear, heightened sensitivity, tension, anxiety and stress. Such a response happens in an attempt to escape from this unpleasant experience that is perceived as a threat to self-esteem and self-worth (Brunstad and Hjälmhult 2014) and could be described as psychological isolation

Perceived psychological isolation related to a need for professional belonging emerged when the student felt that they were not being acknowledged as part of the professional group by trained staff. According to students’ perceptions this need was addressed when mentors called them by their names unlike using the blanket name of ‘students’ (Gilmour et al 2013). Hence, failure of mentors to acknowledge learners as part of the professional group hindered learning through students’ loss of interest in participating in activities related to skill development making them fit for practice. However, making the student happy motivates the student to want to do more and this facilitated learning as a sense of belonging encouraged students to develop the expertise and identify with the professional group (Doyle et al 2017; Brunstad and Hjälmhult 2014; Tsele and Muller 2000). None of the included studies discussed the need to belonging among qualified midwives, nurses and medical doctors despite the difficulties in adapting to the new environment and need for mentorship.

Shortage of staff or a busy environment leading to the use of students to cover staff shortages distressed them psychologically as this prevented being an ideal student and the removed the support and which facilitated learning (Deegan and Terry 2013; Tsele Muller 2000). Similarly for qualified midwives (van der Putten, 2008; Donovan 2008) and nurses (Valdez 2008), busy wards and staff shortages exposed them to stress as they failed to secure the support they needed for a smooth transition into the practice environment.

Lastly psychological isolation among students was related to a lack of understanding and failure to deal with the stresses of the job training requirements, which exposed them to tension and subsequently stalled learning (Tsele and Muller 2000; Yuan et al 2011). Such problems were worsened by a medical hierarchy which put midwives’ status and role as lesser to those of doctors, stifling the independence of midwifery students to appreciate the midwifery led care (Baird 2007).There were no studies for newly qualified doctors demonstrating stress related to new job requirements and fitting into the profession except for newly qualified midwives and nurse (Donovan 2008; Valdez 2008).

**External environment**

***Teaching and assessment methodology***

Approaches to teaching and learning have been proved to be critical in the learning environment (Marshall 2017) though they have their strengths and weaknesses as revealed in the following teaching and evaluation methodologies**.**

***Mentorship and mentor characteristics***

The role of the mentor was reported to be critical for the development of confidence and competence among health professionals (Sawyer 2017) in all aspects of clinical practice (Brunstad and Hjälmhult 2014). Despite the nature of the environment, learning has been said to be able to take place since some changes unrelated to the learning objectives happen to the individual through interacting with the environment (Jordan and Farley 2008). Benefits of mentors included role modelling the correct attitude and behaviour critical for professional development, which were facilitated through mentorship (Joubert and De Villiers 2015). The importance of mentors in learning environment was validated by both newly qualified midwives (van der Putten 2008) and newly qualified nurses (Bradshaw et al 2012. Positive mentor behaviours were said to promote professional growth, reflective learning (Hughes and Fraser 2011) and critical thinking among students. These are key components of cognitive learning and decision-making paramount for clinical practice (Lake and McInnes 2012). All the competencies were said to develop in the students if the mentor created an enabling environment which facilitated access to learning. The students experience in the hands of the mentor determined whether the student perceived the interaction as beneficial to them or not (Back et al 2017; Löfmark and Wikblad 2001). As a result it was possible for one student to have a positive experience with a mentor whilst another student could perceive a negative experience resulting in two different perceptions towards the interaction process according to both midwifery and (Licqurish and Seibold 2008) and nursing students (Thorkildsen and Råholm 2010). Such a phenomenon was possibly due to personality differences among students and mentors (Hughes and Fraser, 2011) and this determined whether the mentor was labelled as facilitating or hindering learning (Lake and McInnes 2012; Thorkildsen and Råholm; 2010; Gilmour et al 2013).

Besides personality differences there are traits which mentors should display towards students for them to be labelled facilitating or hindering bringing up the issue of classifying mentors into two categories: those who facilitating and those hindering learning (Longworth 2010; Löfmark and Wikblad 2001).

***Mentor facilitating learning characteristics***

Mentors who facilitated learning were cited as those who enjoyed teaching, were knowledgeable and tolerated students’ mistakes as part of learning, making them attractive as true role models who supported students’ learning through guidance and provision of positive feedback (Löfmark and Wikblad 2001, Licqurish and Seibold 2008). Such mentors were also able to develop good working and trusting relationships with students which facilitated development of clinical decision making. This subsequently enthused the students to want to learn new things which led to professional growth, self-confidence and autonomy (Brunstad and Hjälmhult 2014).

Such distinct characteristics made these mentors charismatic as they transmitted skills to students; for example, through a sense of humour which was appreciated by students as it facilitated student respect and acknowledgement of their uniqueness (Hughes and Fraser 2011). Ultimately these mentors were effective in transmitting skills to students as they appreciated the differences in students’ learning abilities and adapted accordingly to the students’ advantage, and encouraged students to reflect on their learning (Brunstad and Hjälmhult, 2014; Hughes and Fraser 2011). Such effective mentors were hard to find, but sometimes they could only be accessed late when students had already missed the learning opportunity and could not be made up for again, if at all (Joubert and De Villiers 2015). Similarly, the newly qualified nurses in Valdez (2008) and midwives in Donovan (2008) studies respectively revealed that good mentors facilitated their smooth transition into the profession and practice environment.

***Mentors hindering learning characteristics***

Those mentors who hindered learning were found among untrained mentors who were not prepared for the mentoring role. Hence their characteristics made it hard for students with different learning styles to appreciate them (Löfmark and Wikblad 2001), and/or to create learning relationships with them (Brunstad and Hjälmhult 2014, van der Putten, 2008; Tsele and Muller 2000; Thorkildsen and Råholm 2010, Yuan et al.2011; Gilmour et al 2013). The students found the process of relationship building with an ineffective mentor stressful, which threatened their confidence and ability to develop required competences, adjust to the learning environment (Gilmour et al 2013) and access learning (Hughes and Fraser 2011). Ineffective mentors denied students a chance to practice or, if they permitted them to practice, they would take over the task when the students made mistakes (Joubert and De Villiers 2015). This deprived students of learning opportunities, which frustrated them. Such behaviour caused the students to fear the mentor to the point of avoiding seeking support from them (Hughes and Fraser 2011). Such mentors were also perceived to be authoritative and demean students. Ineffective facilitators did not believe in the students’ ability take responsibility or make decisions for clients’ safety (Tsele and Muller 2000; Gilmour et al 2013; Brunstad and Hjälmhult 2014). Though the qualified nurses (Valdez 2008) and midwives (Donovan 2008) indicated that they needed friendly mentors to facilitate their smooth transition into their new job the retrieved studies did not discuss the nature of the mentor except for tolerance in the case of newly qualified midwives in the Donovan (2008) study.

***Simulation teaching and assessment methods***

Students expressed their views on the impact of different teaching and assessment methods on their skill acquisition, revealing the different benefits and hindrances to teaching and learning making them fit for purpose. None of the included studies discussed this in relation to newly qualified health professionals.

Collectively, 15 research articles acknowledged different versions of simulation. These are simulated patients, standardized patients, role plays, case studies, computer packages, models, manikins, authentically based scenarios, skill demonstrations, OSCE, and skills coaching. However, each type was found to have some characteristics which facilitate development of specific skills. Of all the teaching and assessment methodologies it was revealed that they needed the mentor to teach, assess and give timely feedback to the students. Timing was not only important for feedback but also for teaching skills related to the level of training as a facilitator of skill development (Mole et al; 2007; Ali et al 2007; Lavender 2013) and the reverse is true (Mole et al; 2007; Lavender 2013 ). Simulation teaching and evaluation methods were revealed to beneficial and/or unsuitable for teaching or learning some skills as revealed in the ensuing paragraphs

The Khadivzadeh and Erfanian (2012) study compared simulated patients and gynaecological models in developing patient centred care awareness, and simulated patients were ranked superior to gynaecological models. This is despite the fact that simulation is considered inferior to real life situations, hence unable to replace it (Choi et al 2014; Mole et al 2007; Barker et al 2013; Longworth 2013; Hughes et al 2014). In addition, simulation was viewed as more valuable facilitating development of skills needed in emergency management (Norris 2008) but not in developing ethical, legal, and professional aspects of midwifery (Smith et al 2012, Norris 2008).

Nevertheless, Lake and McInnes (2012) revealed that cognitive skill development was using simulation was difficult to measure owing to its indistinctness and its need to be inferred through other skills such as decision making. However, the learners managed to witness the progressive development in their critical thinking skills in relation to experience with practice. Since the students in this study expressed concern over lack of authentic tools to evaluate cognitive skills, they perceived themselves as lacking the skills at qualification.

Creative art a teaching and evaluation method was partly appreciated by student midwives for providing a non-threatening learning environment which facilitated development of personal growth, closing theory and practice. In addition to developing knowledge, problem solving and communication skills (Noble and Pearce 2014). Even though the Noble and Pearce (2014); Weston (2012); Chabeli (2002) studies were qualitative studies with smaller sample sizes, they offered valuable evidence on the benefits of creative art, poster presentation and storytelling teaching methods as they facilitated competence and confidence development. Nonetheless the students did not like the stress associated with using these methods which threatened their psychological wellbeing and the associated effects alluded to earlier on perceived isolation. However, these methods offered a baseline on which to build further research on these teaching methods among health professionals such as nurses and medical doctors since these were associated with midwives.

Story-telling was revealed to have both facilitating (Gidman 2013; O’ Mara 2012; Weston, 2012) and hindering (O’ Mara 2012, Weston, 2012) learning effects on students. The positive feature of story-telling was that it enabled students to share their clinical area experiences, which was viewed as necessary for releasing tension and see sense built in these experiences (O’ Mara 2012, Weston, 2012). Also, these stories were viewed to develop the students’ problem-solving skills, reflective skills, knowledge and the ability to evaluate peers’ and patients’ conditions, as well as nurturing their self-awareness. (Weston 2012). Conversely, in (O' Mara 2013) study stories were used to advise students about unsupportive mentors, so that they treat them with caution or even avoid them. In addition story telling instilled fear and some students became judgemental and lost learning opportunities (Weston 2012); therefore, story-telling has both positive and negative aspects, as stories can stir fear and anxiety, consequently lead to students missing learning opportunities (O’ Mara 2013).

Similarly, the students enumerated skills that developed in them following a poster presentation as a teaching and evaluation method. These skills were critical thinking, creative thinking, problem solving, human relations, teamwork and cooperation, self- directed learning and responsibility, all of which are critical skills required in professional development and growth. Though some students revealed that it is associated with stress of which alluded to earlier on as causing psychological isolation which impedes learning (Uys and Tredwell 2014; Deegan and Terry 2013). In addition to the coaching method which is the only method in this review students did not associate with stress (Kelton 2014)

Objective Structured Skill Evaluation (OSCEs);Self-assessment (Plakht et al Karabacak 2012, Clanton 2014) authentic assessment (Raymond et al 2013); predetermined criteria; ICT (Information Technology) ICT (Barker et al 2013; Lavender et al 2013; Ilic and Moloney 2014).

Some studies compared newer teaching methods such as problem based methods and the traditional lecture methods to determine which method was superior (Laven et al 2014; Farahani Hedairi 2014, Simonelli and Paskausky 2012, Choi et al 2014, Fiedler 2012, Tully 2012). This review suggests that each method is unique in its own way. However, it emerged that students enjoyed both the problem-based learning and the use of workbook approaches which both assisted them to solve real life situations in the clinical areas. The workbook was used to deliver bereavement experience which was initially stressful (psychological isolation) which help the students to overcome the clinical area related stress with repeated exposure (social engagement) (Martin et al 2014). The Hofsten et al (2010) study revealed that the student’s experience and perception of the process determined whether the student would enjoy the process (psychologically engage) or not as at times the process proved stressful to the student.

Competence assessment facilitated learning when feedback was constructive and given in a timely manner. However, students complained that too much writing, vague language, too many assessments, lack of continuity among facilitators including balancing time and theory were associated with stress (Bradshaw et al 2012; Yuan et al 2011; Tsele and Muller 2000; Brunstad and Hjälmhult 2014).

Video can also be effectively used both as an authentic assessment tool and teaching method (Raymond et al 2013). As a teaching technique, it was valued for providing the students with insights on appropriate attitudes, knowledge, and communication skills needed for a specific procedure. Correspondingly, Fieschi et al (2015) found the use of a cinema to break bad news proved fruitful in developing self-reflection skills and changing students’ attitude and behaviour towards handling the bereaved. However these two methods were said to be associated psychological stress which could slow down cognitive performance and psychomotor skill equally the same previously discussed in perceived isolation.

Self-assessment is the only evaluation which included medical doctors according to this review (Clanton et al 2014; Ali et al 2007). This type of assessment method was revealed to be full of flaws as it emerged that learners develop wrong impressions about themselves as they view themselves as having developed the skill and develop false confidence. This may imply that over assessment could build complacence and prevents learners from adequately developing their skills thus hindering learning as the student would feel to have achieved the right skills otherwise. It is argued that the number of times the students practice the same procedure refines skill development and confidence (Longworth 2013) Though the OSCE was deemed a facilitator of competence and confidence development its success was determined by the skill and experience of the support person in using the method in all the phases of the process (Barry et al 2012; Brosnan et al 2006).

Self-assessment is another type of teaching and evaluation method, where students assess their own performance after performing a task followed by a feedback from a facilitator. However, this method is subjective and unreliable the present review showed that there is no correlation between actual competence and self-assessed confidence and as students tend to give themselves higher marks than their teachers did (Chenery-Morris 2012; Plakht et al 2013; Clanton et al 2014, Barnsley et al 2004). As such even those were awarded zero by their teachers (Barnsley et al 2004; Plakht et al. 2013) would over value themselves. Most students who performed badly falsely assessed their competence as they award themselves higher marks (Laven et al 2014), contrary to Clanton et al (2014) study which revealed that self-assessment was dependable only if the learner had grasped the right concepts. Objective evaluation coined with prearranged criteria was more reliable in ascertaining student’s strengths and weaknesses in learning (Chabeli 2002). In the current review, dependable methods included posters (Chabeli 2002) and OCSEs as these were criterion-based (Brosnan et al 2006) though they also had stress related problems (psychological isolation) affecting learning. As such, it is evident that no single teaching and evaluation tool can be trusted to work alone in measuring skills; hence the need for evaluation tools to be complementary (Chenery -Morris 2012).

**Summary of findings**

In this review it was apparent that facilitating and hindering factors were determined by the learning environment based on the student’s experiences within that environment. Such a phenomenon made it difficult to distinctively separate facilitating and hindering factors to competence and confidence development as these depended on how individual students viewed them post experiencing the environment. Such an experience brought out the dichotomous nature of teaching and learning processes in the nursing, midwifery and medical doctors’ professions. It was evident that the same teaching and learning process had both a facilitating and hindering effect on different students. In addition, teaching and learning processes facilitating or hindering competence and confidence development are interactive in nature and embedded in individual experiences and in turn influencing perceptions of the individual towards the whole process. As a result, the social processes involved in teaching and learning were discussed in light of student perceptions and experiences under ‘internal’ and ‘external environment’. Internal environment included the students perceptions; with percived isolation (social and psychological) and external environment with subcategories teaching and assessment methodologies and physical environment implied. Perceptions and experiences of the individual students also appeared to be relative and not universal as it was found that different students had different experiences with the same process which determined their perception and reaction towards the teaching and learning process. Consequently, these teaching and learning processes, due to their interactive nature, were emotion laden and such emotions could either be positive or negative depending on whether they hindered or facilitated competence and or confidence development in the student. The issue which evolved in this review was that both psychological and social isolation partly hindered or facilitated learning and smooth transitioning in the learning or working environment in students and newly qualified professionals alike. Albeit engagement either socially or psychologically which also was of dichotomous nature in students and newly qualified nurses and midwives. The students were engaging both psychologically and socially in teaching and learning including evaluation processes and wrongly evaluated themselves which could explain that why newly qualified nurses and midwives in this review were not confident.

In this review it also emerged that engaging socially or psychologically in an ongoing activity in the learning or practice environment among the students or the newly qualified professionals respectively did not facilitate confidence or competence development. Finally, the internal environment is complex and difficult to predict as there is diversity in thought and cognitive processes which are not universal and could only be inferred by those in the environment whether engaged or not.

**Limitations of the review**

The review has been carried out from October 2014 to December 2017 as part of the first author’s PhD thesis and limited to those articles written in English. As a result the review articles which informed this review’s results were those searched from 2014 to June 2015 for it to be part of the proposal submitted in July 2015. Although literature review was ongoing up to December 2017 articles searched beyond July 2017 were used for discussion of results. However, the length of the period was to reflect the time period when core competencies where emphasized in medical professionals’ training curriculum to enable them to give quality care to patients at completion. Of the 348 articles excluded at abstract level, 10 did not have full articles and could have introduced selection bias.

Key points

* Classification of facilitators and hindrances to competence and confidence development among skilled birth attendants is difficult due to their dualistic and experiential nature.
* It should be noted that most of these studies (51/62) were carried out in developed countries, with only six in Asian countries and five in African countries revealing that underdeveloped and developing countries are lagging behind in home grown evidence based teaching methods.
* The studies revealed that the learning environment is critical to student learning experiences and is both internal (social and psychological aspect of the student or the newly qualified nurse / midwife) and external (teaching and assessment methodologies and physical environment) and driven by students’ and newly qualified nurse and midwives’ experience and perceptions.
* For both students and newly qualified nurses and midwives’ experience with the learning environment is a strong predictor of facilitators or hindrances to competence and confidence development.
* Although few studies for newly qualified professionals were included in the review, they strong;y suggested that acquiring competences and confidence prior to qualification was essential for smooth transition into the profession.
* There were no studies for newly qualified medical doctors’ which informed this review about their experiences during their transition into the profession except for them as students during learning and self- assessment which was similar across all the three students (midwifery, nursing and medical doctors).

**Recommendations**

* There is a need for diversity and open mindedness in the use of teaching methods in facilitating competence development in the clinical area among doctors, nurses and midwives as students.
* Despite the fact that there was a large number of research articles retrieved for this review more studies were carried out in developed countries and these have different characteristics with those students in the developing and underdeveloped countries. There is a need to carry out such studies in the context of these countries to develop home- grown strategies to strengthen training of skilled birth attendants.
* There is need for more studies to be carried out with newly qualified doctors, nurses and midwives to ascertain their experiences with facilitators and hindrances to competence and confidence development after qualification within the first three months.

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**Appendices**

* 1. **Appendix 1:** **Data extraction sheet**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| author and date of publication | Title | Study aims | Methods | Sample | Main points/findings | Quality assessment | Quality  total |
| Ilic and Moloney (2014) | Methods of teaching medical trainees evidence –based medicine: A systematic review | To identify what type educational methods is most effective in at increasing medical trainees’ competency in EBM | Systematic  Review of RCTs | Nine studies met the criteria | **Methods found and implications** : Lecturevs. online teaching  Directed vs. self –directed, Multi-disciplinary vs.discipline specific group and  Lecture vs.active small group facilitated learning was then identified compared and contrasted teaching methods. However, there were no differences found in skills acquisition across the methods they were all similar | The methods and limitation of the results in the articles were cited and discussed in detail  -**good quality** | **36** |
| Licqurish and Seibold 2008  **Australia** | Bachelor of Midwifery students’ experiences of achieving competencies: The role of the midwife preceptor | To explore and describe Bachelor of midwifery students’ experiences specifically the role of the preceptor in learning and development of competence from the student perspective. | Grounded theory methodology  -in-depth interviews | N=-8 bachelor of midwifery students completing their final clinical placement  -One clinical teacher | 1)Preceptor behaviours- both helpful and unhelpful to students  2 **Qualities of preceptors**  -**good quality** - enhance learning, enjoys teaching, and knowledgeable allowed mistakes as part of learning encourages increased responsibility and decision-making for students  -**bad quality**-poor role models, do not allow the student to practice or take over management from student  - is unsupportive and authoritative  2**Good Student- preceptor relationship**  benefits  -access to learning opportunities for students  -debriefing of situations  Access to supportive supervision  4**student preferences of preceptors**  -role models who instil the midwifery philosophy rather those opposing it | Inadequate ethics  -implication for practice only  Limited ethics description  But detailed methods and results  **Fair quality** | 30 |
| ( van der Putten, 2008)  Ireland | The lived experiences of newly qualified midwives: A qualitative study | To explore newly qualified midwives’ lived experiences of clinical practice to (or “intending to”) gaining a deeper understanding | Qualitative –Heideggerian  phenomenology-semi-structured interviews | N= 6 Newly qualified midwives | **1meaning of clinical practice is not grasped**  -overwhelmed  -stressful related to job expectations  -the discrepancy between was in theory and actual clinical support available  -continuous professional development for continued safe care- EBP  -**2 preparedness**  -all participants felt were not competent to deliver  **3Participant views** for need for good clinical support/mentorship program or mentor allocation for newly qualified | Unstructured abstract but contain all information  -moreover, no limitation though a detailed report on methods  -**Fair quality** | 34 |
| Barry et al 2012  Ireland | An exploration of student midwives’ experiences of the objective structural Clinical Examination assessment process | To explore experiences of OSCE assessment process for obstetric emergences in the BSc Midwifery Program AND 18/12 Higher Diploma IN midwifery programme | Qualitative descriptive approach-focused group discussion- | N=36 students BSc and Higher National program | 3 T**hemes identified**  1 **Preparation of OSCE** –beneficial  2 **OSCE process**-  Waiting time stressful  Time in time to show their skills  Still reflecting previous within the procedure Advantage if assessor known to student  Improves skills and instils confidence  Student reflected mixed feeling on reflecting real life situations  -Prepares for practice though  **3) Feed- back** -Expressed need for immediate feedback though aware of the impossibility | -unstructured abstract  2 implications stated but well detailed methods  -**Fair quality** | 32 |
| Brunstad and Hjälmhult (2014) Norway | Midwifery students ‘ learning experiences in labour wards: A grounded theory | To explore the main concern expressed by postgraduate midwifery students during their clinical placements in labour wards and how they acted to resolve this concern | Grounded theory | 10 student midwives | **Student’s concerns**  Gaining access to relevant learning experiences  **-** Challenging -unpredictable learning environment due to unexpected events –leading to insecurity and stress.  **Affected by academic writing** initially considered as a burden  **Familiarisation** improved access to learning experiences.  **Relationships building though** time and energy consuming critical for accessing learning , boosting self- esteem and a sense of security belongingness  **three phases of relationship building**:  1)**controlling vulnerability** –vulnerability due to perceived lack of knowledge and the power of midwives(responsible for training and evaluating students ) and feeling of being critically assessed instead of supervised  -initially difficult to take initiatives due to **perceived workloads** of midwives and on feeling secure, they dared to take initiatives even though they **depended on midwives as they were motivated to achieve** their goals through confidence  2 **Humbleness and subservient** to the midwives was critical despite and not complain about identified discrepancies **in theory and practice to** gain **acceptance**.  Three**feeling trusted promoted** their success and building confidence. **Failure to build** relationships placed a **strain on them** and their learning process. | Methodology clearly described including rigour and biases  -Sampling selection not justified  -detailed methods and results  **Fair quality** | 30 |
| Thorkildsen and Råholm (2010) Norway | The essence of professional competence experienced by Norwegian nurse students: A phenomenological study | To explore and describe the professional of the nurse student from a Norwegian perspective | Phenomenology | 11 students | Four themes emerged:1) **safe relations with the superviso**r- enhanced learning and confidence building and clinical skills acquisition,  -**Supervisor characteristic** knows and, respects their students  Offer safe learning environments. Security reduces stress and contributes to professional and personal maturity.  -Positive role modelling,  - Encouragement and support quality feedback and assessment.  **The students perceived** the clinical environment as the best place for learning clinical skills, but they feel threatened by it  - **relationship with supervisor** determined student-patient relationship as well  2) **Seeing the context and understanding the clinical picture** – student learnt holistic care from patients themselves under guidance of experienced nurses as role models  3) **Responsibility enhances professional development and accountability**– responsibility cultivated the desire to want to develop expert knowledge and continue their education promoting independence and preparedness to take new challenges be flexible, creative and develop awareness of changing patient condition and needs –  Which promoted student visibility  4) **Being a burden stunts professional growth**- a student who felt they were a burden to the supervisor withdrew away from a supervisor, did not ask questions and advice. They failed to fit in and experience loneliness’. Perceived students ‘vulnerability assisted them to understand vulnerability of patients and development of ethical knowledge | -unstructured abstract.  -inadequate introduction  -implications and bias no stated  but a very good methods description  **Fair quality** | 27 |
| Tsele and Muller (2000) South Africa | Clinical accompaniment: The Critical care Nursing Students’ Experiences in a Private Hospital | To explore and describe the experiences of the critical care nursing students about the clinical accompaniment in a private hospital in Gauteng | Qualitative, exploratory and descriptive research design: Phenomenology | 10 Critical Care Nursing Students | Two themes emerged: 1) **internal environmental experiences:** inconsistencies in theory and practice supernumerary status caused (physical, mental and spiritual) distress and intrapersonal conflict which  inhibited learning  -**initially motivated** but this progressed to demotivation due to reality shock, the stress of treated like children  - Inconsistent supervision as supervisors is too busy to care.  - **Frustration**, due to lack of knowledge, inability to meet the mental emotional and physical demands of the unit, lack of an adequate educational structure,  **inadequate guidance** - clinical tutor to i**nsecurit**y –perceived intimidation by unit sisters and fail to ask questions  **Pace of events** too fast resulting in impatience and intolerance by unit staff and other practitioners,  Alternatively, interpersonal conflict was with supervisor  - **trusting relationships** gradually develop with time and supervision improved  **-**gaining confidence and a sense of achievement and assisted in achieving objectives  -Progression in skills acquisition led to enjoyment of challenges through responsibility  **Two external environment**  - high workload and unpredictable environment inhibited learning  - patients allocated not meeting learning needs (boredom),  -too busy to learn, the time specified for learning specific skills not adequate and inadequate orientation by unit managers, the general layout of units, policies and procedures and equipment used  , interpersonal conflict between supervisor and student | Methodology defined and the weaknesses of the study not highlighted and limited background to information  -**Fair quality** | 31 |
| Yuan et al. (2011) | Nursing students’ views on the effectiveness of problem -based learning | To describe To describe nursing students’ views on PBL in Macao and Shanghai | Descriptive study | 28 fourth year undergraduate nursing students | 1)**Positive experiences**:promotes: self- directed learning, motivation and knowledge acquisition, problem-solving , critical thinking c**ommunication** and group collaboration skills  2) **negative experiences**  **relationship building** -not a smooth process -Time-consuming and stressful  - increased workload and vague information received to lack of guidance leading to a lack of confidence , uncertainty,stress , confusiondue, unsure of knowledge needed and possible reinforcement of wrong information - unsupported peers to peer learning is not appreciated | -abstract, not structured  -sample methods or criteria no stated  -implications only mentioned practice and policy  -**Fair quality** | 28 |
| Gilmour et al. (2013) Australia | Exploring the impact of clinical placement models on undergraduate midwifery students | To explore the learning experiences of students in two models of placement | Descriptive qualitative approach | 112 midwifery students | Themes:1) **student roles** –adopting student role –reasons for the attachment, learning ( a chance to correlate theory and practice, dealing with challenges ), gather necessary support and reassurance ( senior student and newly qualified midwives  2) **Facilitated learning**  **-relationship building**-stressful and determines adaptation to environment and access to learning  -**Characteristics of midwives**  **-good** midwives –teach and support students, students –supportive –build confidence,  -**bad** ones have nothing to with students devaluing student –undermine confidence  3) **belonging to a team: -**feeling supported and valued  - offers a constant, regularnon-threating environment which promotes learning, feel accepted as individuals not just a student  – promotes confidence building and learning the culture of the place  –**not allocated to activities** or informed of what is going on causes –feeling of invisibility,  - felt unwelcome and unknown | -No rationale for methods selection and analysis methods  –good description of data collection and findings  - no implications  -no biases  -**fair quality** | 27 |
| Bradshaw et al. (2012) Ireland | Working and learning: Post registration student midwives ‘ experiences | To explore student experiences of the clinical competency assessment process utilised on the Higher National Diploma in Midwifery 18/12 programme | Descriptive qualitative  study | 20 student midwives | Themes;1) **process of competence assessment** –perceived by many students as facilitating continuous assessment of clinical practice but issues were with language and number of assessments  Students do not see the usefulness of written evidence saw it as time wasting  –progressive improvement in development was appreciated  – viewed feedback as critical  2)**support for competency completion**- Felt a named preceptor is need  -found support from peers, junior midwives and BSc Midwifery students in their learning  3)**Factors affecting completion of competence assessment-** continuity of preceptors and balancing time between theory and practice  support is more crucial in the junior group who need more guidance and support  –competing demands - perceived workload initially  -Students felt that challenges in the clinical area improve with time as the students I grow in training with improved knowledge and competencies | Ethics not fully described  -**Fair quality** | 34 |
| Valdez (2008) the UK | The transition from novice to competence: What can we learn from the literature about graduate nurses in the emergency setting? | To examine and interpret what is known about the GN role from novice to a competent practitioner in the acute care setting | Systematic review | 21 articles | Themes emerging  **Culture shock** –most would not have carried a full patient load or dealt with realities of professional nursing practice  –work environment and professional norms is not what they expect  –**stress and frustration** –due to feelings of inadequacy , fear of independent practice, dealing with new situations work schedule  -challenges unclear expectations, finances and student loans  - **inadequate preparation** –feel inadequately prepared for professional practice and lack of self-confidence  **Assimilation**-mentoring, orientation and social support is needed | -no abstract but good description of methods and results  **-Fair quality** | 32 |
| Lake and McInnes (2012) the UK | Exploring cognitive skill development in midwifery education | To explore to the development of cognitive skill this-this undergraduatecurriculum: specifically how and when development is supported or assessed | Action research | 36 students | **Document analysis**- program to produce an independent practitioner  **Student perspective** unaware of cognitive development through theoretical part of the program, EBL or, summative evaluation  **Development**  student acknowledge that clinical exposure causes progression in thinking skills, practical skills, though cognitive skill development is invisible or is inferred through r skills like decision making  **Mentor influence:**  **-**encourages reflection –key to cognitive development  –differences in student experiences critical-mentor variations is appreciated  **Reflection**-critical in practice –diaries and assignments  **Simulation:**emergency situations **–**observing and thinking  **Evaluation and assessment**: promotes practical skills and knowledge development rather than thinking  making skills | Data collection methods scanty and unstructured limited information abstract  **Fair quality** | 29 |
| Morgan (2006) Ireland | Using skills laboratories to promote theory –practice integration during first practice placement: An Irish perspective | To investigate how a selected cohort of nursing students experienced their first practice placement in a large Irish teaching hospital | Qualitative study | Six student nurses | The basic skill learnt in a skills laboratory assisted them to fit in the clinical area easily and were able to reflect what they learnt In theory and put it to practice | Purpose of study state and a detailed methodology was given, and limitations of the but results of the study were summarised  **Fair quality** | 32 |
| Plakht et al. ( 2013) Israel | The association of positive and negative feedback with clinical performance, self –evaluation and practice contribution of nursing students | To evaluate level of feedback provided to nursing students during clinical practice and investigate their association with related outcomes such as clinical performance, self- evaluation of achievements and contribution of the practice to the professional skills | Cross-sectional study | 124 third year nursing students | **Quality positive feedback** was found to be related to quality practice and  over self –evaluation whereas higher quality N**egative feedback** was associated with more accurate self – evaluation | -minimal information in the introduction  -implications partially stated  -detailed methods and sample methods and justification  -**Fair quality** | 32 |
| Choi et al. (2014) | Effects of problem-based learning vs. traditional lecture on Korean nursing students ‘ critical thinking,problem-solving and self-directed learning | To explore effects of PBL on critical thinking, problem-solving and self-directed learning among Korean nursing students and examined the association among critical thinking, problem-solving and self-directed learning outcomes | Pre-test-post-test quasi-experimental design used | 90 first year nursing students | -**Critical thinking** score increased for both methods though were higher in PBL than in traditional lecture  -**Problem-solving** and self-directed learning scores both increased in PBL while they both decrease in traditional method  -though not statistical significant  -**Relationships** between learning outcomes revealed a positive correlation between critical thinking and problem solving, critical thinking and self-directed learning and problem solving and self-directed learning respectively-  -PBL superior to TBL  **–no true differences or -statistically insignificant results - occurs with under power or insufficient time for differences to show** | -sample no clearly defined  -silent on ethics  -Methods and results are detailed  -**Fair quality** | 32 |
| Farahani and Heidari ( 2014) | Effects of the case-based instruction method on the experience of learning | To evaluate the effects of the case based method on the learning experience of midwifery students | Quasi-experimental -Lecture based method and case-based method | 27 student midwives | **Skills acquisition**: There was a significant statistical difference between the pre-test and post-test scores within the instrument  -however, no significant differences were found in  **case base**d /**PBL** and **lecture method**  **Learning experience**  students were **more interested** in the PBL | Purpose of the study stated fully described methodology, and study limitations indicated minimum information on sample  -no biases mentioned  -3 implications  -**Fair quality**  - | 29 |
| Simonelli and Paskausky (2012)  UK | Simulation Stimulates Learning in a childbearing Clinical Course | To determine whether simulation are better adjuncts to traditional learning experiences or they may replace some proportion and obtain equal or better results in performance | experimental | 381 student nurses | Results –**simulation improved** performance better than none- simulation  -**clinical skill** was better achieved in simulation  -there was a statisticallysignificant different for simulation | Purpose of study stated with described methodology but did not state what design was used limitations and implication of the study indicated  -minimum ethics  Unstructured scanty abstract  -**Fair quality** | 34 |
| Fieschi et al. (2015) Italy | Teaching midwife students how to break bad news using the Cinema: An Italian qualitative study | To examine the effects that a course which uses a reflection as a method of learning and **cinema as a teaching tool** | Simulation  -film  -Reflective skills on own emotions  -knowledge on communication skills  -effective skills and attitude | Ethics informed consent, privacy  -freedom to leave out answers not comfortable with  -the small sample may have produced bias  Qualitative narrative methodology  Third-year midwifery students | **Different types of communication** approaches and their impact on the patient were acknowledged  **knowing self-was reflected**  -attitude awareness and  behaviour change  -aware of emotions associated with the situation  -identified their ability and limitations  -reflective skills  -knowledge skills  -communication skills | Transferrable to other science humanities may hinder it  Important for midwifery practice as they have to enter Theory patients affectively  Good  -methods and results detailed  -unstructured scanty abstract  -**Fair quality** | 28 |
| Khadivzadeh and Erfanian (2012) Iran | The effect of simulated patients and simulated gynaecologic  Models of student anxiety in providing IUD services | To find out the effect of simulated patients and simulated gynaecologic  Models of student anxiety in providing IUD services | Simulated gynaecological  Models and simulated patients  -reflective skills  -clinical skills  -the level of anxiety/comfort levels | RCT pre and post –test  Simulation: traditional method  Midwifery students 56-survey | **Effects on skill development**  -enjoyable- increase enthusiasm and motivation  -**increased knowledge**  -**practical skills improvement**  -appropriate to their learning style  **identification of legal** and ethical issues -80% yes and 20 % was not sure  -useful in **increasing reflective practice** and silent on the theoretical aspect  -**working in groups**  learnt teamwork management approach  proof **knowledge retention** | Generalizable  -practice implication  Ethics and bias  -randomised  - Detailed description of methods and results  by students  -results congruent with RCTs  -**Fair quality** | 30 |
| Raymond et al. (2013)  Australia | Learning through authentic assessment: An evaluation of a new development in the undergraduate midwifery curricula | To explore the feasibility and usefulness of an authentic item that focused on a common scenario in midwifery practice. | Evaluation | Bachelor Midwifery Students in final -7 | Student views  **Positive**  -knowledge  Learning together-**group work-see beyond task**  - for clinical practice –bringing all skills together **practical skills, communication, organisation, documentation, working in a noisy environment**  **Confidence building and reflects the real world reflects multi -tasking needed for clinical practice**  **Manageability-**-**fair and reasonable** for peer assessment  **Negative aspects of filming**  -**being watchedand filmed-** evoked stress, some don’t want to be photographed  -**watching others improved self-efficacy**  -ideal **in difficult life situations** –limited learning and practice difficult  -the value of watching listening and doing learning a social process | Implications  -ethics -  -qualitative descriptive  Evaluation  Design well described  -Unstructured abstract  -bias not stated  - **Fair quality** | 31 |
| Lavender et al. ( 2013)  Nairobi | A pilot quasi-experimental study to determine the feasibility of implementing a partograph e- learning tool for student midwife training in Nairobi | To assess the acceptability of an e-learning tool as a method of learning about partograph use and to examine the potential for the e-learning tool to improve partograph recording skills | Simulation  -Computer package  -Learning practical skills  -acceptability of the method  - potential to increase knowledge- Uncontrolled before and after quasi-experimental  Design | 92 Student midwives | **views**  -Student positive on relevance to practice, ease of completing, like—ability and appearance  - the content was about right  -the third year found it difficult to complete than fourth years  **Beneficial**  Improve  -knowledge  -practice as indicated by the test scores  -Pre-test score was higher than post-test score though not impressive | Transferable  -methodological flaws identified and explained  Ethics not in detail  -abstract structured and detailed  -**Fair quality** | 35 |
| Kelton( 2014) | Clinical Coaching: An innovative role to improve marginal nursing students ‘clinical practice | To present data collected including outcome achieved and coaching strategies used when clinical role was implemented to support and develop nursing practice for marginal performer or at risk student | couching  -correct and reinforce good practice in  -communication, practical, critical thinking and reflective skills | 188 student nurses | **Narrative synthesis**  -Vast improvement in the coached skills  -student was motivated  -reflective and the process used in referring and coaching is congruent to literature review findings | Transferability  -implications and  - Ethical scanty  -limitations mentioned  -detailed methods and results  -**Fair quality** | 34 |
| Ali et al. (2007) West Indies | The simulated trauma patient teaching module does it improves student performance? | To evaluate the effectiveness of trauma simulate modules in comparison to control learning modules in enhancing knowledge and skills in assessing and managing trauma patients | Simulation using standardised live subjects and  -skills  -knowledge | 70-Final year medical students | -skills were similar at baseline  - moreover, all improve post test  -the simulated group had higher scores though not impressive | Transferable  Inclusion of both subjective and objective data is ideal to give more confidence in the results  good  Self- reported  Confidence-  Not clear RCT  -**Fair quality** | 30 |
| Clanton et al. (2014) Ohio | Relationship between confidence and competence in the development of surgical skills | To evaluate the relationship between confidence and competence of medical students undergoing basic surgical skills training | Correlation study | 128 medical students | Before training, there was no correlation between confidence and competencies as mean score were 0 for both competent and not -competent students ‘  -There was a strong association between confidence and competence post training  - both competence and confidence improved post training  - It was revealed that self- assessed confidence and competencies are unreliable  - Hence the need for objective measurement of performance  -younger students were less confident less confident  -Younger students gained more than older students were least skilled and  Failed to achieve skills  **Confidence-enthusiasms-motivation-enhance learning practice and experience**  -younger perceive increased need for training-maximise training effort  -previous experience had a positive effect on suturing  -there was a significant difference between confidence and competence | -scanty sample and ethics description  -detailed methods, data analysis, results and implications  -**Fair quality** | 31 |
| Laven et al. (2014) Australia | How was the intern year ?: self and clinical assessment of four cohorts from two medical curricula | To assess how well prepared the graduates felt for their internship and compare c this self- assessment with the clinical supervisor assessment results of their intern year | Triangulation | 166 medical doctors graduates | Graduates from traditional lecture rated it well more than the PBL’.  **Preparedness-**TLB higher levels of understanding disease process while PBL Cohorts are more prepared in legal and ethical issues  **Resilience:** no differences in the two cohorts was noted  **Clinical skills and preparedness-**no significant difference between lecture and PBL  -PBL was associated with good inter-discipline interaction | -Ethics, implications and bias no detail but the rest satisfactory  -**fair quality** | 32 |
| Lofmark and Wikblad (2001) Sweden | Facilitating and obstructing factors for development of learning in clinical practice: a student perspective | To delineate the factors that the student nurses found to be facilitating or obstructing their learning during the final part of their clinical practice | Not stated | 47 third year students | **Facilitating factors**:  1)**Taking responsibility** for a group of patient encourages longer contact and encourages learning and a good therapeutic relation relationship  2)**Practising skills** promotes skill and confidence building and self- awareness  3)**collaboration and supervision**; gives the courage to ask questions and build confidence or show weaknesses to be worked on  **Peer support** -Supervision of classmates and nurses on what they know as this increases their confidence as they transmit their knowledge to others.  4**)Overview and control**; understanding the whole situation in care of patients from admission to discharge  **Obstructing factors**:  1) **lack in the student** –supervisor relationship –supervisor who does not rely on the student or takes over, a feeling of not being treated seriously or arrogant, comments from a supervisor, insufficient supervision or an uninterested or irritated supervisor. Lack of feedback and time to reflect  2) **Organisational shortcomings** in the supervision –supervision that lacks continuity, lack of guidelines for nursing practice or uneasiness with the working climate, stress or lack of time, lack of opportunity to practice or not allowed to take part  3) **The experience of student’s shortcomings** experience of insufficient and or own failure, difficulties in taking initiatives .doing wrong things not being self- reliant and insufficient knowledge. | Methodology: research design and sampling method only clearly described weaknesses and data collection – Findings were detailed  Ethics lack detail  **Fair quality** | 29 |
| McMullan (2008) the UK | Using portfolios for clinical practice learning and assessment: The Pre- registration Nursing student’s perspective | To obtain pre-registration nursing students’ perceptions regarding the use of portfolios for their clinical practice learning and assessment | Survey quantitative and qualitative data | 253 pre-registration diploma of nursing student first year -131  Third year -122 | **Portfolio evaluation by students**  **Quantitative**  49% felt it was good 51% felt it was not good and 76% felt there was room for portfolio improvement  **Qualitative Data**  Three main themes emerged  Why students liked portfolio  1) Keeps your information in one place  2) Reveals student’s strengths and weaknesses  3) promotes independent learning  4) Felt there is a need for support.  5) Stress full | Aim of the study well-articulated  -methodology, findings, data analysis and sample described  -one implication  **Fair quality** | 32 |
| Jordan and Farley (2008)the UK | Confidence to practice midwifery: Preceptor influence on student self- efficacy | To examine the influence of student perception of clinical preceptor behaviours on student self –efficacy for two hallmarks of midwifery practice: The value of therapeutic presence and not- intervention in the absence of complications | Cross-sectionalstudy design | 125 student midwives | **1)Self-efficacy and environment**  Most participants had high self –efficacy scores for both hallmarks despite the clinical setting or experiential background –learning is unavoidable is stubborn it can occur in any setting  **2) Midwifery hallmarks**  - participants had higher self- efficacy scores for therapeutic presence behaviours than non-intervention in level 2 hospitals  -Students’ belief in the value of a specific behaviour was the most significant variable for self –efficacy scores  **3) Preceptor behaviour**  - had an impact on student self -efficacy score  -important in socialising students to philosophically based midwifery. | A detailed description of methodology strengths and  -limitations given  -unstructured abstract  -Limited ethics  -**Fair quality** | 33 |
| Hughes et al. (2014) | Introducing an obstetric emergency training strategy into a simulated environment | To explore the impact on final year midwifery students’ feelings of self –efficacy following participation in simulated emergency drill training | Theory underpinning study described but no design | 65 final year students | Descriptive statistics and thematic analysis  Emerging themes:1)**Self- awareness and confidence** students were able to reflect on their contributions to the emergencies and indicated confidence development and enhancement of decision making and communication skills  **-Preparation** gave them confidence  -some students were nervous initially which they later overcame (developing team relationships, safe and not- judgemental nature of training)  2**)Reflection and feedback** positive feedback builds confidence in learning  Number of papers included in the review  **(n= 62)**  3)**Safe environment**- supports learning through replicating reality in  the simulationdoes not replace reality but can prepare individualsfor the required clinical skills in a safe environment  4) **teamwork**- enjoyed working as part of a team which improved with time-promote reciprocal expertise affirmation-team leading helped development of decision-making skills | A detailed description of methodology and limitations though no strengths were identified and one implication  -**Fair quality** | 33 |
| Longworth (2013) | An exploration of the perceived factors that affect the learning and transfer of skills taught to students | To examine the attitude of student midwives towards skills training and practice | Mixed method study-questionnaires  Semi-structured interviews 2 phases 1  -quantitative  -qualitative | Year 1 -15  Year 2-11  Year 3-7  Total 33 for quantitative and qualitative  Year 1-1  Year 2- 2  Year 3-3 | Two facilitating and hindering factors were identified –a) **Teaching method**  -**facilitatin**g **factors** adequate instruction and designated space a  -**hindering factors**  –unrealistic models and equipment  b) **clinical area**  **-**a)f**acilitating factors** opportunities to practice, support and feedback from mentor,  b) **Hindering factors**-deficits in the mentor -student relation, ill-timed demonstration of skills resulting from poor or incorrect technique before the student is taught the correct skills in the laboratory leading to unlearning and relearning, unhelpful mentors who do not give student time to practice or took over from students, hesitant student or declining offers to practice and negative comments | Purpose of study, quantitative study and qualitative studies outlined results were realistic  -sampling lacked detail  -**Fair quality** | 31 |
| Norris (2008) the UK | The midwifery curriculum: introducing obstetric emergency simulation | To evaluate student perception on | Evaluation research | 27 midwifery students | 83% students felt that the content reflected what they have learnt in obstetric complications and was happy in time allocated to learning each module  -valued applying of theory into practice  -reflected merits of teaching theory followed by practice as theory is consolidated  -affords practice in a safe environment-  -can repeat procedure to correct mistakes, controlling own learning  -Promotes team work  -understand multi-disciplinary individual role in obstetric emergencies which is difficult to understand during theory | A detailed description of methodology  -scanty unstructured abstract  -one implication and no bias sources  **-Fair quality** | 28 |
| Karabacak et al (2012)  Turkey | Relationship between student nurses’ self –efficacy and psychomotor skills competence | To determine the general self-efficacy level of students studying for undergraduate degree in nursing and examine the relationship between skills development and self-efficacy | Descriptive study | 100 student nurses | Self -efficacy scores were high with no correlation between personal characteristics and self- efficacy | -unstructured scanty abstract  -ethics no detail  -methods and data analysis are detailed  -**Fair quality** | 34 |
| Barker et al. ( 2013) Kenya | Moving with times’ taking a glocalapproach: A qualitative study of African student nurse views of e-learning | To explore students’ views and experiences of e-learning as potential options for inclusion in midwifery training package | Qualitative interpretive approach |  | emerging themes:  1)**Moving with times** –keen incorporate e-learning in their studies and to some extent already using it  Were eager to illustrate their interest in incorporating new learning methods  2) **Global networking** appreciate power of internet to assess information beyond their country and excited in the difference in training received globally and resourced available to them  -platform for sharing information  -professional and personal growth  3)**inequity as a barrier** placement or geographical set-p may inhibit access, and some computer were available only for specific programmes  4)**Transfer of information into practice** –not appropriate for all sessions as it cannot replace the actual hands-on practice in nursing and midwifery  -one benefit can revisit material several times  flexible  -cannot replace face to face communication needed in health care professionals | Methodology defined  -few implications and no bias described  -unstructured scanty abstract  -**Fair quality** | 35 |
| Deegan and Terry 2013) the UK | Student midwives’ perceptions of real-timesimulation: A qualitative phenomenological study | To explore student midwives perceptions of their experience of engaging in real-time simulation in management of emergency obstetric emergencies | Phenomenology | Described but no size midwifery students | Emerging themes:1) **befits** –acquisition of practical skills-concrete experiences  -merits of teaching theory followed by practice – teamwork and communication skills through role play -identifying problems and managing them without compromising patient  -Practising in a real situation created a sense of urgency preparing for the stress of emergencies  -closing theory-practice gap  2)**Challenges** – stepping out the student role –provoked unanticipated reactions, conflict of opinions and emotions-student had limited understanding of how they learn from acting outside their role in role play as seen safer -fearing of responsibility and understanding some of the roles were highlighted-emotional response –blaming others  -the depth of feelings and emotion exhibited in the discussion if task not met and how it had impacted on them some displayed avoidance behaviours, and things go the wrong student were upset,and feeling of blame emerge  3)**Importance of debriefing** and de-rolling –with facilitator built on their knowledge and giving them opportunities to release emotions-feedback important for detecting and correcting errors | Purpose of study and methodology explicitly described but scanty unstructured abstract  -one limitation and sources of bias  -**Fair quality** | 32 |
| Donovan (2008) the UK | Confidence in Newly qualified midwives | To explore confidence levels of students at the end of 18/12,3year and four year degree courses | Not stated | 32- 4year  18/12 -17  3year -12 | There were no differences in the score in all three programs cohorts- though the three-year cohort showed a variety of confidence levels in skills | -unstructured scanty abstract and introduction  -methods and data analysis and implications are detailed  -no sources of bias  -**Fair quality** | 30 |
| Armstrong (2010) the UK | Clinical mentors influence on student midwives’ clinical practice | To investigate whether student midwives are influenced by the traditional practices of their clinical mentors if so to what extent | survey | 145 midwifery student | 1) **Practice and mentor**  92% Student perceived that what was taught in the university relates to practice and are encouraged to apply Evidence-Based Practice(EBP) but does not correspond to what happens in the clinical area  -76% indicated that their mentors suggested alternative ways of doing things  -65% student thought that medical staff does not allow them to use EPB AND 39% thought that they were too busy to apply it to practice  52%-policies and guidelines are not evidence based  -78% thought they had no authority to change practice  **2)Influence of mentor on practice**  87% -agreed were practices based on tradition, but some are good and seem to work (67,5%)  -54% would challenge their mentors for not applying EBP, and 37% thought it was easier to go with the things are and important to fit in  Mentors favour their traditional methods-66% and 88% used them and 42% believe will use it after qualifying | Clear purpose , methods description, results  -abstract unstructured and no adequate information  -**Fair quality** | 32 |
| Chabeli (2002)SA | A poster presentation as an evaluation method facilitate reflective thinking skills in nursing education | To describe perceptions of the student midwives who subjected to poster presentation as an evaluation method to facilitate critical and reflective thinking | Qualitative approach | No sample size | **1)Positive perceptions**-all participants indicated that it facilitated creative, critical and reflective thinking skills  **Group-work-** Teamwork and cooperation and human relations  **Problem-solving skills –**through data collection and facts analysis  **Student independent and sense of ownership** take responsibility and self- directed learning  **Fair evaluation –**through use of predetermined criteria  **2)Negative perceptions-**unclear expectations  Group work difficulty- lack of time to meet living in different areas | Purpose stated and achieved , methods described in detail giving meaningful rationale though no limitations stated  -abstract unstructured  -practice , education and research implications  -no bias sources  -**Fair quality** | 32 |
| Baird (2007) the UK | Exploring autonomy in education | To ascertain through relevant methods of enquiry whether the pre-registration midwifery education prepares, empowers and enables midwifery students to be autonomous practitioners upon qualification | Qualitative research-Phenomenology | Eight midwifery students | **1)Preparation for autonomy practice**: it was not explicit during training  2) **perceived barriers to autonomy-**the role and status of midwife- midwives should stand up for their profession  **3)Medical dominance**-Autonomy more pronounced in midwifery led units  4)-**Rigidly policies** influencing midwifery practice-hierarchical medical model -doctors are seen as taking precedence over midwives | -unstructured scanty abstract  -detailed methods and results  -one implication  -No sources of bias  -**Fair quality** | 29 |
| Weston (2012) the UK | Telling stories: The value to midwifery students | To explore the value that student midwives place on birth story -telling and the significant stories they tell and hear during midwifery training |  | 46 final student midwives | **1)Positive**: Stories were told to share experience in the clinical area and release stressing and understanding, self and peer evaluation, patient’s condition and raising awareness, recalling of stories through a sense of humour.  **2)Negative:** instil fear**,** judgemental and labelling | -poor abstract  -no bias but the good methodology, implications and transferability  **Fair quality** | 28 |
| Barnsley et al. (2004) | Clinical skills in junior medical officers: A comparison of self-reported confidence and observed competence | To determine the relationship between self- reported confidence and observed competence for some routine procedural clinical skills | correlation study | 30 junior medical doctors within one year of qualification | **1)Correlation**  **-**There was no correlation between self- assessed confidence and actual competence performance.  **2) competences**  A wide range of competencieswas exhibited from competent to not competent with most performing below standard  **3)Assessment of competence**  -incorrect assessment of competences-perceiving themselves competent when they are not | A detailed account of methodology given though no biases mentioned  -some implications for the profession mentioned  -**Fair quality** | 28 |
| Efarnia and  Khandivizadeh  (2011)  Iran | Evaluation of midwifery students competencies in providing Intrauterine device services  Using objective structured clinical examination | To assess midwifery students skill in delivering intrauterine device services in clinical examination and their satisfaction using objective structured clinical examination | simulation | 62 bachelor of midwifery  students | **1)Performance**  -92% students performed poorly  -scoring an average of 49% of total score  **2)Perception**  -80% enjoyed the Objective Structured Clinical Examination experience.  - But for success needs experienced mentor | -inadequate information on the bias, -limitations and ethics not mentioned  -abstract introduction methods and results are detailed  -**Fair quality** | 32 |
| O’Mara et al. (2013)  Canada | Challenging clinical learning environments: Experiences of undergraduate nursing students | To explore student’s perceptions of challenging clinical learning environments, their responses within the CCEs and the impact of CCE on learning experiences | Qualitative study design using an interpretive descriptive method | 54 undergraduate nursing students | 1)**context of Challenges**  Curriculum design and delivery  -balancing and timing of theory and practical activities  -inadequate resources human and material.  -clinical faculty not having needed skills to teach  -Lack of respect of faculty-dysfunctional relationships  -Attitude of unit staff influenced learning  Created tension and hindered learning  -Too many demands from the nurse in charge (Some took it as positive experience as it showed trust  2)**Impact of challenges**  **-**Tension and intimidation -Loss of learning opportunities  -Living in fear-shared stories of negative experiences  -Unsupportive staff lack of confidence  3) **Responses to challenges –four phases**  a)rebuilding relationships-humbleness  b) redirection- turn to peers and faculty for help or becoming independent and self-reliant  c)Retreating- avoiding those unsupportive or endure for the period in the area  d)Reframing- supportive relationships with others, increased learning and self-directedness and self- confidence | -Unstructured abstract and inadequate,  -Ethic, methods, data collection not detailed  -detailed participants  Description. Transferability, limitations, Implications and data analysis  **Fair quality** | 33 |
| Mole et al. (2007) the UK | Evaluation of teaching pack designed for nursing students to acquire essential knowledge for competency practice in blood transfusion administration | To evaluate a teaching pack designed for nursing students to acquire knowledge required for safe administration transfusions | the authentically based teaching pack  -knowledge  -practical skills  -experience  simulation | - 75 Student nurses | **1)experiences**  -knowledge and practical skills were developed, and the students were satisfied, but however, not everyone managed to give correct answers though positive  **2)Views**  - good link to the theory  -given too soon in the semester and forgotten about it  -not a common procedure some students had not seen or remember involved in the procedure  -more practice sessions and -timing important in teaching | transferable  -ethics clearance not stated  -abstract scanty and unstructured  -methods described but not mentioned or justified  -Results detailed  -Implications stated  -**fair quality** | 28 |
| Joubert and Villiers (2014)  USA | Learning experience of mentees and mentors in a nursing school’s mentoring programme | To explore and describe the learning experiences of the mentees and mentors and obtain recommendation for improving programme | An action method research | 14 Mentees student nurses in an undergraduate programme  5 mentors | **learning experiences mentees**  -1) **availability-**limited numbers of mentor were either provided late or not at all  2)**Knowledge and competence**  Felt they were knowledgeable and competent  3) **attitude and support rendered** –were enthusiastic and volunteered their support and met student expectations  4)**theory and practice integration-** was satisfactory  5)**vital role**-plays a vital role in training of students through an awesome workout for mentor-mentee | Minimal data for analysis and background  -implications not mentioned and but good methods  **-fair quality** | 28 |
| Brosnan et al. (2006) Ireland | Implementing objective structured Clinical skills evaluation (OSCE) in nurses registration programs in a Centre in Ireland: A utilization-focused evaluation | To evaluate the process and outcomes of the (OSCE) from the perspective of the stakeholder groups: first and second year nursing students, lecturers, clinical placement coordinators and assessors | A formative utilisation-focuse devaluation two stage data collection stage 1 –interviews  -stage 2 questionnaire | Students- 20  Staff who facilitated the OSCE-8- | 1 **Student profile**  -significance difference between age and OSCE older students were more likely to obtain higher scores  Two**attitudes towards OSCE**-  Beneficial with a positive impact on both staff and students –students more meaningful, fair and appropriate assessment  More prepared for clinical placement  Two**preparatory periods before OSCE** stressful  year two student thought time was inadequate, but most were prepared and concurred with staff  **Threeimpacts of personnel on OSCE**-personnel involved are the source of stress but not aware of it  4 Stress and OSCE assessment  Highest stress experienced in the corridor waiting for the assessment and less between OSCE and  Feedback  More stressful than written examinations-mixed feeling  -clinical deficiencies in newly qualified midwives | -Abstract unstructured  -methodology and sample lack detail  -detailed results but there are no sources of bias some implications for practice, research and policy  - **fair quality** | 28 |
| Uys and Tredwell (2014)SA | Using a simulated patient to transfer patient-centered skills from simulated practice to real patient practice | To determine whether students who acquire skill in simulation using a simulated patient displays more patient in practice than student who used a manikin | Pre-test post -test experimental design | 36 students | **Skill acquisition**  **-**patient-centeredness is better gained in students who use simulated patients | -Purpose of study methodology fully described  results  -scanty introduction  -no sampling method  - data analysis not fully described  -only practical implication  -sources of bias highlighted  -Fair **quality** | 28 |
| Martin et al. (2014)the UK | An evaluation survey to assess the effectiveness of using an interactive workbook to deliver bereavement education to undergraduate student midwives | To develop a workbook called –an interactive workbook to shape bereavement care for midwives in clinical practice and evaluate it for effectiveness at delivering the prescribed learning objectives | Evaluation survey | 179 student midwives | 1)**Skill acquisition**  - Post-intervention scores significantly higher than pre-intervention scores in  –the workbook equipped midwives with clinical skills  -Seniors benefited more their juniors  2) **perceptions**  **-**knowledge and understanding was better after intervention  3) **experiences**  **-** shocked with first exposure to still birth but workbook gave reassurance | Purpose of the study indicated, and methodology described  -data analysis method not described  -no limitations  -**poor quality** | 22 |
| Steadman et al. (2006) the USA | Simulation improves acute care critical assessment and management skills | To determine whether full-scale simulation is superior to interactive problem-based learning for teaching medical students | Simulation and problem-based learning group  -practical assessment skills  -management skills | 31 fourth year medical students | **Skills development**  Simulation group performed better than problem-based group | Transferrable  Implications for practice and education  -RCT method not defined  -data analysis matches RCTs  -**poor quality** | 26 |
| Fiedler et al. (2012) | An assessment of students’ confidence in Performing Psychiatry Mental Health Nursing Skills :The impact of the Clinical Practicum Experience | To discover how PMH clinical practicum experience influence BNS students’ perceptions of their confidence in performing clinical skill | evaluation | 103 Nursing students | **Perceived Confidence and performance of specific clinical skills**  there was no significant differences in mean scores pre and post-practicum students in the two groups of students accelerated and traditional group | Purpose stated and detailed methodology and  No bias and sample not detailed  -results not detailed  **Poor quality** | 26 |
| Rawnson et al. (2009) the UK | Student midwives’ views of case loading: the BUMP study | To elicit the students’ views of their preparation and support during their case loading experiences. | Action research; survey students, views, FDGs and collaborative workshop | 146 student midwives | **10view**  **c**ase loading valuable teaching method in midwifery education  -assists in focusing thoughts and aiding planning  **FDGs – themes**  **1)preparation**  **the need for thorough preparation before**  experience  putting materials required together  -requires time and regular contact and the opposite is true  2)**Knowing your mentor**  -for support and supervision  –confidence building and preparedness if the mentor is supportive  -Relation building-need trusting relationships and good communication  3) **tripartite meetings**  not held on time  -held in unsuitable places and unfruitful)  -Some students are missed  - the student felt they needed the mid- point feedback for accountability of their learning, the sphere of practice, record keeping maintenance of safe practice and confidence building | Detailed finding but full methods description referred to another study  -**poor quality** | 22 |
| Warland and Smith (2012)  Australia | Using online role play in undergraduate midwifery education: A case study | to identify student’s opinion of communication and collaboration skills developed through participation in the role play | -simulation  -role play  -computer packages  case study | 19 final year undergraduate midwifery students | **1)Skills developed**  communication Skills  2)Experiences  -opportunity to practice in the real world  -active and collaborative learning | Sample selection and data analysis methods not indicated but a detailed description of results availed and an inadequate description of limitations  -**poor quality** | 23 |
| Tully (2010) | Student midwives’ satisfaction with enquiry-based learning | T evaluate the process of EBL as a learning tool from the student viewpoint | Qualitative study | 10 students | emerging themes:  1)**student satisfaction**-most student enjoyed as it made them more proactive  2) **Presenting to colleagues** motivated to search more information as well as demotivated some students did not put in more effort since it was not going to be marked-boring and pointless  3)**PBL only effective** if students become active learners and if lazy would prefer the lecture method  3) **group wor**k –identified tension when some students do more work than others  4)**Facilitator role** –variations in facilitation confused students  -the role of tutor important in clarification of the process and follow-up those who do not feedback and give guidelines on what was correct  Pressure from other work commitment was cited as reasons for not giving feedback. | A detailed description of methodology though no described biases  -the implication for practice and education  -**poor quality**. | 24 |
| Houghton et al. (2013) Ireland | Students’ experiences of implementing clinical skills in the real world of practice | To describe the students’ experiences of the real world of practice about the learning and implementation of clinical skills. | Multiple case study | 20 Undergraduate students and 23 clinical staff | **One theme: reality of practice**  three sub-themes  1) **the real world it is differen**t  - doll and a real person leading to reality shock  -different doing it in a simulated room than award  challenges differences in performing same skill from the skills laboratory  - meet inconsistencies in the way different people do things  -clinical area is the most appropriate place for learning skills, but at times teaching and learning opportunities are missed if the ward is busy  2) **Supervision and support** –critical to students’ experiences in the clinical practice  **Two -** Direct supervision is for the junior nurse where the supervisor is checking on the skill performance  - peripheral is for the senior students who consult when the need arises  Peer, senior students and preceptor ship support valued equally important.  3) **fitting in**- **facilitating factors** (provision of learning opportunities, supervision, confidence and communication skills and previous experience as nurse aids reported more confidence students felt was a facilitator but supervisors felt it was a hindrance to learning -tendency of going back to their old skills rather than learning new and correct ones would not push their critical thinking beyond their past.  **factors that are hindering learning-**reality shock, clinical setting and missed learning opportunities  - CSL has a critical role in reducing reality shock. | Methodology sources of biases adequately described  - One implication stated.  -minimal sample description  **Fair quality** | 27 |
| Muldoon et al. (2014) Ireland | I found the OSCE very stressful: Student midwives attitudes towards an objective structured clinical examination (OSCE) | To report student midwives’ attitude towards the OSCE | Descriptive survey | 35 second year students | **Attitude**  **1)Process**  slightly positive as an experience  -Neutral as a teaching assessment tool –  Felt it was very stressful  **2)Timing**  Inappropriate and untimely feedback decreased students’ learning experiences reducing the relevance of the OSCE for clinical practice.  -An appropriate method for assessing clinical competencies  3)i**mpact**  - students neutral on whether it gives them greater confidence and feel more prepared for clinical practice  - agreed that it gave them an opportunity to show their clinical knowledge | -sample, ethics, data collection has scanty information but detailed results and methods  -**Poor quality** | 26 |
|  |  |  |  |  |  |  |  |
| Smith et al. (2012) Australia | Simulated learning activities: Improving Midwifery students ‘understanding of reflective practice | -evaluating the redesign method | Simulation  -scenario  -reflective skills  -clinical skills | midwifery diploma students 61 | **1)Performance**  -mean score increased post-simulation and was statistically significant  **2)perceived befits**  - increases reflective practice  - silent on the theoretical aspect  -learnt teamwork and communication skills  -management skills  -knowledge retention  -difficult to reflect on an ethical, legal and professional aspect of practice | Transferable  Ethics approval  -methodological flaws identified  - all implications indicated  -data analysis and sample method not stated but detailed results  -**Poor quality** | 23 |
| Noble and Pearce(2014) the UK | Student midwives’ views on incorporating creative arts as a teaching strategy | To identify student midwives views towards incorporating a creative arts teaching strategy in into their midwifery education programme | survey | 53 student midwives | **1)Creative learning encourages deeper understanding of the topi**c as  indicated by 87.5% who had disagreed or undecided before creative teaching to agree after the intervention also develops self-awareness and insight  **2)** T**eaching strategies** should incorporate creative art majority 83% agreed strongly after  Intervention compared unlike 81% undecided before  -75% would want to attend another creative art  **3)Benefits of session**  –encourages personal growth.  - Connect theory and practice  -learning about self is threatening, but art reduces The threat as realisation come from self -discovery identify and while pursuing own values, the solution to problems and reframing the problem and questioning their practice  -Enhances the affective domain of learning | Abstract-scanty information and unstructured  -silent about ethics  Methodology defined and the weaknesses of the study highlighted  -fair **quality** | 27 |
| Edwards et al. ( 2004) | The impact of clinical placement location on nursing students ‘competence and preparedness for practice | To determine relationship between location of clinical placements and competence and preparedness for practice from the perspective of the student | Quasi –experimental design using pre-test post-test survey | Third-yearBachelor of Nursing students-212 | **1)Competencies development**  improvement in competence and confidence noted  -rural students were more confident competent and organised  2**) clinical placement experiences**-  -support for learning  -Feeling part of clinical team  -feeling valued for their contribution to patient care  -obtaining a diversity of clinical practice | problem aims explained  -methods not explicit  Limitations of the study indicated  -one implication of thestudy  -abstract unstructured  -**Poor quality** | 26 |
| Chenery-Morris (2012) the UK | The students’ perspectives of evaluating grading midwifery practice | To engage the students in an authentic dialogue about their experiences of assessing their practice grading system was working | World Café model approach | 11 students and two midwifery lectures | Four themes emerged-  1) **organisation of learning and subsequent assessments**  - felt overwhelmed by the amount of learning to be demonstrated  - difficult in working with different type of mentors learning  Will withdraw their practice until they see how the new mentor does it  -lack of time for mentors to assess learning  - felt they were a burden to the mentor for finding an ideal time for documenting their practice documentation  2) **grading and tripartite meetings**-mentor and student usually agree on the student performance  –Students felt uncomfortable or arrogant to award themselves high marks even they felt they needed one  - Students felt mentors needed more training in terminology documentation and as they would rely on students.  3**) Practice assessment subjectivity**  Grading depended on the environment the mentor-mentee relationship  -Student felt for mentors to need to be proficient and interested and experienced  -students prefer a distant relationship which is professional. | A detailed description of the methodology through biases and limitations partially stated, abstractunstructured and had scanty information  -**poor quality** | 24 |
| Hofsten et al. (2010)  Sweden | Case seminars open doors to deeper understanding – Nursing students’ experience of learning | To describe students experiences of learning in case seminars | Descriptive qualitative approach | 72 student nurses | Emerged themes:  1)**open doors to deeper understanding** through ways colleagues contribute and creation knowledge and revealing new dimensions of the case and invisible ways  –creating a learning climate reducing student worries about doing wrong things  -there is understanding of both individual and group.  2) **learning together through discussion** –Listening to each other’s point of view  -different explanations made learning easier and more interesting  -different knowledge in the group became visible through the use of different senses  - large groups made it hard for one to be the head ( challenging and problematic for some students )  3) **Learning together with structure**  -structure teaching method made it easier and challenged in problem-solving  –especial writing on the whiteboard  –making context clear same headings  - helped understanding disease easier  4)**Learning together with supervision**  -the open enabling atmosphere  -the value of teacher support and concern for student learning was over emphasised 5 C**hallenge**  - learning is difficult but worth taking up  -high level of knowledge is required in discussion  - the demand of being well prepared induced fear for not doing enough-solved through studying the case before thepresentation | Structured abstract but scanty information  -sample and data collection not detailed only  - no bias sources  methods and results are very detailed  **-Poor quality** | 22 |
| Gidman (2013) the UK | Listening to stories: Valuing knowledge from patient experience | To explore the students’ perception of learning from listening to patient stories | Phenomenological Study | 12 nursing students | **benefits**  Listening to stories assisted students to understand certain illnesses, social situations, good nurse-patient relationships and appreciating patient experience of several health-related situations and importance of explaining situations to patients and relatives | Abstract not detailed an unstructured, sampling not detailed, methods scantly described  Setting no described  -**poor quality** | 24 |
| Skirton et al. (2012) the UK | Preparedness of newly qualified midwives to deliver clinical care : An evaluation of pre-registration midwifery education through analysis of key events | To determine whether the student midwives educational programme had equipped them to practice competently after entry to the profession register | Longitudinal qualitative study | 35 newly qualified  midwives | **1)Preparation**  Newly qualified midwives were equipped to work autonomously  **2) Confidence**  however, lacked confidence in key areas which improves with support from colleagues | the purpose of the study stated and good abstract methodology not detailed no implications, no sampling criteria  -**poor quality** | 21 |
| Hughes and Fraser (2010) the UK | There are guiding hands, and there are controlling hands: student midwives ‘ experience of mentorship in the UK | To explore student midwives’ experiences and views on the role of mentorship in practice and to survey perceptions of the qualities required for mentorship | a qualitative longitudinal cohort study | 58 student midwives | **Qualities of a good mentor –** approachable for student to feel comfortable , to ask any question without feeling silly or stupid, encourageslearning, willing to explain and give time to learn new things,-build student confident, encourages student to learn through mind stretching, has a sense of humour –advocate for the women  A unique career for women  –Evidence-based Practitioner and reflects on own practice  2) **Student experiences**-less effective mentors do not reflect their practice and do not want to be asked any questions  **a)mentor relationship** with women and communication skills –role modelling good for student  b)**mentor-student relationship** critical for competence development  - relationships are difficult to develop with midwives who do not want to mentor students, mentors controlling students and take over with and unhelpful,  -**c) personality differences** can be an issue though good –treating the student as a child and two students can get different things from the same mentor  d)**Teaching things t**he student is not ready for –level of training  e) **Expectations of Mentors** –too high for students  **style of mentorship** one style not appropriate for all students,  f) **experience** student gets depends on mentor expectation and how much student is allowed to do  g) **role modelling**- all students want to be like good mentor students  e) **mentorship experience**-want continuity in the first year but want a variety of from the second year on | Limited information in introduction  -no bias mentioned  - full ethics considered  -detailed data analysis  **Poor quality** | 24 |

* 1. **Appendix 2: Quality of the included studies**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Author and date of publication | Abstract and title | Introduction and aims | Method and data | sampling | Data analysis | Ethics and bias | Result | Transferability or generalizability | Implication and usefulness | total |
| Ilic and Moloney (2014) | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 36 |
| Licqurish et al.,2008  Australia | 4 | 4 | 4 | 4 | 4 | 1 | 4 | 4 | 1 | 30 |
| ( van der Putten, 2008)  Ireland | 3 | 4 | 4 | 4 | 4 | 2 | 4 | 4 | 3 | 34 |
| Barry et al 2012  Ireland | 3 | 4 | 2 | 4 | 4 | 4 | 4 | 4 | 3 | 32 |
| Brunstad and Hjalmhult (2014) Norway | 4 | 4 | 4 | 2 | 4 | 3 | 4 | 4 | 1 | 30 |
| Thorkildsen and Raholm (2010) Norway | 3 | 3 | 4 | 4 | 2 | 2 | 4 | 4 | 1 | 27 |
| Tsele and Muller (2000) South Africa | 4 | 2 | 4 | 4 | 4 | 1 | 4 | 4 | 4 | 31 |
| Yuan et al (2011) | 4 | 4 | 4 | 2 | 4 | 2 | 4 | 2 | 2 | 28 |
| Gilmour et al (2013) Australia | 4 | 4 | 2 | 4 | 4 | 2 | 4 | 2 | 1 | 27 |
| Bradshaw et al. (2012) Ireland | 4 | 4 | 4 | 4 | 4 | 2 | 4 | 4 | 4 | 34 |
| Valdez (2008) UK | 0 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 32 |
| Lake and McInnes (2012) UK | 2 | 4 | 3 | 4 | 2 | 2 | 4 | 4 | 4 | 29 |
| Morgan (2006) Ireland | 4 | 4 | 4 | 4 | 4 | 4 | 2 | 4 | 2 | 32 |
| Plakht et al ( 2013) Israel | 4 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 2 | 32 |
| Choi et al (2014) | 4 | 4 | 4 | 2 | 4 | 2 | 4 | 4 | 4 | 32 |
| Farahani and Heidari (2014) | 3 | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 3 | 29 |
| Simonelli and Paskausky (2012)  UK | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 34 |
| Fieschi et al (2015) Italy | 2 | 4 | 4 | 1 | 4 | 3 | 4 | 4 | 2 | 28 |
| Khadivzadeh and Erfanian (2012) Iran | 4 | 4 | 4 | 4 | 2 | 2 | 4 | 4 | 2 | 30 |
| Raymond et al (2012)  Australia | 2 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 2 | 31 |
| Lavender et al ( 2013)Nairobi | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 35 |
| Kelton( 2014) | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 3 | 34 |
| Ali et al (2007) | 4 | 4 | 4 | 4 | 1 | 3 | 4 | 4 | 2 | 30 |
| Clanton etal (2014) Ohio | 4 | 4 | 4 | 2 | 4 | 4 | 3 | 4 | 2 | 31 |
| Laven etal (2014) Australia | 4 | 4 | 4 | 4 | 4 | 2 | 4 | 4 | 2 | 32 |
| Lofmark and Wikblad (2001) Sweden | 4 | 4 | 2 | 4 | 4 | 2 | 4 | 4 | 1 | 29 |
| McMullan (2008) UK | 4 | 4 | 2 | 2 | 4 | 4 | 4 | 2 | 2 | 28 |
| Jordan and Farley (2008)UK | 3 | 4 | 4 | 4 | 4 | 2 | 4 | 4 | 4 | 33 |
| Hughes et al (2014) | 2 | 4 | 4 | 4 | 4 | 4 | 2 | 4 | 1 | 312 |
| Longworth (2013) | 4 | 4 | 4 | 2 | 4 | 1 | 4 | 4 | 4 | 31 |
| Norris (2008) UK | 2 | 4 | 4 | 4 | 4 | 1 | 4 | 4 | 1 | 28 |
| Karabacak et al (2012)Turkey | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 34 |
| Barker etal ( 2013) Kenya | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 35 |
| Deegan and Terry 2013) UK | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 2 | 32 |
| Donovan (2008) UK | 2 | 2 | 4 | 4 | 4 | 3 | 4 | 3 | 4 | 30 |
| Armstrong (2010) UK | 2 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 32 |
| Chabeli (2002)SA | 2 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 3 | 32 |
| Baird (2007) UK | 2 | 4 | 2 | 4 | 4 | 4 | 4 | 4 | 1 | 29 |
| Weston (2012) UK | 2 | 4 | 3 | 4 | 2 | 2 | 3 | 4 | 4 | 28 |
| Barnsley et al (2004) | 4 | 4 | 4 | 4 | 4 | 2 | 4 | 4 | 1 | 31 |
| Efarnia and  Khandivizadeh  (2011)Iran | 4 | 4 | 4 | 4 | 4 | 2 | 3 | 4 | 3 | 32 |
| Smith et al (2012) Australia | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 3 | 4 | 34 |
| O’Mara et al (2013)  Canada | 2 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 33 |
| Mole et al (2007) UK | 3 | 4 | 2 | 2 | 4 | 3 | 4 | 2 | 4 | 28 |
| Joubert and Villiers(2014)  USA | 4 | 2 | 4 | 4 | 4 | 2 | 4 | 4 | 0 | 28 |
| Brosnan et al (2005) | 2 | 4 | 2 | 2 | 4 | 3 | 4 | 4 | 4 | 28 |
| Uys and Tredwell (2014)SA | 4 | 4 | 4 | 4 | 1 | 4 | 2 | 4 | 1 | 28 |
| Martin et al (2014)UK | 4 | 3 | 3 | 4 | 1 | 4 | 1 | 1 | 1 | 22 |
| Steadman et al (2006) USA | 4 | 4 | 3 | 2 | 4 | 3 | 2 | 2 | 2 | 26 |
| Fiedler et al (2012) | 3 | 4 | 4 | 3 | 2 | 3 | 2 | 3 | 2 | 26 |
| Rawnson et al (2009) UK | 2 | 4 | 2 | 2 | 2 | 1 | 4 | 2 | 2 | 21 |
| Warland and Smith (2012)Australia | 2 | 4 | 4 | 2 | 2 | 2 | 4 | 2 | 1 | 23 |
| Tully (2010) | 2 | 4 | 4 | 2 | 2 | 2 | 4 | 2 | 2 | 24 |
| Houghton et al (2013) Ireland | 4 | 4 | 3 | 3 | 4 | 4 | 4 | 3 | 1 | 27 |
| Muldoon et al (2014) Ireland | 4 | 4 | 3 | 1 | 4 | 1 | 4 | 1 | 4 | 26 |
| Noble and Pearce(2014) UK | 2 | 4 | 2 | 4 | 4 | 2 | 4 | 4 | 1 | 27 |
| Edwards et al ( 2004) | 3 | 4 | 4 | 4 | 1 | 3 | 2 | 4 | 1 | 26 |
| Chenery-Morris (2012) UK | 2 | 2 | 4 | 4 | 1 | 1 | 4 | 4 | 2 | 24 |
| Hofsten et al (2010)  Sweden | 2 | 4 | 2 | 1 | 4 | 3 | 4 | 1 | 1 | 22 |
| Gidman (2013) the UK | 2 | 4 | 1 | 2 | 4 | 2 | 4 | 2 | 4 | 25 |
| Skirton etal ( 2012) UK | 4 | 4 | 2 | 1 | 4 | 2 | 2 | 1 | 1 | 21 |
| Hughes and Fraser (2011) UK | 4 | 2 | 2 | 4 | 3 | 4 |  | 4 | 1 | 24 |

* 1. **Appendix 3: Quality assessment criteria**

(Quality assessment criteria Hawker et al., 2002)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Good | Fair | Poor | Very poor | comment |
| Abstract and title | 4 | 3 | 2 | 1 |  |
| Introduction and aims | 4 | 3 | 2 | 1 |  |
| Method and data | 4 | 3 | 2 | 1 |  |
| Sampling | 4 | 3 | 2 | 1 |  |
| Data analysis | 4 | 3 | 2 | 1 |  |
| Ethics and bias | 4 | 3 | 2 | 1 |  |
| Findings or results | 4 | 3 | 2 | 1 |  |
| Transferability/generalizability | 4 | 3 | 2 | 1 |  |
| Implications and usefulness | 4 | 3 | 2 | 1 |  |
| Total | 36/36 | 27-35 | 18-26 | 9-17 |  |

* 1. **Appendix 4: Quality assessment protocol**

Hawker et al. (2002) Quality assessment protocol

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Quality | Abstract and title | Introduction and aims | Method and data | sampling | Data analysis | Ethics and bias | Results | Transferability or generalizability | Implication and usefulness |
| comment | Did they provide a clear description of the study? | Was there a good background and clear statement of the aims of the research? | Is the method appropriate and explained? | Was the sampling strategy appropriate to address the aims? | Was the description of the data analysis sufficiently rigorous? | Have ethical issues been addressed, and what has necessary ethical  Approval gained? Has the relationship between researchers and participants been  Adequately considered? | Is there a clear statement of the findings? | Findings not mentioned or do not relate to aims. | How important are these findings to policy and  Practice? |
| Good | Good Structured abstract with full information and clear title. | Full but concise background to discussion/study containing up-to-date  Literature review and highlighting gaps in knowledge.  Clear statement of aim and objectives including research questions | Method is appropriate and described clearly (e.g., questionnaires  Included). | Details (age/gender/race/context) of who was studied and how  They were recruited.  Why this group was targeted.  The sample size was justified for the study.  Response rates were shown and explained | A Clear description of how the analysiswas done.  Qualitative studies: Description of how themes derived/  Respondent validation or triangulation.  Quantitative studies: Reasons for tests selected hypothesis driven/  numbers add up/statistical significance discussed | Ethics: Where necessary issues of confidentiality, sensitivity, and  Consent was addressed Bias: Researcher was reflexive and aware of own bias. | Findings are explicit, easy to understand, and in a logical progression.  Tables, if present, are explained in the text.  Results relate directly to aims Sufficient data are presented to support findings. | Context and setting of the study is described sufficiently to allow  comparison with other contexts and settings, plus high score in  Question 4 (sampling). | Contributes something new anddifferent regarding  Understanding/ insight or perspective.  Suggests ideas for further research.  Suggests implications for policy and practice |
| Fair. | Fair Abstract with most of the information. | Some background and literature review.  Research questions outlined | Clear details of the data collection and recording.  Fair Method appropriate, the description could be better.  Data described | Sample size justified.  Most information was given, but some missing. | Qualitative: Descriptive discussion of analysis.  Quantitative | Lip service was paid to above (i.e., these issues were  acknowledged | Findings mentioned but more explanation could be given.  Data presented relate directly to results | Some context and setting described, but more needed to replicate  alternatively, compare the study with others, PLUS fair score or higher in  Question 4. | Two of the above (state what is missing in comments |
| Poor. | Poor Inadequate abstract. | Some background but no aim/objectives/questions, OR  Aims/objectives but inadequate background | Questionable whether method is appropriate.  The method described inadequately.  A Little description of data. | Sampling mentioned but few descriptive details | Minimal details about analysis. | Brief mention of issues. | Findings presented haphazardly, not explained, and do not  Progress logically from results. | Minimal description of context/setting | Only one of the above. |
| Very Poor | Very Poor No abstract | No mention of aims/objectives.  No background or literature review. | No mention of method, and  Method inappropriate, and  No details of data. | No details of the sample. | No discussion of analysis. | No mention of issues. | Findings not mentioned or do not relate to aims. | No description of context/setting. | None of the above. |

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## Appendix 3: Quality assessment criteria

(Quality assessment criteria Hawker et al., 2002)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Good | Fair | Poor | Very poor | comment |
| Abstract and title | 4 | 3 | 2 | 1 |  |
| Introduction and aims | 4 | 3 | 2 | 1 |  |
| Method and data | 4 | 3 | 2 | 1 |  |
| Sampling | 4 | 3 | 2 | 1 |  |
| Data analysis | 4 | 3 | 2 | 1 |  |
| Ethics and bias | 4 | 3 | 2 | 1 |  |
| Findings or results | 4 | 3 | 2 | 1 |  |
| Transferability/generalizability | 4 | 3 | 2 | 1 |  |
| Implications and usefulness | 4 | 3 | 2 | 1 |  |
| Total | 36/36 | 27-35 | 18-26 | 9-17 |  |