

The Objective Structured Clinical Examination (OSCE) as a strategy for assessing clinical competence in midwifery education in Ireland: A critical review

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ABSTRACT

In Ireland, to register as a midwife, all student midwives must be deemed competent to practice with the assessment of competence an essential component of midwifery education. A variety of assessment strategies, including observed practice, clinical interviews, portfolios of reflection, the Objective Structured Clinical Examination (OSCE) and written examination papers, are utilised to assess midwifery students' clinical competence. In this paper, a critical review of the OSCE as a strategy for assessing clinical competence in one third level institution in Ireland is offered. Although utilised for assessing competence across a range of areas (e.g. obstetric emergencies and pharmacology/drug administration), the use of the OSCE for assessing midwifery students' competence in lactation and infant feeding practices, as an example for this paper, is described. The advantages, disadvantages, validity and reliability of the OSCE, as an assessment strategy, are critically explored. Recognising that no single assessment strategy can provide all the information required to assess something as complex as clinical performance, the OSCE, when viewed alongside other forms of assessment, and with relevance to the topic under examination, may be considered a valuable strategy for enhancing the assessment of students' clinical competence, and for embracing diversity within midwifery education and training.

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Introduction

The International Confederation of Midwives' (ICM) 'Essential Competencies for Midwifery Practice' (International Confederation of Midwives, 2010) and 'Global Standards for Midwifery Education' (International Confederation of Midwives, 2011) strongly emphasise competency as a core tenet of midwifery education and practice. In Ireland, to register as a midwife, all student midwives must be deemed competent to practice with the assessment of competence an essential component of midwifery education. Deciding on an appropriate strategy to assess clinical competence has long been central to nursing and midwifery education (Bujack et al., 1991; Worth-Butler et al., 1996) and is, at times, fraught with difficulty due to a lack of consensus on a precise definition for competence (Cowan et al., 2005; Butler et al., 2008; O'Connor et al., 2009; Nulty et al., 2011). Benner (1982), for example, describes nursing competence as being able to perform tasks with desirable outcomes under the diverse circumstances of the real world. Benner (1984) describes the progression of nurses as a continuum

from novice to expert with competence placed firmly in the middle (Fig. 1). An Bord Altranais (the Irish Nursing Board) alternatively provides for a broader definition describing competence as a 'complex and multidimensional phenomena' with the registered nurse or midwife deemed competent once he or she achieves 'the ability...to practice safely and effectively, fulfilling his or her professional responsibility within his or her scope of practice' (An Bord Altranais, 2000, p. 4). In this sense, competence extends beyond simply excellence in clinical skill acquisition; rather, in addition, it incorporates a diverse set of qualities including attitudes, personal identity, perceptiveness and maturity (Cowan et al., 2005).

An Bord Altranais (2005) identifies five Domains of Competence (Table 1) within each of which are a number of performance criteria and indicators that the midwifery student must achieve for entry to the Midwives Division of the Nurses and Midwives Register. The third level institution and the healthcare institutions are required to agree on appropriate assessment procedures for assessing clinical competence based on the five Domains (An Bord Altranais, 2005; O'Connor et al., 2009). Current assessment strategies include a variation of observed practice, clinical interviews, portfolios of reflection, the Objective Structured Clinical Examination and written examination papers.

The aim of this paper is to offer a critical review of the Objective Structured Clinical Examination (OSCE) as one strategy for

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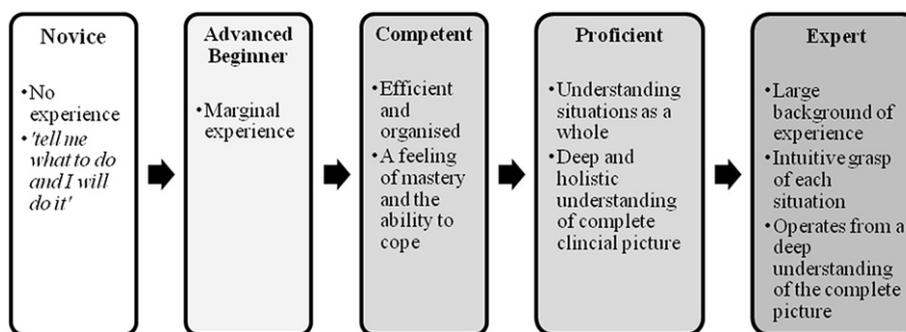


Fig. 1. Benner's novice to expert continuum.

assessing clinical competence in midwifery education in Ireland. Use of the OCSE as an assessment strategy is evident in the international literature (Govaerts et al., 2002; Cullen et al., 2003; Brookes, 2007) and at the authors' institution, the OSCE is used to assess clinical competence in the areas of obstetric emergencies, pharmacology/drug administration and lactation and infant feeding practices. To exemplify the use of the OSCE, reference to using the OSCE for assessing midwifery students' competence in the area of lactation and infant feeding practices is described here.

The OSCE: origins and background

The OSCE, originating in the United Kingdom in the 1970s, was purposively designed in response to a need for objectivity in the clinical skills assessment of medical students (Harden, 1975). It has been defined as 'an approach to the assessment of clinical competence in which the components of competence are assessed in a well planned or structured way with attention being paid to objectivity' (Harden, 1988, p. 19). The OSCE typically involves students progressing through a series of time sequenced assessment tasks (referred to as 'stations') where each student is required to demonstrate a range of specific skills and behaviours, on standardised clients/patients, in a simulated clinical or 'real world' environment (Harden, 1975; Bujack et al., 1991; Mitchell et al., 2009; Nulty et al., 2011). One examiner is responsible for assessing each student as they progress through each individual station with a predetermined, objective marking scheme used for this purpose (Bartfay et al., 2004; Major, 2005; Ward and Barratt, 2005).

The original OSCE (Harden, 1975) comprised a series of sixteen to twenty-five stations with each station taking approximately 5 min to complete.

Since the advent of the original OSCE, the OSCE format has undergone major revisions and adaptations, the most common being the use of longer duration, fewer assessment stations and an increased focus on total client/patient consultation (Khattab and Rawlings, 2001; Ward and Barratt, 2005). These modified OSCEs (sometimes referred to as OSCAs; Objective Structured Clinical Assessments) have been favourably appraised in the literature for providing the potential for a more complete and holistic approach to the assessment of clinical competence (Ward and Willis, 2006; Rushforth, 2007). They are considered beneficial for their potential to reduce unconnected sub-components of client/patient assessment and for providing a more integrated, complex assessment strategy that incorporates clinical skills, communication skills, attitudes, values and professional care-planning practices (Wass et al., 2001; Way, 2002; MacMullen et al., 2003; Chesser et al., 2004; Mitchell et al., 2009). Use of these modified OSCEs are increasingly being considered for assessing clinical competence in nursing, midwifery and allied health curricula (Wessel et al., 2003; Bartfay et al., 2004; Jones et al., 2010).

The OSCE for assessing clinical competence

In considering the use of the OSCE as an assessment strategy, the authors' refer to their experience of using the OSCE for assessing clinical competence in one midwifery school in Ireland. As part of

Table 1

The five Domains of competence (sourced from An Bord Altranais, 2005).

Domain	Performance criteria (example modified and adapted from An Bord Altranais, 2005)	Indicators (example modified and adapted from An Bord Altranais, 2005)
Professional/Ethical Midwifery Practice	Practices in accordance with legislation and professional guidelines; underpinned by the distinct philosophy of midwifery practice.	Fulfils the duty of care in accordance with current legislation and with understanding of local policies, protocols and guidelines.
Holistic Midwifery Care	Provides safe and effective midwifery care that encompasses the full range of activities of the midwife. Works in partnership with the woman and her family throughout the maternity experience.	Utilises the best available evidence to underpin holistic midwifery care. Actively facilitates informed choice by the woman throughout her maternity experience.
Interpersonal Relationships	Communicates effectively with women and with other members of the healthcare team.	Demonstrates the ability to accurately share information with women and with other members of the healthcare team; actively engages in collaborative decision-making.
Organisation and Co-ordination of Midwifery care	Effectively co-ordinates the midwifery care of women and their families.	Selects and utilises resources effectively and efficiently. Utilises time management strategies to effectively plan and prioritise care.
Personal and Professional Development	Acts to enhance the personal and professional development of self and others.	Identifies and utilises potential resources to facilitate life-long learning and demonstrates a commitment to on-going professional education.

a 'Lactation and Infant Feeding' Module, student midwives are required to successfully complete an OSCE in part-fulfilment of demonstrating their clinical competence in this subject area. Supporting women with lactation and infant feeding practices transcends the five Domains of Competence (Table 1), as described by An Bord Altranais (2005), incorporating woman-centred, holistic care, effective planning, organisation and evaluation of care, effective communication, accurate knowledge and safe practice. The OSCE used in this assessment is a modified two-station, 20-min duration OSCE, with each station lasting 10 min. The student midwife is presented with two different lactation and infant feeding scenarios (one usual/standard, such as initiation of the first feed post birth, and one more challenging, such as breast engorgement or mastitis, for example) and is instructed to act out the scenario of care appropriate to that particular case (Table 2 provides a scenario example). The role of the standardised client/woman is assumed by clinical midwife tutors, midwifery lecturers and/or clinical placement coordinators from our two associated clinical institutions (i.e. two large urban maternity hospitals). Each examiner is provided with a standardised set of marking criteria, which ensures consistency and objectivity when assessing the student and from which the student is deemed competent (pass

mark) or not competent (fail mark) based on his/her performance. A process of moderation, whereby the midwife examiner and the clinical midwife tutor, midwife lecturer and/or clinical placement coordinator assuming the role of the standardised client/woman will discuss the student's performance and jointly agree before awarding the student midwife their grade (i.e. pass or fail). Using the modified OSCE to assess clinical competence in this particular subject area is advantageous for a number of reasons as follows:

Since the integration of midwifery education in Ireland into third level institutions, student groups requiring clinical placements at any one time have become larger (O'Connor et al., 2009) with midwifery students spending less time in specific clinical practice environments (Noonan et al., 2009). With this in mind and considering the pool of clients required for specific assessments, the use of the OSCE allows for a 'hands on' approach to assessing clinical behaviours and skills yet avoids the associated challenges such as busy clinical environments and client safety issues (Nulty et al., 2011). Lactation and infant feeding practices are individualistic to each woman and require effective communication skills in response to each woman's particular needs at that time. In this sense, the use of strategies such as a written examination or reflective writing would limit an accurate assessment of clinical

Table 2
Example of OSCE scenario.

Scenario: positioning and attachment		
You looked after 'Mary' throughout her labour and birth of her baby and are aware that she has chosen to breastfeed. The baby is 10 min old and all is well with him and Mary. skin-to-skin contact has been initiated. Please act out the scenario of care you would offer to support Mary to initiate breastfeeding her baby		
<i>Essential issues to be discussed within this Scenario.</i>	<i>Knowledge and Skills which MUST be demonstrated to achieve THE required standard.</i>	<i>Knowledge and Skills which MUST be demonstrated to achieve ABOVE the required standard.</i>
Skin-to-skin has been initiated.		The student may highlight that interruptions (e.g. weighing, measuring) will be postponed until necessary.
Signs of/cues of hunger must be noted.	The student should highlight that the mother and baby should be left uninterrupted until signs of hunger are demonstrated.	The student should highlight that the mother and baby should be left uninterrupted; the baby may 'find' the breast and latch on
Positioning for breastfeeding.	No one correct position; principles that should be included <ul style="list-style-type: none"> > The baby's head and body are in a straight line. > The baby's head is free to tilt backwards. > The baby is close to the woman. > The baby's nose starts off opposite the nipple. > The position is sustainable. 	No one correct position; different positions should be discussed. Principles that should be included. <ul style="list-style-type: none"> > The baby's head and body are in a straight line. > The baby's head is free to tilt backwards. > The baby is close to the woman. > The baby's nose starts off opposite the nipple. > The position is sustainable
Recognising correct attachment.	Following signs should be looked for <ul style="list-style-type: none"> > Baby's mouth should be wide open. > Baby's lower lip should be curled back. > If any areola is visible there should be more showing above the baby's top lip than below the bottom lip. > The baby should be feeding in a suck/swallow pattern. > The baby's chin should touch the breast. > Feeding should be pain free. 	Following signs should be looked for <ul style="list-style-type: none"> > Baby's mouth should be wide open. > Baby's lower lip should be curled back. > If any areola is visible there should be more showing above the baby's top lip than below the bottom lip. > The baby's cheeks should be rounded. > The baby should be feeding in a suck/swallow pattern with pauses. > The baby's chin should touch the breast. > Feeding should be pain free.
Recognising cues that a breastfeed is finished.	The baby comes off the breast.	The baby comes off the breast. The baby is offered the other side – does not latch on. The baby settles.

competence on this topic. The use of observed practice would potentially optimise assessment in this area and student midwives, in Ireland, are mentored and observed in the clinical environment by assigned preceptors. However, given the often large-sized student groups and the difficulty with securing a suitable number of women in the clinical area, at any one time, the use of observed practice is not always feasible or appropriate for a scheduled, formal, standardised assessment. The OSCE provides for a meaningful alternative strategy as it allows for individual assessments of a total group or class of students in a timely, controlled and safe way. In this sense, students' competence can be assessed with the potential for risk or harm to women minimised (Bartfay et al., 2004; Mitchell et al., 2009) and the potential for students to provide women with inaccurate and unsafe information avoided.

The use of the longer duration/shorter station format with clearly defined case scenarios, as described, is additionally advantageous as it allows for a more complete and holistic assessment affording students the opportunity to address the multidimensional components of competence, rather than just clinical skill acquisition (Way, 2002; MacMullen et al., 2003; Chesser et al., 2004; Mitchell et al., 2009). It has a greater potential than the original short duration OSCE for enabling students to demonstrate their level of achievement across a number of performance criteria and indicators within the five Domains. Using the OSCE for assessing competence in lactation and infant feeding practices extends beyond students demonstrating the skill of assisting women with positioning and infant feeding techniques. It involves students demonstrating that they can support women emotionally, communicate effectively, sensitively and professionally, recognise women's particular individual care needs and respond accordingly to these needs.

Ensuring the OSCE meets the requirements for a thorough assessment of clinical competence is paramount and careful consideration of the guidelines, case scenarios and marking criteria is required. For example, in using the OSCE to assess student midwives' competence in lactation and infant feeding practices, and to ensure it addresses the multidimensional components of competence, the marking criteria are divided into three 'Area of

Practice' cues (Table 3 provides an example). The midwifery student will receive either an overall 'Pass' or 'Fail' grade, rather than individualised percentage marks. To achieve a pass grade, the student midwife must demonstrate to the examiner that he/she has the necessary knowledge and skills as laid down in the respective case scenario (see Table 2 as an example). The marking criteria provide the midwife examiners with standardised criteria for deeming the student's performance (and thus competence), either below, at or above the required standard. If a student fails to perform at or above the required standard in any of the 'Area of Practice' cues, he/she will receive a 'Fail' and will be re-examined at a later date (Table 3 provides an example of expected performance). Cue A focuses on the assessment of professional behaviour and effective communication allowing the midwife examiner assess student competence in Domain One (Professional/Ethical Midwifery Practice) and Domain Three (Interpersonal Relationships) in particular. Cue B focuses on the provision of care, allowing the midwife examiner assess student competence in Domain Two (Holistic Midwifery Care) and Domain Four in particular (Organisation of Midwifery Care). Cue C focuses on the assessment of competence in the area of knowledge and skill and addresses performance criteria in all five Domains of Competence. Although the OSCE has been criticised for its use of standardised clients rather than real clients (Hodges, 2003; Barman, 2005), the OSCE case scenarios as reflections of 'real life' situations, the use of the standardised marking criteria and the use of the longer duration OSCE format does provide a strategy of considerable value when assessing clinical competence in certain subject areas (such as the one described here). It provides the 'next-best' strategy for an assessment of competence when observed practice is neither feasible nor appropriate.

In further support of the OSCE as the 'next-best' assessment strategy, it is worth considering Miller's (1990) hierarchical framework for describing the process of clinical assessment. Miller's framework (Fig. 2) ranges from the 'knows' to 'knows how' to 'shows how' and finally to 'does'. The 'knows' refers to the students' knowledge base. The 'knows how' refers to the student being functionally and knowledgeably adequate to perform particular

Table 3
Example of 'area of practice cue'.

Area of practice cue A	Standard			
	Performance not at the required standard	Performance is at the required standard	Performance is above the required standard	Performance of an exceptional standard
Communicating effectively	Fails to communicate effectively with the woman	Communicates effectively with the woman	Communicates very effectively with the woman	Communication skill excellent
Personal and Professional behaviour.	Inappropriate interactions displayed by body language, demeanour, manner, tone of voice, demonstrates a lack of respect for persons	Appropriate interaction with the woman which displays respect, actively seeks feedback (from the woman).	Skilful interaction with the woman which displays respect, actively seeks feedback (from the woman).	Interaction with the woman is highlighted skilful, displaying respect and sensitivity to the individual; actively seeks feedback.
Listening	Does not demonstrate effective listening; is attending to what she needs to ask next; ignores woman's cues and clues	At all times demonstrates that she is listening by her non-verbal behaviour and use of silence	At all times demonstrates that she is listening by her non-verbal behaviour and use of silence; uses reflective and active listening skills.	Uses a variety of listening skills appropriately to demonstrate active listening; uses reflective listening effectively
Questioning	Mainly uses closed questioning. Seldom allows time for the woman to respond adequately	Uses open questions; allows time for the woman to respond adequately	Uses open and closed questions appropriately; good attempt to coordinate listening and questioning.	Skilful use of open and closed questions with listening skills to facilitate the woman to tell her 'story'
Overall standard achieved				

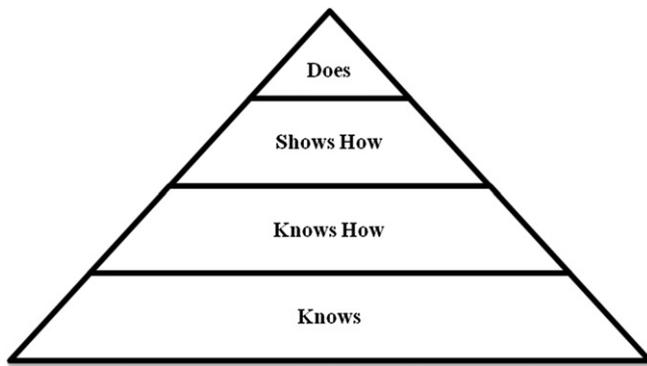


Fig. 2. Framework for clinical assessment (adapted from: Mitchell et al., 2009; Miller, 1990).

tasks. The 'shows how' refers to students demonstrating adequate functional and knowledgeable ability and the 'does' refers to the students ability to perform independently in clinical practice (Miller, 1990). The OSCE sits just below the pinnacle of Miller's pyramid at the 'shows how' level and is associated with the assessment of performance and competence in a 'hands on', standardised format. Although using the OSCE to assess students' clinical competence in supporting women with lactation and infant feeding practices might not truly reflect how students will perform in the clinical setting, it remains an important strategy as it falls just short of the optimal clinical/practice based assessment and above the use of written assignments or multiple choice questions (Wass et al., 2001; Schuwirth and van der Vleuten, 2003; Rushforth, 2007). Furthermore, as the assessment guidelines, case scenarios and marking criteria include the multidimensional components of competence, the use of the OSCE at the 'shows how' level provides midwifery examiners with an increased view of how students might perform in similar situations in the clinical setting when compared with those alternative strategies at the lower levels of the Framework.

Validity and reliability of the OSCE

The OSCE in its original form has been recognised as a reliable and valid strategy for assessing clinical competence (Harden and Gleeson, 1979; Roberts et al., 2006). However, since the introduction of adapted and modified OSCEs, issues concerning the trustworthiness of the OSCE have been raised. For this reason, the OSCE as a reliable and valid strategy for assessing clinical competence requires careful consideration.

Validity refers to a test's ability to accurately measure what it is supposed to be measuring, whereas reliability refers to consistency in measurement over time (Barman, 2005). A number of studies have evaluated the validity and reliability of the OSCE. Dupras and Li (1995), for example, evaluated the inter-rater reliability of their nine-station OSCE with re-scoring of fifty-one medical students occurring at time one and time two six months apart. The reported correlation coefficient was 0.88 indicating high consistency in student scores between test times, deeming the OSCE a reliable strategy for student assessment. Newable and Swanson (1988) also evaluated the inter-rater reliability of the OSCE with a focus on examiner reliability with 5 min ($n = 4$ stations) and 10 min ($n = 5$ stations) OSCEs. The results demonstrated increased consistency in examiner scores with the 10 min OSCE compared to the 5 min OSCE ($r = 0.72, 0.72, 0.75, 0.82$ and 0.89 versus $0.33, 0.45, 0.64$ and 0.76 respectively). This result provides support for longer duration station OSCEs and thus support for the 20 min station OSCE that we

use when assessing student midwives' clinical competence in lactation and infant feeding practices.

With respect to the validity of the OSCE, in the main, there is agreement that a well-designed OSCE will be suitably subject to high face and content validity (Rushforth, 2007). Determining the current validity (that is the extent to which assessment scores are congruent with other forms of assessment) and the predictive validity (that is the ability of the assessment to predict subsequent performances) of the OSCE, however, appears more controversial with published studies producing conflicting results (Harden, 1975; Roberts and Brown, 1990; Schuwirth and van der Vleuten, 2003; Wessel et al., 2003). One of the prominent difficulties in achieving high validity in the OSCE has been linked to the artificial nature of the examination (Watson et al., 2002) and the standardised client versus real client scenario as previously discussed. In overcoming this difficulty, Rushforth (2007) posits that each new OSCE should be subject to rigorous scrutiny and piloting during the development and implementation phase to ensure that reliability and validity are maximised. The use of the OSCE for assessing clinical competence in lactation and infant feeding practices underwent rigorous planning and scrutiny prior to its implementation and undergoes continuous evaluation (i.e. through student feedback and at module and assessment evaluations during team meetings and module development/curriculum planning workshops) to ensure it continues to meet the assessment requirements (and the Domains of Competence) in measuring students' clinical competence in this particular subject area.

Conclusion

An Bord Altranais identifies five Domains of Competence that the midwifery student, in Ireland, must achieve for entry to the Midwives Division of the Nurses and Midwives Register. A variety of assessment strategies are adopted to assess students across a broad range of topics. In this paper, use of the OSCE as one strategy for assessing clinical competence, was critically explored.

The OSCE has been positively appraised for objectivity in student assessment and provides a 'hands on' approach to assessing clinical competence in situations where the 'real world' clinical environment is neither appropriate nor feasible. It is considered the 'next-best' form of assessment to observed clinical practice. Using the OSCE to assess midwifery student's competence in lactation and infant feeding practices is considered an appropriate and valuable form of assessment for this topic. It allows for midwifery students to demonstrate their competence at the 'shows how' level of clinical assessment yet allows for control, objectivity and safety to prevail. It provides a more in-depth assessment than is otherwise achieved by a written assignment or a reflective journal, for example. It enables a complex and multidimensional assessment of competence across the five Domains of Competence. It assists midwifery examiners objectively to deem midwifery students competent or not competent (i.e. receiving a pass or fail mark respectively in their OSCE assessment) enabling students progress (albeit in association with other assessments) through their midwifery education and training, towards registration as a qualified, competent midwife.

The validity and reliability of the OSCE are favourably reported in the literature, although rigorous planning and scrutiny of OSCEs prior to their implementation is required. The OSCE as a strategy for assessing clinical competence has important benefits; however the associated limitations are also recognised. Miller (1990) suggests that no single assessment strategy can provide all the information required to assess something as complex as clinical performance. However, when viewed alongside other forms of assessment and with relevance to the subject area under examination, the OSCE can

be considered a valuable strategy for enhancing student assessment and for embracing diversity in student education and training in Ireland.

Contribution to authorship

Valerie Smith (VS) drafted the manuscript. Kathryn Muldoon (KM) and Linda Biesty (LB) reviewed the manuscript for important intellectual content. VS, KM and LB revised and approved the final version of the manuscript for submission.

Conflict of interest

The authors declare that they have no competing interests.

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