

Undergraduate Mental Health Nursing Students’ Reflections in Gaining Understanding and Skills in the Critical Appraisal of Research Papers – An Exploration of Barriers and Enablers

Abstract

Aim: To explore a cohort of mental health nurses’ views and experiences in developing and applying critical appraisal of research skills to identify helping and hindering factors.

Background: In accordance with evidence based practice principles, there is an expectation that student (mental health) nurses will become competent in understanding research to make judgements about its trustworthiness and applicability in the clinical setting. This process is termed the ‘critical appraisal of research’ and it is deemed important to healthcare professionals because it facilitates the use of evidence from research to underpin practice.

Design: The study incorporated qualitative secondary research using thematic analysis and a poststructural lens.

Methods: Following undertaking a module including tuition on the critical appraisal of research, a cohort of student mental health nurses’ submitted essay reflections focussing upon critical appraisal experiences were thematically analysed. The thematic analysis included both deductive and inductive components in adjunct to a poststructuralist analysis to explore influencing factors of language, meaning and subjectivity.

Results: The study identified there are both pedagogical factors and wider societal considerations influencing the critical appraisal of research experiences. Psychological and emotional factors, incorporating anxiety components were identified as a key barrier to engagement and understanding which has not previously been identified in comparable

research. Enablers to the understanding and application of critical appraisal skills were identified as peer learning, accessing academic supervision, gaining a satisfaction of personal learning and self-directed learning with library skills support.

Conclusions: The findings indicate that there are specific pedagogic considerations which can be applied when supporting mental health student nurses in developing and gaining skills in the critical appraisal of research. It is recommended that these are applied universally for nursing students and considered for other populations of healthcare students.

Critical appraisal; research literacy; reflection; student nurses.

1. Introduction

This research focusses upon an exploration of the barriers and enablers to obtaining understanding and skills in appraising research papers. Critical appraisal has been defined as “...*the process of carefully and systematically examining research to judge its trustworthiness, and its value and relevance in a particular context*” (Burls, 2009:2).

Furthermore, it is considered an essential skill for healthcare professionals because it facilitates finding and using evidence from research effectively (Belsey, 2009) and assimilates with the clinician’s experience and the patient’s values (Al-Jundi & Sakka, 2017). Critical appraisal facilitates this process to ensure research study findings are reliable, make sense and are understandable in the context of decision making in practice (Guyatt, Sackett, & Cook, 1993). There are quality appraisal tools which can assist in the process depending on the research study design. Examples of these include CASP appraisal checklists (CASP, 2020), checklists from the Joanna Briggs Institute (JBI, 2020) and those available from the Centre for Evidence Based Medicine for research designs such as randomised controlled trials and systematic reviews (CEBM, 2020). In addition, broad appraisal criteria exists in research text books (Crombie, 1996; LoBiondo-Wood & Haber, 2018).

In preparation to be a qualified mental health nurse, education aimed at developing and utilising research skills are an important component of a student nurse's skill set (McCormack, Baltruks, & Cooke, 2019; Blenkinsop, 2003; Leach, Hofmeyer, & Bobridge, 2015). With regards to clinical decision making in nursing, there has been a significant culture and paradigm development since the 1970's, as previous traditions held foundations in authority and intuition (Sackett & Rosenberg, 1995) and have moved to a focus on evidence based practice (EBP) and an all graduate workforce (Department of Health, 2010).

Difficulties pertaining to health and social care student populations developing and demonstrating skills in critically appraising research studies are reflected within the literature (Chenail, 2011; Smith, Cohen Calloe, Harnek Hall, & Hayward, 2007; Taylor, et al., 2000). With regards to nursing populations, complex language, statistical analysis and deciphering research terminology have been proposed as problematic areas (Coughlan, Cronin, & Ryan, 2007; Rebar, Gersch, Macnee, & McCabe, 2010). A systematic review by Hines, Ramsbottom, & Coyer (2015) concluded that both discomfort in understanding research language and perceived deficits in knowledge are reasons why evidence is not assimilated in to nursing practice. Leach, Hofmeyer, & Bobridge (2015) in their longitudinal survey study of student nurses advised that an undergraduate research education programme can improve student nurses' research skills and use of EBP. In a cross-sectional study incorporating a pre-post test design, the completion of a critical appraisal three week course involving a part sample of nursing students, was shown to improve self-perceived skills in critical appraisal and improve attitudes to the relevance of research to patient groups and nurses' future work (Jelsness-Jørgensen, 2014).

A counter view of the difficulties in critical appraisal experienced by nurses was offered by Rolfe (1999) who argued that expecting a nurse to be able to critically appraise research without firstly having any experience of conducting or being involved in research is unrealistic. This critique could be applied to a majority of nursing undergraduate students

who have little or no applied research experience. Further evaluation states that a structured critical appraisal is difficult to achieve in a busy clinical practice setting (Duffy, 2005) and questions its relevance other than in the academic setting. However the transferability of critical appraisal skills to other areas relatable to practice such as critical thinking, clinical reasoning and rapid appraisal has been highlighted by Whiffin & Hasselder (2013). How educators can most effectively facilitate learning in undergraduate nurses regarding research processes and EBP remains unclear and has been identified as requiring further inquiry (Christie, Hamill, & Power, 2012; Mthiyane & Habedi, 2018).

2. Developing Understanding Through Reflective Practice

This study incorporates the theoretical position that reflecting on practice and the development of skills can synthesise both ‘classroom’ and clinical knowledge (Naber & Markley, 2017). The pedagogic approach to this research uses student reflective essays to examine acquired understanding and skills in the critical appraisal of research. Students were directed to select and use a framework on which to formulate their reflective essays. The most commonly selected frameworks included those of Gibbs (1988) and Kolb (1984). Gibbs Reflective Cycle involves six stages towards improvement incorporating the identification of a ‘description’ of the experience, ‘feelings’ about the experience, an ‘evaluation,’ an ‘analysis’ including theoretical explanations, a ‘conclusion,’ and an ‘action plan’ to develop learning and application for future approaches. Kolb’s Experiential Learning Cycle involves four stages to include ‘concrete experiences or learning’ where the individual is exposed to a new experience or task, ‘reflective observation’ to involve personal reflections on the experience, ‘abstract conceptualisation’ at which point new ideas are formed and finally ‘active experimentation’ of trying out or planning a new approach to the issue under examination. Both of these reflective frameworks align with Kennison’s (2012) view that

semi-structured reflective writing models with guidelines that identify the assignment's purpose and process of evaluation, provide a structure for the examination of thoughts, feelings and individual experiences.

3. Method

3.1 Research Aim

The purpose of this research was to explore student mental health nurses' experiences of gaining skills and understanding in the critical appraisal of research papers. As well as being relevant to the national agenda for student nurses to be competent in research processes (Christie, Hamill, & Power, 2012), it is reflected in learning objectives for the BSc Mental Health Nursing degree. The research was guided by the following questions:

1. What are the identified student experiences of gaining critical appraisal skills and understanding?
2. Are pedagogic approaches viewed as effective in attaining critical appraisal skills?
3. Do experiences of learning support the development of knowledge and skills in critical appraisal?
4. Are there any implications identified with regards to changes in teaching practice to support the development of knowledge and skills in critical appraisal?

3.2 Study design

The research method employed in this study involved qualitative secondary research which incorporates existing data. Qualitative secondary research has been described as “...a systematic approach to the use of existing data to provide ways of understanding that may be

additional to or different from the data's original purpose" (Largan & Morris, 2019:77).

The existing data included the use of student reflective essays which was a component of a summative assessment for the module; The Craft of Mental Health Nursing Across the Lifespan [1] which focussed upon the assessment of mental health problems and applicable therapeutic interventions/approaches. This four-week long module included taught content and directed/self-directed study in gaining critical appraisal skills. The taught content included a face to face key note lecture on what critical appraisal is and additional face to face workshops which gave students the opportunity to develop and practise their critical appraisal skills by reviewing research papers. Directed learning included online exercises in critically appraising research papers with lecturer feedback on progress achieved. The self-directed components included student led engagement with library skills sessions to build upon individual skills and learning.

The students were required to submit reflective essays focussed upon critically discussing constructing the development, content and delivery of a presentation; a component of which was a critical appraisal of a research paper based on a clinical practice assessment tool of the student's choice (e.g. evaluating depression indicators). It was not mandatory that students focus upon the area of critical appraisal of a research paper in their reflective essays and they could have chosen another learning outcome from the presentation criteria e.g. the use of communication and the stages of the therapeutic relationship when using the chosen assessment tool. Therefore, the individually chosen reflective issues throughout the essays would identify if critical appraisal was a pertinent factor for students.

3.3 Participants

A purposive sample was recruited from a cohort of second year mental health nursing students. The BSc Mental Health Nursing degree is a three-year long programme and the

second-year content is an important period upon which to build understanding in EBP and critical appraisal, as the final year degree module involves a literature review dissertation including the critical appraisal of empirical research papers.

24 (from a possible 28) students took part in this research study and 91% of participants were female. Ethical approval via the Research Ethics Committee was granted by the author's employing institution (ID: 1920PCAP12).

3.4 Data Analysis

Participant-student reflective essays were accessed via a submission portal. The data analysis involved the use of thematic analysis and incorporated both deductive and some inductive strategies (Terry, Hayfield, Clarke and Braun, 2017). This approach to thematic analysis was in adjunct to a poststructuralist analysis which are “...often concerned with an analysis of texts that represent aspects of reality” (Cheek, 2000:12). Furthermore, poststructural viewpoints probe language, meaning and subjectivity (Weedon, 1987), and investigate how texts may be formulated in connection to assumptions by which the individual adheres to, in order to be heard and validated (Ball, 1990). Therefore, the overall approach used both written experiences from the participants as well as extant literature to synthesise both experiential and theoretical knowledge. Braun & Clarke's (2006) phases of thematic analysis were adhered to when constructing the themes from the data, this involved 1) familiarisation with the data, 2) generating initial codes 3) searching for themes 4) reviewing themes 5) defining and naming themes and 6) producing the report.

4 Findings

Table 1 illustrates the findings from the thematic analysis and includes participant quotes and theoretical and empirical literature associations (Braun & Clarke, 2013). In order to ensure the analysis of the data is being driven by and answering the overall research inquiry, each guiding question identified for this study is presented below with the applicable themes embedded within the interpretative narrative.

4.1 What are the identified student experiences of gaining critical appraisal skills and understanding?

Within their reflective essays, many participants identified ***Emotional and Psychological Barriers*** as a primary influence on how they engaged with critical appraisal processes and the acquisition of skills.

“I was stressed out thinking, have I selected the right checklist to appraise my evidence...”

The most severe psychological effect involved both fear and anxiety of engaging with critical appraisal. There were many student comments pertaining to it being the first time they had attempted critical appraisal which was internalised to represent that this would automatically make their learning difficult or prolonged. One student’s reflective essay purposed:

“Problems in the learning of research can result in slower progression (Meyer, Shanahan, & Laugksch, 2005).”

The emotional and psychological barriers in turn were perceived to affect students’ experiences of gaining skills in critical appraisal with some students describing a difficulty in taking action to begin learning the approaches and skills of critical appraisal or even asking for support when this was an identified need for the student;

“It would have been better if I had asked for academic supervision because I felt I was struggling, but I didn’t do this and felt unmotivated even though I had started off well....”

The literature supports this theme in which anxiety can play a significant role in limiting educational experiences and learning. In particular *social* anxiety has been identified as a conflict in how an individual wants to be perceived, but believes they are not capable of fulfilling this representation (Schlenker & Leary, 1982). This form of anxiety has been shown to impact on success in education (Ameringen, Mancin, & Farvolden, 2003) and can lead to an increased risk of exam failure (Bernstein & Kean, 2000) and failure to graduate (Wittchen, Stein, & Kessler, 1999). In addition, it can be linked to theory of fearing embarrassment in getting things wrong in large group settings (Race, 2015) which in the current study involved students' presenting their critical appraisal through an assessed presentation face to face in front of lecturers and peers.

The psychological reactions and emotions impounded and connected to experiences of ***Time Factors*** for students and again this common theme revolved around the time taken to understand critical appraisal and the associated research terminology (***Research Language Perceived as a Barrier***). Many student reflections identified a large proportion of their time was given to developing content for their assessed presentation which was linked to gaining understanding on critical appraisal of research and 'looking up' terminology they did not understand. One student's reflective comment stated:

"Language used by nursing academics and scientific terminology is often similar to learning a foreign language (Hendricks & Cope, 2017)."

Keele (2011) also compares the language of nursing research to learning a new language, especially in terms of statistical analysis. However despite these challenges, a theme of ***Satisfaction with Learning*** was found and was represented strongly within the reflections to embody student experiences of their growth in knowledge, confidence and skill regarding working through areas of difficulty to arrive in a new place of awareness and knowledge:

“I now feel I have the knowledge of how to apply critical appraisal to a research paper using an appraisal tool and I feel I have done this successfully.”

Many students reflected on the importance of being able to understand a research paper and study components in relation to transferring this to patient care and their nursing care within EBP:

“The NMC Code of professional Standards (NMC, 2018) states that we must provide support based on the best evidence available...”

One participant specifically identified possible disparities in the belief that understanding research is imperative for nurses:

“Ellis (2010) noted some nurses believe that understanding research is not an essential feature of a nurse, however advises nurses should not shy away from research as it informs nursing practice and allows us to make judgments about the quality of research.”

These aforementioned factors relate to theory on motivation for learning and demonstrate the importance of being able to relate to a rationale of why a subject area is important to learn (i.e., it links to professional knowledge required in nursing) as well as demonstrating a personal reward e.g. good assessment feedback. Hidi & Harackiewicz (2000) summarise by stating that a mixture of intrinsic and external rewards are required to support students' engagement in complex and difficult areas of learning.

4.2 Are pedagogic approaches viewed as effective in attaining critical appraisal skills in the module Craft 1?

In a majority of the reflective texts analysed, students made reference to the importance of academic supervision as the major influence on their learning and development of skills. There was a distinction with those students who accessed supervision to those that didn't, and the

theme of *Accessing Supervision Helped Me* strongly indicated that this made an immediate positive difference to the progress of the student and their motivation:

“Meeting with the tutors helped me to work out the research methods of my article which enabled me to continue through the work...”

This aligns with Goodyear’s (2014) view which advocates conceptualising supervision as a teaching-learning process allows a common framework for basic change mechanisms. A further theme of *I Should Have Accessed More Supervision* illustrates many participants’ reflective statements that looking back on their experiences, they consider their learning and skills progression regarding critical appraisal would have been improved by accessing (more) academic supervision within this area and receiving feedback on their skills and understanding:

“I wish I had sought more academic supervision to check my understanding....”

This aligns to the theory of performance feedback which seeks to reduce discrepancies in what a student may already know and be able to do compared to what is required of the student with regards to required knowledge and skills (Hattie & Timperley, 2007).

A majority of student reflections indicated that accessing further tuition via *The Library Skills Team Sessions* was instrumental in deepening their knowledge and application in critical appraisal and literature searching skills:

“Attending the study skills session enabled me to search for literature in half the time and I was able to find a research paper quickly and knew it was relevant...”

This theme identified elements of self-directed learning which had been based on the individual student’s evaluation of their own learning needs. They had then sought out sessions which would improve their skills and understanding in self-determined areas. This form of learning whereby the student engages in active participation and taking responsibility for discovering new knowledge has been termed inquiry-based learning (de Jong & van Joolingen, 1998).

4.3 Do experiences of learning support the development of knowledge and skills in critical appraisal?

Peer Learning was an important theme as it supported many students to collaborate to achieve individual learning goals:

“Accessing peer support and peer group working helped me to see the tasks from different perspectives...I became more positive in how I approached the assignment.”

Underlying student experiences in peer learning incorporated the positive view of trust amongst receiving peer feedback. Carless (2013:91) emphasises the importance of trust in the feedback process and defines this occurring process as a willingness to be vulnerable “...with the faith that the other is reliable, honest, benevolent and competent.” **Self-Directed Learning** also indicated another strong theme whereby the majority of student reflections described and critically reflected on their own personal learning journeys following recognitions on areas they needed to focus on:

“The positives to this experience were that I identified that the method I have been using to appraise evidence was not the proper way...through peer support and on-line sources I was able to gain some understanding of the process of appraising.”

Ashwin, et al. (2017) refer to a key approach to learning as the student being able to check and shape what they are learning as an ongoing process. This theme also links to theories around motivation, whereby self-directed learning should be more successful if the learning goals are perceived to be achievable whilst meeting needs and expectations (Kingsbury, 2015). The theme of **Future Action Planning** resulted from many of the reflective essays’ identification of action points for further learning and practice in critical appraisal skills:

“Within the next two months I will select a research paper and critically appraise it to improve my confidence on continuing to use critical appraisal skills. To receive feedback I will ask my peers or my academic support tutor to check it for me.”

The indication from the high proportion of students who chose to include critical appraisal skills development within their reflective essays, demonstrated this was a key area to reflect upon.

4.4 Are there any implications identified with regards to changes in teaching practice to support the development of knowledge and skills in critical appraisal?

Through reviewing the aforementioned themes indicated for questions 1-3 and again reviewing the reflection content to answer this specific question, findings were synthesised to consider future teaching practice in supporting the development of skills in knowledge in the student population. ***Supporting Further Engagement in Academic Supervision*** is a key area to address as students’ reflections highlighted academic supervision was an important factor which helped them progress and it was also indicated that those students who didn’t access academic supervision on reflection wished they had. ***Support and Signposting with Managing Psychological/Emotional Factors*** is indicated as a further important area for teaching in order to support students in achieving their potential, especially as anxiety, including social anxiety indicated a major barrier to even begin engaging with the content and individual learning on critical appraisal. Lecturers and the Library Skills Team could support with academic strategies for this as well as signposting to the University Wellbeing Team if required. ***Exploring Keynote Lecture and Workshop Content*** is another area which is indicated due to the predominant reflective views that understanding and applying skills in critical appraisal continues to be very time consuming and hard to master. Interestingly there was a lack of reflective content on student experiences of the taught lectures and workshop

content. This may be understandable due to the reflections being assessed pieces of work, therefore avoiding negativity towards lecturers and teaching styles. This area requires further investigation.

5. Discussion

This section will take account of interpretations of the thematic analysis as the involved module leader in position of researcher. Within poststructural and postmodern viewpoints, researchers are encouraged to expose rather than conceal their own involvement within particular perspectives and recognise their own personal values in their own analyses (Agger, 1991; Fox, 1991). Here, an underlying aim of ‘deconstruction’ (Derrida, 1976) is utilised to question “...and expose the underlying meanings, biases, and preconceptions that structure the way a text conceptualizes its relation to what it describes” (Denzin, 1994:185). These principles have been applied.

The findings from the thematic analysis indicates a tussle between participants’ views and experiences on gaining critical appraisal skills, from both positive outlooks and experienced challenges. Though statements have been made regarding the importance of critical appraisal ability in accordance with EBP and utilising these skills as a registered nurse, there are also statements made about the extensive time taken to gain critical appraisal skills, the personal stress and distress endured and the frustration within accomplishing understanding around research terminology and language. In effect, the language and participant statements within the student reflections display some examples of dissonance e.g. critical appraisal skills are important to have as a nurse but the journey to gaining them is at best fraught and at worst unattainable because the process is too complicated. In effect, underlying reflective essay commentary points to the question, *are critical appraisal skills really so important?* This raises inquiry regarding students’ statements in their reflective

accounts and whether they are repeating but not personally experiencing the nursing and healthcare professional outlooks on the importance of EBP and being able to understand components of a research paper. It can be further questioned if student reflective statements on the importance of critical appraisal have been made to satisfy cultural drivers from professional bodies, university education and professional development/assignment expectations. It is proposed from this consideration that future teaching on critical appraisal should encourage an open debate on the relevance of attaining critical appraisal skills, the frustration and challenges in attaining them and how this may or may not relate to clinical practice skills (see Jones, Crookes, & Johnson, 2011).

Further to individual participant experiences in the complexities of understanding research language, it can be posited whether unbeknownst to participants, other societal and (nursing) cultural power influences were affecting what was perceived as individual difficulties in the comprehension and skills application of the critical appraisal of research. It should not be ignored but further considered the implications of 91% of the participants being female. Many students identified quantitative methods and statistical analysis as the main difficulty regarding understanding research language. As a student supervisor and module leader I can add and reflect that the key supervisory conversations with a number of students revolved around students trying to find a qualitative research paper to critically appraise as a first choice and then their concern when they could not identify one, with only quantitative papers available. In writing about gender inequalities, Scott (2010) states that in the earlier phase of feminist writing, qualitative methods were often seen as preferable to quantitative approaches and that it is also the case that some social scientists lack confidence in numerical skills and have a fear of statistics. This opens up a further inquiry of these issues. Could (female) undergraduate nursing students inexperienced in research in most cases, align more readily to qualitative research for a more straightforward experience of attempting critical appraisal given time pressures experienced in gaining new skills. A further cultural influence may be

connected to qualitative language *being* “...aimed at describing and clarifying human experience as it appears in people’s lives” (Polkinghorne, 2005:137) which may connect further with students, as this same world view is implicitly implied in the profession of mental health nursing whereby the understanding of the patient’s/service user’s experiences are at the forefront of assessment and therapeutic interventions (Moone & Trenoweth, 2018). As such, powerful narrative depictions of (personal) experience may strike a very real chord, familiarity, comprehension and resonance, aligning mental health nurses’ practice and preferred research methods significantly to qualitative research. However, the understanding of and interpretation of quantitative research is equally important in evaluating evidence and outcomes and this consideration leads to a resulting aim of building in more tuition and pedagogic approaches in understanding quantitative methods and how this methodology influences approaches and decision making in clinical practice. Conclusions regarding any gender differences of experiences in appraising quantitative and qualitative research studies require further research. Although the current study also identified critical appraisal of quantitative research as a challenge for male participants, they only made up 9% of the participant group.

When considering the emotional and psychological barriers which influenced engagement in critical appraisal application, the surface text recounted experiences of anxiety and fear and presumptions that critical appraisal would be difficult in both comprehension terms and skills applicability. A dominating picture of experienced anxiety emerged which at times was described as paralysing and halted or slowed the progression of the critical appraisal work. It is important to consider that the experiences reflected upon in student assignments occurred with simultaneous pressures of other academic work and clinical placement attainments. Therefore, reflecting on historical information in the introduction of this article whereby it was stated that nursing practice has moved from one which was built on authority and intuition to one built upon decision making as the result of EBP, Dartington

(2000) describes a nursing profession reacting to an imposed non-thinking caricature which has now led to a profession based on intense professionalization and academic qualifications. With this change comes the challenge for student nurses to meet a diversity of attainments and academic achievement whilst retaining positive self-concept and motivation throughout (Khalaila, 2015). Building in supportive strategies for students who experience distress and anxiety will be an important requisite before this module runs again.

Recognising the enablers to understanding and applying skills in the critical appraisal of research demonstrated by this study are important outcomes on which to build to improve students' progress and experience. Peer learning, accessing academic supervision, gaining a satisfaction of personal learning and self-directed learning via the library support team are clearly indicated in how they have supported this group of students.

6. Conclusion

This study adds to the current literature on health care student experiences on learning and using critical appraisal of research skills. It aligns with other research in this area which identifies the difficulties in becoming proficient in these skills. With regards to nursing populations, the study echoes research which has indicated that complex language, statistical analysis and deciphering research terminology have been proposed as problematic areas; however it also adds a further critical viewpoint in the importance of psychological and emotional factors, especially in the form of anxiety as a major barrier to engaging with this subject area which has not specifically been found as an outcome in previous studies. This study also indicates what has enabled student nurses in gaining skills and understanding in critical appraisal (Peer learning, accessing academic supervision, gaining a satisfaction of personal learning and self-directed learning and via the library support team) which can be further built upon with future cohorts and should be considered universally for nursing

students and other healthcare student populations. With regard to the current study, these outcomes can be revisited and are essential for the student final year dissertations (current curriculum), whereby a critical appraisal of research papers occurs as part of a systematic literature review. In addition, these areas are especially important to focus upon in future research with regards to possible universal solutions in the attainment of critical appraisal understanding and skills and critically exploring their relevance in practice.

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