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Clinical reasoning skills in undergraduate midwifery education: A concept analysis

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1. Introduction & background

The complexity of maternal and neonatal cases confronting midwives in the 21st century requires graduates who are able to interpret client's clinical data by relating components of clinical reasoning to the process of clinical judgement (Levett-Jones et al., 2010). This is important as some of the deaths and complications within maternity are reportedly as avoidable (WHO, 2015). Although, numerous studies regarding clinical reasoning have been conducted globally and locally, clinical reasoning is still viewed as a complex concept, oftentimes presenting significant facilitation and learning challenges, especially within the context of the undergraduate programme (Pinnock, Young, Spence, Henning, & Hazell, 2015). Moreover, within midwifery nursing education and practice there is conceptual confusion as to what clinical reasoning (CR) entails Simmons (2010), let alone how it can be taught and assessed as well as the research and practice implications. Literature acknowledges that clinical reasoning is a complex concept with no consensual definition, often presenting with the difficulty to disentangle the concept from other concepts such as critical thinking, problem solving, decision-making and clinical judgement, hence there is an overlap in the usage of these concepts in literature (Levett-Jones et al., 2010). Contrariwise, series of authors reached an agreement that the terms are interrelated and seemingly inseparable because of their minute, distinct differences but deliberated on their dissimilar meanings (Simmons, 2010; Victor-Chmil, 2013). Concurring, Murphy (2004) emphasized that the above surrogate concepts (critical thinking, problem-solving, decision-making and clinical judgement) include process and effect, yet in clinical reasoning emphasis lies on the thinking tactics that a midwife follows in order to arrive at a judgement or decision, which allows him/her to solve patient related problems (Fitzpatrick & Smith, 2013).

Despite local and international studies echoing that clinical reasoning is an indispensable skill for every health-care professional, midwives included Crampton (2013), maternal and child mortality and morbidity remain a concern worldwide, including South Africa (Schoon & Motlolometsi, 2012). This is however, despite government-concerted efforts for its reduction (WHO, 2015). The majority of maternal and child deaths are due to complications during pregnancy and childbirth and are attributed to an under-prepared midwifery workforce, highlighting the demand for competent midwives', able to use their clinical reasoning skills (CRS) to respond to the maternity healthcare needs of the South African population (WHO, 2015). In addition, the South African Nursing Council (SANC) (2013) attributed poor midwifery care and outcomes of adverse events to poor clinical reasoning and decision-making. Literature further reports midwifery care as unique and creative in nature (Orem, Taylor, & Renpenning, 1995) in addition to being complex, unpredictable and grounded in scientific principles and knowledge, thus midwifery care is a combination of an art and a science (Searle, Human, & Mogotlane, 2009). Hence, a need exists for midwifery graduates to be taught high order thinking skills to enable them to problem solve and clinically reason (Levett-Jones et al., 2010). According to Neville (2008), for decades the teaching and facilitation of clinical reasoning skills within professional undergraduate education have always been lifeblood of medical education, thus disempowering midwives in becoming capable intellectuals (Jefford & Fahy, 2015). Notwithstanding the fact that in South Africa *'Midwifery'* is deliberated as an independent, autonomous profession, counter the continuation of literature considering midwifery as a *'non-scientific practice'* (Jefford & Fahy, 2015).

It further emerged in the literature that the clinical reasoning skills of the midwives were further hindered by the application of *Nursing Process* (Higgs, 2008; Higgs & Jones, 2008) and *NANDA-I* (Herdman & Von Krog, 2012). Both the Nursing Process and NANDA-I seem ineffective in facilitating the clinical reasoning process within midwifery practice. Midwives focus on the steps and the process, not the thinking process and the clinical reasoning required during each phase. However, there is no consensus in the definition of this concept *'clinical reasoning'*, particularly within midwifery education, which makes it almost impossible to use it consistently and in a more effective manner, hence the need to explore understanding of this concept in midwifery education. This paper therefore aims to provide an analysis of the concept clinical reasoning through identification of its key antecedents

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and attributes in relation to midwifery education and practice.

2. Material and methods

2.1. Study design

As little is known about, the concept *"clinical reasoning"*, a Qualitative, Grounded Theory (GT) approach underpinned by social constructivism paradigm as outlined by (Corbin & Strauss, 2008; Strauss & Corbin, 1998) was the choice study design to provide an explanation of this concept. Grounded Theory provides a valuable framework in concept analysis (Botes, 2002).

2.2. Study setting and context

In keeping with a grounded theory approach, the researcher selected the study setting of a university-based Nursing and Midwifery department in KwaZulu-Natal, South Africa which was believed to provide the relevant data. The curriculum was context as opposed to content driven as the products exhibited not only the competencies expected of a midwife, but also cross discipline universal applicable skills allowing for clinical reasoning, problem solving and reflection (Mtshali & Gwele, 2015).

2.3. Study participants

Purposive and later theoretical sampling were used to ensure that the selected informants have rich data required to understand the phenomenon of interest in this study (Corbin & Strauss, 2014). Finalist midwifery students, 2016 and 2017 cohorts, were purposively selected taking into consideration their exposure to the midwifery content as well as experiential learning in the midwifery settings. The midwifery lecturers were purposively selected due to their experience in midwifery education. This was followed by theoretical sampling which was guided by the data obtained from the initial participants, referring the researcher to other participants with rich information. In this study, midwifery educators referred the researcher to other educators who were no longer teaching in the undergraduate midwifery programme, but who were involved in the design and introduction of the programme.

2.4. Data collection methods

The author collected data from September 2016 to September 2017 through various methods including observations, interviews and document analysis. The observations focused on classroom and clinical interactions and paid particular attention to learning and teaching activities. The midwifery curriculum, learning contracts and students' reflective journals were analyzed. The interview guides were derived from observations and document analysis, which led to open-ended interview questions. The time allocated to FGDs was 45 min to 1 h whereas individual interviews was 35 to 40 min. The assistance of a co-facilitator to take field notes was employed as well audio-recording. A triangulation method was followed for both FGDs and individual interviews. Data were collected until saturation of 16 FGDs and 12 individual interviews was achieved.

2.5. Ethical considerations

Ethical principles were observed throughout the study, commencing with gatekeeper permission from the Registrar as well as ethical clearance from the participating university with the following reference number (***HSS/1288/016D***). Consideration was given to participants' need for deliberate participation through the provision of an information sheet and time to ask questions and an opportunity to withdraw at any time without recourse, before voluntarily signing consent to participate and be audio-recorded. The provision of pseudonyms and all raw data (audiotapes, field notes & transcripts) remained in the confines of researchers both under lock and key and password locked ensuring confidentiality and anonymity of the participants and safety of the information. The researcher recognized her dual role as both researcher and faculty member, Kamberelis and Dimitriadis (2005) refers to this as issue of power imbalance, which requires attention in studies involving students and faculty. This was not the case in this study because the researcher, even though she was a faculty member, she was not involved in the teaching of midwifery students and she was a postgraduate student at the time of the study, which made it easy for the students to relate to her. On completion of data analysis, all hard copies of data and the data collection material, that is, audio recordings, field notes and transcripts were stored to a compact disc and kept for five years in the supervisor's office under lock and key in a lockable filling cabinet, and will only be shredded after five years. All other data which was kept in the researcher's computer or on cloud storage was deleted and the recycle bin emptied.

2.6. Data analysis process

The FGDs and interviews were transcribed verbatim and consecutively analyzed using a constant comparative method (Corbin & Strauss, 2008). Thus, data analysis involved a continual comparison of categories, concepts and experiences within and in between data sets. Corbin and Strauss (2008) analysis process was followed, which included open coding, axial coding and selective coding, and the analysis of the core phenomenon 'CR' in midwifery education was enhanced using Walker and Avant's (2005) method of concept analysis. Embedded in the data analysis was the process of theoretical sensitivity. The researcher ensured theoretical sensitivity by entering the field with no preconceived ideas to allow the concepts to emerge from the data and in-depth review of technical literature was conducted after data collection that takes place concurrently with initial data analysis. Experts in grounded theory were consulted repeatedly to improve the researcher's data collection and analysis skills, thus ensuring that the data generated, was faithful to the phenomenon under study. Theoretical sensitivity was achieved through co-constructing meaning with the participants, since the study was underpinned by social constructivism paradigm (Corbin & Strauss, 2014).

The initial data were organized manually, starting with open coding, which allowed the authors to read the transcripts word-by-word and line-by-line. This familiarized the authors with the data thus gaining basic description of the content. In order to sustain the semantics of the data, the derived codes were expressed in words similar to those used by the participants. Codes were constantly compared; the idea was to confirm they were grounded in the data rather than forcing already constructed codes upon the data. Axial coding followed this, which enabled the authors to sort the codes into categories, through constant comparison between categories and between categories and codes. The authors were thus able to understand the data fragments within one category and developed subcategories where significant variations in data fragments were found. The programme NVIVO version 10 qualitative data analysis software supported the analysis to systematize the subsequent focused and theoretical coding processes. The final step involved selective coding where the relationship between the category and other secondary categories was verified. The data analysis process was not rigid, however, and allowed the authors to move back and forth constantly re-examining the data, codes and categories.

2.7. Rigor

The authors' ensured quality of data by following Lincoln and Gubas' (1985) methods of trustworthiness, whilst keeping in mind the epistemological and methodological philosophies of GT. In this GT