

## STUDENTS' PERSPECTIVES ON PHARMACY CURRICULUM IN A MALAYSIAN UNIVERSITY

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*Institutions of higher learning are working hard to provide effective, high quality educational programs. Meanwhile, potential students are also looking at "quality" as a metric to help make their decisions about which college to join. Mechanisms to evaluate the quality of higher education offered in universities are already available. This study aimed to determine students' attitudes and opinions regarding the pharmacy curriculum at the International Islamic University Malaysia (IIUM). A survey instrument was administered to all final year bachelor of pharmacy (BPharm) students. Forty students (93%) completed and returned the survey. The majority of students (75%) expressed their satisfaction regarding the curriculum in general. Most students (74%) were also satisfied with the courses offered by the department of pharmacy practice. However, students were not satisfied with certain issues such as overlapping of some pharmacy practice courses, and the inclusion of the Malaysian language course in the BPharm curriculum.*

**Keywords:** Pharmacy, Curriculum, Student, Perspective

### INTRODUCTION

Institutions of higher learning strive to be acknowledged for their dedication in providing effective, high quality educational programs, hence nurturing academic excellence in both faculty and students. At the same time, students are demanding high quality programs and use "quality" as a metric to make decisions about which college to join. The society also seeks measures of quality, whether real or imagined, and expects academic institutions to be of high quality. Since quality and

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excellence in education are important to the society, emphasis has been placed on curricula and assessment strategies to guarantee that programs are accomplishing their missions (Abate, Starmatakis and Haggett 2003).

There are mechanisms to judge and endorse the quality and effectiveness of higher education institutions. Most academic institutions are accredited by professional organisations, and in Malaysia, accreditation is the responsibility of the Malaysian Pharmacy Board. The Board was established under the provision of section 3 of the Registration of Pharmacist Act 1951 (Ministry of Health 2009). This endorsement is often very important in attracting students to enroll in the university and for their job market after they graduate. Faculties are already accountable to a number of bodies: accreditation authorities, state governments, and the Ministry of Higher Education. For some, the real issue is not about being accountable but about the performance and contribution of graduates to the state and national economies. Some see accountability as a way to influence institutional change.

At many institutions, academic programs are reviewed on a regular basis, either through an internal process or by an external advisory or governing board. The effectiveness of academic programs has traditionally been judged based on "inputs," e.g., number of students, faculty, physical and financial resources, feasibility, necessity, and constancy (Abate, Starmatakis and Haggett 2003). These criteria are being followed by the Malaysian Pharmacy Board. The process involves evaluation of a detailed submission of the pharmacy programme and may include a visit by a panel. The Pharmacy Board will only recognise and register pharmacy degrees that fulfill the criteria and standards set by the Board. A new pharmacy programme is assessed on its capacity and readiness to conduct such programmes. A pharmacy programme that has successfully obtained recognition of its degree is reevaluated every five years. A pharmacy degree is recognised on the basis of judgment that:

- the pharmacy education provided is relevant to the health needs of the country and there is evidence that the objectives are met
- the intellectual components and the educational dimension of the curriculum (the academic quality of pharmacy education) and its supporting system meet the global consensus of quality
- there is appropriate balance between the size of the enrollment in each class and the total resources of the programme including the

size and variety of academic fields of the faculty, physical facilities and equipment, the budget and a spectrum of pharmacy practice resources sufficiently under the control of the school

- there is evidence of quality management for sustainability of the programme and the embracement of change (Malaysian Pharmacy Board 2007)

The first Bachelor of Pharmacy (BPharm) program in Malaysia was offered by Universiti Sains Malaysia in 1972 (Ab Rahman and Bahari 2004). At present, undergraduate pharmacy education is offered by 15 approved schools of pharmacy in Malaysia; including at the International Islamic University of Malaysia (IIUM) (Malaysian Qualifications Agency 2009). Malaysia has a population of about 27.17 million. There are 6666 pharmacists in the country. Every year there are about 500 pharmacy graduates produced by these local universities (Malaysian Pharmacy Board 2007). The current ratio of pharmacist to population in Malaysia which is approximately 1:4000 is still far from the WHO recommended ratio of 1:2000 (Anonymous 2003).

The Ministry of Education approved the pharmacy program at IIUM in August 2000. The curriculum is structured to produce pharmacists who will be able to work in different pharmacy practice settings, particularly in the pharmaceutical industry in tandem with the government's aspiration of uplifting the status of the local pharmaceutical industry. The curriculum offers courses in areas such as pharmaceutical care, basic medical science, pharmaceutical technology and pharmaceutical chemistry (Appendix 1). This study was designed to determine students' attitudes and opinions regarding the pharmacy curriculum in Kulliyyah of Pharmacy at IIUM.

## **METHODS**

A structured questionnaire was developed according to the study's objectives to explore students' opinions on a number of issues relating to their respective pharmacy degree courses especially in the area of pharmacy practice. A number of experts in the field at the Kulliyyah of Pharmacy have reviewed the questionnaire. The questionnaire comprised of six main parts:

- demographic information (students' age and sex)
- students' perspectives on overall curriculum of the pharmacy degree program
- students' perspectives on pharmacy practice courses
- students' perspectives on clinical pharmacy and pharmacoetherapeutic courses
- students' perspectives on various academic programs (overall courses, the Islamic components of core courses and the university's Islamic general studies courses)
- students' perspectives on co-curricular activities.

Parts two to four of the questionnaire presented a series of statements on each theme and the students were asked to rate each statement based on a Likert-type scale with "not at all satisfactory" responses valued at 1 and "extremely satisfactory" responses valued at 5. Whereas parts five and six of the survey instrument presented a series of statements on each theme and the students were asked to rate each statement based on a Likert-type scale with a response of "strongly disagree" valued at 1 and "strongly agree" valued at 4.

The questionnaire was administered immediately after all the final year students completed their last final examination for the academic session 2005/2006. Completed questionnaires were retrieved at the time of administration to ensure good response rate.

Data were analysed using the Statistical Package for the Social Sciences (SPSS V.12). Students' responses to open-ended questions regarding the weaknesses and strengths of the curriculum were manually analysed by thematic content analysis.

## RESULTS AND DISCUSSION

The degree program in the Kulliyyah of Pharmacy at IIUM operates on full-time four-year curriculum. At the time of the study, the Kulliyyah of Pharmacy had been using the same curriculum for the last four years since its establishment. Students' views and the information obtained from this curriculum review can be used to improve courses so that they provide maximum outcomes (Holdford and Reinders 2001).

All students in the final year during the 2005/06 academic session (43 students) were included in the study. However, only 40 students completed and returned the questionnaires (93% response rate). The majority of respondents were female at 65%. 56% were 24-year old, 41% were 23-year old and 3% did not disclose their ages.

Majority of students were satisfied with the pharmacy curriculum. However, looking at the analysis for each section, we found that some students indicated their dissatisfaction. Curriculum development should be evolutionary not revolutionary, and newer teaching methods should be introduced alongside, rather than replace, effective traditional methods (Barzak, Ball and Ledger 2001; Cheng *et al.* 2003). As shown in Table 1, the majority of students (75%) expressed their satisfaction regarding overall curriculum. More than 75% of the respondents expressed their satisfaction regarding the pharmacy practice courses. Similarly, more than 80% were satisfied with the courses on clinical pharmacy and pharmacotherapeutics. The Kulliyyah of Pharmacy at IIUM has recognised clinical pharmacy as an important area in pharmacy and is urgently needed in Malaysia. As such, pharmacy practice components in the curriculum are important and aimed to drive the graduate into that niche area.

**Table 1:** Students' perception on pharmacy curriculum.

|   | N(%)   |         |          |          |         |
|---|--------|---------|----------|----------|---------|
|   | 1      | 2       | 3        | 4        | 5       |
| Overall curriculum                                | 3(7.5) | 7(17.5) | 17(42.5) | 9(22.5)  | 4(10)   |
| Pharmacy practice courses                         | 2(5)   | 8(20)   | 19(47.5) | 8(20)    | 3(7.5)  |
| Clinical pharmacy and pharmacotherapeutic courses | 2(5)   | 6(15)   | 14(35)   | 13(32.5) | 5(12.5) |
| Overlapping of courses                            | 14(35) | 6(15)   | 12(30)   | 7(17.5)  | 1(2.5)  |

Notes: 1 = not at all satisfactory; 2 = less satisfactory; 3 = satisfactory; 4 = very satisfactory; 5 = extremely satisfactory

Malaysia has two major places for pharmacy practice, the government and private sector. Pharmacy practice in the public sector usually takes place in government hospitals and health care facilities. The Ministry of Health in Malaysia has started clinical pharmacy services in selected government hospitals. However, the number of pharmacist

graduating with clinical pharmacy education or training is not sufficient to cover all clinical pharmacy positions in hospitals. Private pharmacy practice is largely represented by independent pharmacies, chain-store pharmacies and pharmaceutical industries (Wong 2001). Only a small number of graduates work in the government sector (22.5%) and a bigger number (76%) joined the private sector. To overcome this shortage of manpower in the government sector, the Ministry of Health implemented a three-year compulsory service for pharmacy graduates beginning September 2004. The year 2005 saw the first batch of provisionally registered pharmacists doing compulsory service in the public sector (Malaysian Pharmacy Board 2007). A provisionally registered pharmacist must be engaged in employment as a public servant in a listed premise for a period of not less than one year. On satisfactory completion of the period of provisional registration, the pharmacist can apply for full registration with the Malaysian Pharmacy Board. Thus, it is important for pharmacy graduates to have the basic and enough knowledge and skills related to pharmacy practice and clinical pharmacy to be able to practice professionally and be fully recognised by the Malaysian Pharmacy Board.

When asked about the overlapping of the contents of pharmacy practice courses, 35% of students were "not at all satisfied" and 15% were "less satisfied" (half of the respondents) (Table 1). This may be because of the less-experienced young academic staff, who were not able to appropriately emphasise certain aspects of the same topics between different levels in the BPharm program. In other words, the same topics in different levels (third and fourth years) should be taught in different depth and emphasis according to the course outlines, objectives and learning outcomes. Students should receive good learning style. Learning style, the manner in which a student prefers to learn, can affect the effectiveness of teaching and learning. Even though learning is to be more effective when the teaching and learning setting match the learner's style (Curry 1999; Grace 2001), providing creative teaching and learning style mismatches might help stimulate most advantageous learning (Vaughn 2001). Currently, the courses are being taught using different teaching methodologies such as lectures, tutorials, problem-based learning (PBL), assignments, seminars, practical sessions, learning visits, and hospital attachments. Thus, a variety of learning approaches should be considered for use in courses (Shuck and Phillips 1999). It is the responsibility of the faculty members to develop strategies for helping students to adjust

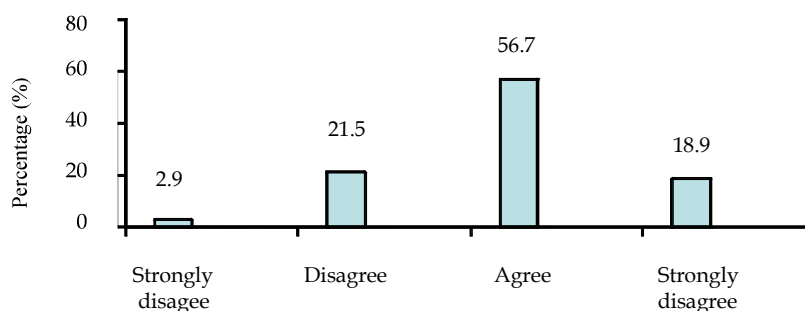
their learning approaches as appropriate for the specific task or situation (Vaughn 2001).

The Kulliyyah of Pharmacy at IIUM offers pharmacy courses in line with the philosophy of the University to produce pharmacists with Islamic values in the conduct of their professional practice. University courses are evenly distributed throughout the whole four-year program and these include general Islamic studies and Arabic, English, and Malaysian language courses. Table 2 shows that 87.5% were satisfied with the overall courses of various academic programs. More than 80% expressed their satisfaction regarding the Islamic components of core courses and about 72.5% were satisfied regarding the Islamic general studies courses. However, when students were asked about the Malaysian language course offered in their curriculum, 37% were not at all satisfied and 20% were less satisfied (Table 2). The medium of instruction in the Kulliyyah of Pharmacy is English or Arabic and students feel that such courses are not needed. With regard to co-curricular activities, 56.7% of the students responded as "agree" and 18.9% as "strongly agree" (Fig. 1).

**Table 2:** Students' perception on various academic programs.

|  | N(%)   |         |          |         |
|--|--------|---------|----------|---------|
|  | 1      | 2       | 3        | 4       |
| Overall courses                                  | 1(2.5) | 4(10)   | 23(57.5) | 12(30)  |
| The Islamic components of core courses           | 1(2.5) | 7(17.5) | 25(62.5) | 7(17.5) |
| The university's Islamic general studies courses | 2(5)   | 9(22.5) | 21(52.5) | 8(20)   |
| Malaysian language                               | 15(37) | 8(20)   | 12(30.5) | 5(12.5) |

Notes: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree



**Fig. 1:** Students' perception on co-curricular activities.

Kulliyah of Pharmacy offers some co-curricular activities that engage the students according to their different interests. These co-curricular activities are offered in packages. Package 1 is offered in the first year and contains four types of classes *Halaqah* (circle), *Fardhu Ain* (obligatory), *Tahfiz* (memorisation of the Holy Quran) and program for non-Muslim students (focuses on mind setting, mutual understandings and virtue inculcation). Package 2 is offered in the second year and contains courses and classes on leadership management, thinking skills, family management, parenting skills, *Tahfiz* and *Wataniah* (nationalism). Package 3 is offered in the third year and includes classes on martial art skills, fine arts skills, outdoor skills, sports, facilitating skills, communication skills, local management skills, and safety skills.

## CONCLUSION

In general, students were satisfied with the curriculum offered in the pharmacy program at the Kulliyah of Pharmacy at IIUM. However, they appeared to be not satisfied with the overlapping between different courses in different years of study. The students' perceptions provided useful input into the task of reviewing the curriculum.



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**APPENDIX**

| <b>Course</b>  | <b>Credit-unit</b> |
|--|--------------------|
| <b>Core courses of BPharm program at IIUM</b>        |                    |
| <b>Year 1</b>  |                    |
| Introduction to pharmacy, philosophy and history     | 2                  |
| Anatomy and histology                                | 2                  |
| Fundamentals of physiology                           | 3                  |
| Pharmacy practice                                    | 3                  |
| Physical pharmacy I                                  | 3                  |
| Pharmaceutical microbiology                          | 3                  |
| Organic chemistry                                    | 4                  |
| Information and communication technology in pharmacy | 2                  |
| Industrial/community training                        | 4                  |
| <b>Year 2</b>  |                    |
| Medical biochemistry                                 | 3                  |
| Immunology   | 2                  |
| General pathology                                    | 2                  |
| Fundamentals of pharmacology                         | 2                  |
| Fundamentals of medicinal chemistry                  | 2                  |
| Pharmacy practice II                                 | 3                  |
| Physical pharmacy II                                 | 2                  |
| Pharmaceutical analysis                              | 3                  |
| Pharmaceutical biotechnology                         | 2                  |
| Pharmacology of the peripheral nervous system        | 2                  |
| Body System I: Cardiovascular and haematology        | 3                  |
| Body System II: Respiratory                          | 2                  |
| <b>Year 3</b>  |                    |
| Pharmacognosy  | 2                  |
| Pharmacokinetics and biopharmaceutics                | 3                  |
| Dosage design I                                      | 3                  |
| Pharmacy practice III                                | 2                  |

| <b>Course</b>  | <b>Credit-unit</b> |
|--|--------------------|
| Body System III: Endocrinology and reproductive      | 3                  |
| Body System IV: Musculo-skeletal                     | 2                  |
| Body System V: Gastro- and hepato-biliary intestinal | 2                  |
| Body System VI: Urinary                              | 2                  |
| Pharmaceutical analysis II                           | 2                  |
| Clinical pharmacy I                                  | 3                  |
| Clinical pharmacy II                                 | 3                  |
| Body system VII: Central nervous system              | 2                  |
| Body System VIII: Sensory organs                     | 1                  |
| Anti-infective and cytotoxic agents                  | 3                  |
| Problem-based learning I                             | 1                  |
| <b>Year 4</b>  |                    |
| Quality assurance                                    | 2                  |
| Sterilisation and aseptic technology                 | 2                  |
| Pharmacoepidemiology and pharmacoconomics            | 2                  |
| Research methodology and biostatistics               | 2                  |
| Dosage design II                                     | 3                  |
| Pharmacy practice IV                                 | 2                  |
| Problem-based learning II                            | 1                  |
| Clinical pharmacy III                                | 3                  |
| Pharmaceutical care                                  | 2                  |
| Pharmacotherapeutics I                               | 3                  |
| Pharmacotherapeutics II                              | 3                  |
| Ethics and law pertaining to pharmacy                | 3                  |
| Administration and management in pharmacy            | 2                  |

| Course  | Credit-unit |
|---|-------------|
| <b>Elective courses of BPharm program at IIUM</b>             |             |
| Alternative, complementary and traditional medicine           | 2           |
| Herbal medicine   | 2           |
| Industrial pharmacy and regulation                            | 2           |
| Nutraceuticals and cosmeticeuticals                           | 2           |
| Computer-aided drug design                                    | 2           |
| Nuclear pharmacy  | 2           |
| Drug abuse  | 2           |
| Veterinary pharmacy   | 2           |
| Research project (literature search)                          | 2           |
| Over-the-counter (OTC) drugs                                  | 2           |
| Clinical nutrition  | 2           |
| Research project (practicals)                                 | 2           |
| Clinical toxicology   | 2           |
| Drug delivery system  | 2           |
| <b>University-required courses of BPharm program at IIUM</b>  |             |
| Islamic worldview   | 3           |
| Islam, knowledge and civilisation                             | 3           |
| Ethics and <i>Fiqh</i> for everyday life                      | 3           |
| Islamic input to the pharmacy curriculum                      | 3           |
| Arabic language (pre-competence core)                         | 0           |
| English for academic purposes                                 | 3           |
| Malaysian language for foreign student                        | 2           |
| Advanced Malaysian language                                   | 3           |
| Malaysian language for career purposes                        | 3           |
| <i>Tilawah</i> (recitation of the Holy Quran skills)          | 0.5         |
| Co-curricular activities (package 1, package 2 and package 3) | 3           |