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What is provided and what the registered nurse needs — bioscience learning through the pre-registration curriculum

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SUMMARY

Registered nurses undertaking programmes of study to become non-medical prescribers appear to have limited biological science knowledge. A case study was undertaken to determine whether the nurses entering Prescriber programmes considered studies in bioscience in their pre-registration nursing courses had been sufficient, linked to practice, and had prepared them for their roles as registered nurses. The literature identifies a continuing trend amongst nursing students describing a lack of sufficient bioscience in initial nurse education; there is limited literature on the views of experienced registered nurses. The participants in this study were 42 registered nurses from adult and mental health nursing, community and inpatient services. The results obtained from questionnaires and interviews are described. Questionnaire analysis identified that 57.1% of participants indicated bioscience in their pre-registration nursing programme had been limited and 40.5% stated the bioscience content had not prepared them for their roles on registration. Those reporting extensive coverage of bioscience were all aged over 41 years and had qualified before 1995. Greatest coverage of bioscience in pre-registration programmes was reported in relation to anatomy and physiology, with relatively limited coverage of microbiology, pharmacology or biochemistry. Respondents considered all five topics to be important. Interviews supported the questionnaire findings.

Introduction

Non-Medical Prescribing is a relatively recent phenomenon, with prescriptions now being carried out by nurses, pharmacists, physiotherapists and other health professionals. My experiences in teaching biosciences to health professionals on the Non-Medical Prescribing programmes alerted me to an apparent lack of bioscience knowledge in the majority of the nurses attending the programmes. These Registered Nurses had at least 3 years experience in professional practice prior to commencement of the programme and my expectation of bioscience knowledge in this group did not match my experience when teaching the group in the classroom. This prompted a research study; the bioscience knowledge of registered nurses entering a Non-Medical Prescribing programme was explored using case study methodology. This paper reports a selection of the findings of the case study undertaken as part of a doctoral thesis (Davis, 2008).

Background/literature

Literature on biosciences in nursing education extends back for many years, with Wilson's (1975) monograph forming a substantial platform for further study. The lack of bioscience in the pre-registration nursing curriculum is a recurring theme, together with an expectation by doctors and service users of a higher level of bioscience knowledge in nurses than they actually have (Wilson, 1975; Jordan et al., 2000; Friedel and Treagust, 2005). More recent studies have looked at nurses undertaking Non-Medical Prescribing programmes and considered the need for bioscience knowledge in this group. Some of the older literature is included in this section, with reference to the curriculum changes in nursing education, in an attempt to set the context for the curriculum.

Traditionally, pre-registration nursing programmes included teaching by medical doctors. The medical model of care was used to explain anatomy, physiology, pathophysiology, signs, symptoms, prognosis and treatment and this model predominated in nursing until at least the late 1970s (Hayward and Akinsanya, 1982). With the changes in nurse education from the late 1980s to early 1990s, there was a move to emphasise psychosocial aspects of ill health in the nursing curriculum (Wynne et al., 1997) as nursing moved away from its medical dominance. These authors identify an unintentional shift in the nursing curriculum. As the behavioural sciences gained greater prominence, so the biological sciences diminished in importance, leading to a lack of holism as behavioural sciences began to be given far greater attention than the biological sciences, instead of a balanced curriculum, an overreaction had occurred. Trnobranski (1993) argued that this shift was a great loss and emphasised the need for the 'intelligent practitioner' (p495) with a sufficient understanding of a disease to be able to practice safely.

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The literature suggests that many nurse lecturers welcomed the shift in the curriculum, as their own confidence in teaching bioscience was weak. Clarke (1995) identified that nurse lecturers and mentors lacked bioscience knowledge and Courteney (1991, 2002) found that nursing students with A level qualifications in biology had a better knowledge of bioscience than did their lecturers. Jordan (1994) noted that the relevance of bioscience to nursing practice was considered to be greater by students than by lecturers. The demand for bioscience knowledge by the students was not matched by the lecturers' perceptions of nurses' roles in the workplace and the result was a lack of bioscience knowledge in students of nursing (Clancy et al., 2000; Jordan et al., 1999). Gresty and Cotton (2003) described how, although students were anxious about learning bioscience, the students were clear about the importance of this subject area to their clinical work. The literature from the 1980s to the current day reports the same concerns about lack of bioscience content of pre-registration nursing programmes.

During this period, it is worth noting that there was a change in the education of nursing lecturers. Changes occurred from a longer Nurse Teacher programme that included greater knowledge and understanding of the underpinning theories related to nursing, such as bioscience, law, ethics and behavioural sciences as well as the practice of nursing education, to a shorter Certificate in Education which emphasised teaching and educational theory but did not add to the student teacher's own knowledge of the subject matter to be taught (Hayward and Akinsanya, 1982).

It is not only in the UK that the concern for lack of bioscience knowledge amongst nursing students has been voiced. Friedel and Treagust (2005) used a curriculum enquiry approach to look at the bioscience content of the pre-registration nursing curriculum in New Zealand. They found that lecturers had less positive attitudes to bioscience than did their students and that students wanted more bioscience in the curriculum. Although lecturers did have more confidence in explaining bioscience than their students, the results for students were not significantly different, indicating that the lecturers' confidence was not much more than that of their students.

Students appear to prefer to learn bioscience when the knowledge is related to clinical practice (Davies et al., 2000). However, Clancy et al. (2000) report their study of 153 student nurses that found the students were unable to apply knowledge of pharmacology to their clinical practice. The issue is not confined to general nurses; it also applies to mental health nurses. The study by Jordan et al. (2000) discovered that mental health nurses lacked pharmacological knowledge and that their knowledge was less than that expected by service users. Some authors have demonstrated the variation in bioscience content in the pre-registration nursing curriculum. Wharrad et al. (1994) demonstrated the varied content of 16 nursing degree courses in the UK. Morrison-Griffiths et al. (2002) established the differences in pharmacological content across nursing programmes in UK universities and the overall lack of pharmacological content in these programmes.

Studies of registered nurses and their bioscience knowledge are also evident in the literature. The Swedish study undertaken by Danielson and Berntsson (2007) looked at registered nurses knowledge rather than the knowledge of students. Using participants from a variety of work settings, the study reported that these nurses considered the knowledge most needed in relation to their work was that related to bioscience and medical science. Clancy et al. (2000) surveyed staff nurses and identified that these nurses lacked confidence in their knowledge of drug actions. A study of nurse lecturers (Bradley et al., 2006) found that their knowledge of bioscience varied considerably. Latter et al. (2007) reported the concerns expressed by nurses taking on prescriber roles about their lack of knowledge of pharmacology. The Irish study of 12 newly qualified nurses undertaken by Mooney (2007) reported that these nurses did not have as much pharmacology knowledge as they needed for the roles they undertook and this caused great anxiety.

The clinical value of learning bioscience knowledge through post-registration programmes is demonstrated by some studies. Increased knowledge demonstrated itself in improved patient education, better ability to communicate and greater ability in reviewing care protocols (Jordan and Reid, 1997) and in improved use of oxygen devices in clinical practice (Considine et al., 2007).

Reviewing the literature demonstrates that lack of bioscience knowledge in nurses is not a new phenomenon, and is not just a UK issue. The emphasis on bioscience in the pre-registration nursing curriculum has changed through the decades, and, rather than strengthening the relationship to clinical practice, continues to be delivered in ways which do not enhance students' clinical work. This study aimed to explore the bioscience knowledge of registered nurses entering a Non-Medical Prescribing programme; nurses who were considered experienced and had been qualified for at least three years. An exploration of the nurses' perceptions of their own level of bioscience knowledge and the ways in which this knowledge had been gained was undertaken.

Methods

The exploratory nature of the research question identified the need for an interpretive paradigm and a qualitative research approach, enabling considerable engagement with this particular group of nurses and their experiences. Case study methodology was selected with the registered nurses entering the Non-Medical Prescribing programmes as the case (Gillham, 2000; Gomm et al., 2000). Eisenhardt (2002) and Bassey (1999) advocate the use of case study research as an effective means of widening the knowledge base and gaining an understanding of the factors involved. The importance of transparency in case study research is emphasised by these authors and this guidance was followed in the case study reported here, with every attempt to ensure research methods and data analysis processes were fully described so that other researchers could determine the degree of generalisability of findings.

Purposive sampling was used. Three cohorts of nurses entering the Non-Medical Prescribing programmes were approached and those who consented to participate formed the sample. The sample was diverse in age, nature of work, and length of time in nursing (Table 1).

Table 1
Summary of participants.

Age group	Percentage of participants (numbers in brackets, $n=42$)	Year of qualification	Percentage of participants (numbers in brackets, $n=42$)	Years worked as RN	Percentage of participants (numbers in brackets, $n=42$)
26–30	11.9 (5)	1972–1979	40.5 (17)	<5	9.5 (4)
31–35	2.4 (1)	1980–1994	33.3 (14)	5–10	19.0 (8)
36–40	14.3 (6)	1995+	26.2 (11)	11–15	9.5 (4)
41–45	19.0 (8)			16–20	9.5 (4)
46–50	33.3 (14)			21–25	26.2 (11)
51–55	19.0 (8)			26–30	21.4 (9)
56+	0 (0)			>30	4.8 (2)