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An exploration of issues relating to Medical Science subjects: nursing students’ perception and experience in Universiti Kebangsaan Malaysia Medical Centre

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Abstract

The failing rate of Medical science subjects which were taught to students from the Bachelor of Nursing Program in Universiti Kebangsaan Malaysia was between 35%-45% every semester. This exploratory survey was designed to examine the issues, perception and experiences related to the learning of these subjects. Thirty, year one nursing students participated in this study. Data was analysis indicated that 53% of the students did not expect these subjects in nursing, 70% were not satisfied with the way these subjects were conducted and 40% wanted different teaching strategies. This study reveals a need to reform the teaching and learning of these subjects to a more student-centered approach.

Keywords: Teaching and learning; medical science subjects; nursing students; issues; experience; perception

1. Introduction

Bioscience (Medical Science) subjects in nursing help students to relate the knowledge to diseases and conditions in clinical practice. Many authors agree that the need to study these subjects and applying this knowledge to practice improves the nursing students understanding when delivering care (Jordan & Potter, 1999; Prowse, 2003) and it also enhances the care provided to patients facing health challenges (Jordan & Reid, 1997). Trnobrański (1993) noted that teaching and learning biological sciences need a coherent, structured approach and integrated with nursing content for better understanding. These subjects are important in the nursing curriculum to educate nurses to provide nursing care effectively and intelligently, educate the patients concerning their condition and to elicit patient participation in the development of care plans. According to Mckee (2002), bioscience subjects consists of chemistry, biochemistry, genetics, anatomy, physiology, microbiology, nutrition, pharmacology and pathology, with the majority of emphasis on anatomy and physiology, as the biosciences relevant to nursing education and practice. This study was focused on part of the Bioscience subjects (normally known as medical science subjects in the

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Department of Nursing, Universiti Kebangsaan Malaysia Medical Center (UKMMC), that is, anatomy, physiology and biochemistry which was found to be the most difficult subjects among nursing students in UKMMC. This was concluded with the students’ complaints about the difficulties they were experiencing and their poor examination performances during assessments. The failure rate was between 35%-45% every semester. The Bachelor of Nursing students in UKMMC Kuala Lumpur, Malaysia, pursue these subjects for the first three semesters of their four year course. These subjects were taught by specialists in each subject whereby 90% of the total credits/units were taught in the form of lectures and 10% of the teaching and learning was carried out with problem based learning exercises. The author has coordinated these subjects for several years and has observed significant numbers of these nursing students experiencing difficulties in applying this knowledge and nearly all the students had complained about the difficulty in following these subjects. The teaching of bioscience subjects has been identified as a problem and a source of anxiety by teachers, students and practicing nurses internationally (Choi-Kwon et al. 2002, Nicol 2002). Jordan et al. (1999) also noted that although students feel that bioscience is very important in nursing, they find these subjects difficult. McKee (2002) stated that students not only struggle with the learning but also in the application of biosciences to clinical practice. Studies by Clancy et al. (2000) and Gretsky & Cotton (2003) revealed similar findings that the role of biological sciences in nursing is very important. The students and practicing nurses who had participated in these studies expressed that they would like more support in terms of education in biological sciences and that the application of biological concepts to nursing practice enhances the educational process. Practicing nurses had also indicated that they are not confident in their biological science knowledge base. The research questions formulated for this study were: “What are the experiences and difficulties faced by nursing students in the teaching and learning anatomy, physiology and biochemistry subjects?; and “What should be done to overcome these difficulties? The objectives of this study were to: explore the experiences of nursing students regarding their teaching and learning medical science subjects; to explore the nature of problems these students experienced; and to explore what could be done to overcome these problems.

2. Method

The exploratory survey approach was used to explore the experiences of nursing students with the teaching and learning of medical science subjects (anatomy, physiology and biochemistry) in the Department of Nursing, UKMMC. A set of structured and semi-structured open-ended questionnaires were used to explore the experiences of these nursing students. The purposive sampling method was used because only those students who were currently involved in these subjects were selected to participate. A total of 30 (n=31) Bachelor of Nursing students took part in this study. Participation was voluntary and anonymous. Data was analyzed using percentages and the inductive thematic analysis method. Themes were identified from the written responses of the respondents.

3. Result

Table 1 displays the demographic variables of the respondents and it shows that 24(80%) of the respondents were females followed by 6(20%) male respondents. Majority of the respondents were aged 20 years, that is 23(76.7%), followed by 21 years, 5(16.7%), while there was only 1(3.3%) respondent aged 19 years and 22 years.

| Age/Gender | Male (%) | Female (%) | Total (%) |
|------------|----------|------------|-----------|
| 19 Years   | 1 (3.3)  | -          | 1 (3.3)   |
| 20 Years   | 5 (16.7) | 18 (60)    | 23 (76.7) |
| 21 Years   | -        | 5 (16.7)   | 5 (16.7)  |
| 22 Years   | -        | 1 (3.3)    | 1 (3.3)   |
| Total      | 6 (20.0) | 24 (80)    | 30 (100.0)|
Table 2 shows that 16(53.3%) of the students did not expect to study these subjects and 14(46.7%) expected to study these subjects in nursing.

|                | MALE (%) | FEMALE (%) | TOTAL (%) |
|----------------|----------|------------|-----------|
| YES            | 2 (6.7)  | 12 (40.0)  | 14 (46.7) |
| NO             | 4 (13.3) | 12 (40.0)  | 16 (53.3) |
| TOTAL          | 6 (20.0) | 24 (80.0)  | 30 (100.0)|

The second part of the questionnaire consisted of two questions which the nursing students needed to answer. The first question was “What are the experiences and difficulties faced by nursing students in teaching and learning anatomy, physiology and biochemistry subjects?” and the second question was “What should be done to overcome these difficulties experienced by nursing students in teaching and learning anatomy, physiology and biochemistry subjects?”. Six themes were identified from the written responses of these students. They were: Process of Instruction; Process of Learning; Lecturer Attributes; Workload of Learning; Compact Time Table; and Texts and Content. They were analyzed thematically.

Discussion

The findings of this study highlighted some of the problems the nursing students were facing with the anatomy, physiology, and biochemistry subjects. The most important factor here is for educators to identify the best way to correct this situation. Six themes were identified from the written responses of these students. The written responses of the first theme, “Process of Instruction” (n=23), were: “all topics were given as lectures”, “lectures were not systematic”, “there were too many words in the slides”, “it was very boring”, “not interesting at all”, “explanations were not clear”, and “lectures were very difficult to understand”. The suggestions to overcome these difficulties from these students were: “need to use different teaching strategies”, “need to provide more diagrams, illustrations, animations”, “need to have more practical and demonstration sessions”, “need to adopt a two way process of teaching so that it is easy to understand”, “when unable to understand lectures, it is not easy to learn” and “provide clear points about topic”. When lecturing, the lecturer should aim to actively involve the students in the topic, provide students the opportunity to explore what is being taught, and make them gain an interest in the teaching and learning process (Al-Modhefer & Roe, 2009). Biggs & Tang (2007) found that it is only during the first 15 minutes of a lecture that the students are alert and they tend to lose interest very fast if lecturing is passive. According to Davies et al. (2000), changes need to be made to improve the teaching of biosciences in the nursing curriculum. The students expressed the need to make their teaching and learning of biological sciences to be more interesting and meaningful with more practical sessions, demonstrations and animation which would enhance better understanding of these subjects. The students also perceived that it is very important for them to understand these subjects. Larcombe & Dick (2003) noted that practical sessions are stimulating and provide for more individualized and self-paced tuition. Learning and blended learning are beneficial in the teaching and learning process of biological sciences with good technical support (Smales, 2010). Therefore, it is important to integrate visual aids during lectures.

The following were the responses in the second theme: “Process of Learning” (n=24), “no rest time in between heavy lectures”, “insufficient time for self-directed learning”, and “insufficient information regarding resources and references”. The suggestions to overcome these: “should provide rest time in between heavy lectures”, “should give time for self-directed learning”, “give more information on resources and references” and “a wide range of teaching methods will help students to learn”. It is clear from the students’ responses that changes need to be made to make the teaching and learning experiences more fruitful and allow the students to approach the learning of these subjects in a more comfortable and easier manner. The students in this study showed their concern that they needed more resources and time for learning these subjects. Nicoll & Butler (1996) found that increasing the level of resourcing and time for teaching bioscience in nursing were met with approval from the students. On the other hand, McKee (2002) identified that poor study skills also contribute to students’ difficulties with bioscience subjects.

The responses for theme three: “Lecturer Attributes” (n=17), were: “not well prepared”, “reads from slides”, “sits at table”, “very serious”, “sometimes too fast”, and “does not make learning easy”. Suggestions to overcome were: “should give clear explanation”, “be more informative”, “should move around so that students don’t sleep”, “should
face students”, and “stress on important points”. To be able to simplify these subjects for students, lecturers need to have biosciences background (Green et al., 2000). Fortunately all the bioscience lecturers teaching the nursing students in this study were specialized in these subjects. It is definitely compulsory that bioscience lecturers have an appropriate science background to help in the application of the knowledge of these subjects to nursing practice (Friede & Treagust, 2005). Instead of just transmitting the bioscience knowledge, lecturers should also consider involving students in discussion sessions to encourage active participation. This will lead nursing students to be active and self-motivated learners by which they too will become more competent and reflective practitioners. (Al-Modhefer & Roe, 2009)

Responses organized in theme four “Workload of Learning” (n=28), were: “very heavy workload”, “too much to study”, “very tiring”, “too much of explanation in a short period of time”; and “very little explanation for topics with a lot of information”. Suggestions to overcome these difficulties: “reduce subjects in semesters with medical science subjects”, “provide space for learning”, “too much to learn”, “no time to complete learning” and “highlight important areas where more concentration is needed”. Gresty and Cotton (2003) suggested that fear and anxiety were generated in students because of the heavy workloads and the importance shown in bioscience assessments. Past negative learning experiences may be linked to the perceived difficulties in learning biosciences (Smales, 2010). The students in this study suggested that subjects should be reduced in semesters with medical science (bioscience) subjects. Maybe the curriculum should be rearranged with a more reasonable space and reduction of subjects during semesters with these subjects. This may help the students to perform better in the future.

The responses in theme five “Compact Time-table” (n=26), were: “time-table was too packed with these topics”, and “no place in the time table for studying time”. Suggestions to overcome these problems: “should spread out the topics”, “don’t compact the time-table with too many important subjects together”, and “spread out the lecture topics in a more efficient manner”. The students highlighted that a compact time table together with important subjects were other factors that led to the difficulty of studying anatomy, physiology, and biochemistry. This may be an implication that the syllabus, time, and different subjects should be more efficiently allocated. (Al-Modhefer & Roe, 2009)

The responses in theme six “Texts and Content” (n=15), were: “there was too much of content to study in a short period of time”, “books to refer were not told”, and “subjects are too heavy and compact”. Suggestions to solve these: “spread out the content of these topics”, “inform reference books used”, and “need more educational support together with reference books”. The students in this survey expressed the need for more educational support. Lecturers may need to use various teaching and learning strategies which may provide the students with the educational support they need. At the same time, lecturers should encourage students to be independent in their own learning. They should also provide clear explanations to the students of the learning outcomes that need to be achieved and assessed during the semesters. (Al-Modhefer & Roe, 2009).

4. Conclusion

This explorative survey provides evidence of the difficulties of teaching and learning anatomy, physiology and biochemistry from the students’ perspectives. The students expressed concern about studying these subjects. The findings reveal a need to reform the teaching and learning of these subjects in order to increase understanding and for better performance. The findings also suggest that the students are in need of extra materials, resources and guidance when studying bioscience subjects. A more student-centered learning approach is required. This study also suggests an urgent need to identify the most appropriate means of restructuring the bioscience subjects within the nursing curriculum and to include more teaching strategies to fulfill the students’ needs. Good educational practice by lecturers in the biological sciences and by addressing issues such as time availability, compact time table and teaching and learning strategies may raise the confidence and understanding of these subjects for nursing students.

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