



Evaluation of Pharmacoepidemiology Course for Undergraduate Pharmacy Program in Malaysia

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Research Article

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Abstract

Objective

This study aimed to evaluate the perception of pharmacy students towards pharmacoepidemiology course.

Methods

This study was a cross sectional analysis on students who took the elective pharmacoepidemiology course. A 26-items questionnaire was used to collect their demographic information and perception about the course. Descriptive data analysis was carried out by using SPSS v 12.

Results

Seventy students were approached but only 22 agreed to participate (response rate of 31.43%). The mean age (SD) of respondents was 22.1 (0.3) with 21 females (95.5%). Majority of the student had positive attitude towards the course contents. In addition, 90% stated that they understood the concepts of pharmacoepidemiology. Students were confident that this course will bring them knowledge and advantage during clinical and community practices. However, 69% stated that the course was not as interesting as compared to other courses that are offered in pharmacy program.

Conclusion

Our results found that the course was effectively delivered and beneficial to the students. Practical suggestion of improvements can be taken into considerations to improve the course attractiveness.

Keywords: Pharmacoepidemiology; evaluation; effectiveness; curriculum

Introduction

Pharmacoepidemiology is the study of the use and effect of drugs in a population (1). The term "pharmacoepidemiology" was first coined in British Medical Journal by Lawson that suggested a new discipline was required to deal with the interlinking of pharmacology which dealt with beneficial and adverse drug effects, and epidemiology which sought to study these in populations (2). The types of study encompassed within the discipline include the evaluation of adverse and beneficial effects of drug therapies, medication utilization patterns drug effects on the quality of life and the economic impact of medication use (3, 4).

In order to handle specific problems associated with drugs, such as multiform and unpredictable risk, sometimes very low incidence rates, dynamics and variability of exposure, and large number of drugs available on the market, various approaches were developed. This includes spontaneous reporting, case-population studies, case-crossover, prescription event monitoring and case-time designs. Knowledge and skills in pharmacoepidemiology is very important for pharmacist to help in monitoring and reporting of possible unintended effect of drug among population. One main reason for low reporting rate of adverse drug event (ADE) among pharmacist is lack of information on what to look for and where to report to. However, the teaching of pharmacoepidemiology has been largely confined to health care students at post graduate level.

The School of Pharmaceutical Sciences, Universiti Sains Malaysia has recently introduced the subject as an elective subject for the pharmacy's fourth year students. The 10-hours subject discussed various topics including the meaning of pharmacoepidemiology, its rational and the significance of the pharmacoepidemiology research; different perspectives on pharmacoepidemiology; pharmacoepidemiology study designs and statistics; drug approval process for drug marketing; quality of life research as well as pharmacoepidemiology research applications and its effect on pharmacy. The whole subject involved 98.5 hours of student learning time of which 10 hours are didactic lecture by four lecturers with PhD qualifications in various area of Social & Administrative Pharmacy (Pharmacy Administration, Pharmacoeconomics, Pharmacy Practice).



At the end of the course, students are expected to be able to appraise scientific literature using basic theory, concepts and principles of pharmacoepidemiology, conclude findings from pharmacoepidemiology analysis, and organize enquiry methods to address pharmacoepidemiology problems. Students are appraised by final exam and coursework at ratio of 40:60. The coursework consists of research project, and essay which will be conducted in group of 5 members. In order to discourage 'free-loaders', peer assessment tool is used whereby each member of the group will anonymously appraise each other contribution to the project at a scale of 1 to 5 (1 = no contribution at all, 5 = excellent contribution).

This article aimed to report results of the students evaluation on the pharmacoepidemiology course. This could help in improving the course and others who are designing similar course for their undergraduate students.

Methodology

Study Design and Data Collection

This was a cross-sectional study on the perceptions of students towards pharmacoepidemiology course which they have completed. The target population was seventy students who opted for this elective course. The questionnaire was adapted from Hassali et al (5) and consists of 26 items on demographic (gender, ethnicity, and mode of entry to pharmacy course) and perceptions towards pharmacoepidemiology (assessed by 4-point Likert scale: strongly disagree, disagree, agree, and strongly agree).

Data Analysis

Data was analyzed descriptively using SPSS v12.

Results

Demographic Characteristic

Seventy students were approached but only 22 agreed to participate (response rate of 31.43%) in this study with 21 females (95.5%). The mean age (SD) of respondents was 22.1 (0.3). Ten (45.5%) respondents were Malay ethnic while (n=12, 54.5%) were from the Chinese origin. Majority (n=18, 81.8%) had matriculation level of education..

Perceptions towards Pharmacoepidemiology Subject's Benefit

A majority of respondents (n=17, 77.3%) agreed that they understand the use of pharmacoepidemiology in medicine and public health after the completion of the course (Table 1).

Eleven respondents (50%) strongly agreed that the knowledge gained from the course will be required in future practice as pharmacist. In addition, (n=10, 47.6%)

respondents also agreed that this course will be useful in the future. Majority of the respondents (n=16, 72.7%) agreed that they benefited from the course and were really glad that such course is offered to pharmacy students. Six respondents (28.6%) strongly agreed to this statement.

Feedback about the course delivery

Thirteen (61.9%) students disagreed that pharmacoepidemiology course contents are interesting if compared to other courses in pharmacy while nine students (40.9%) agreed. Majority of the respondents (n=20, 90.9%) agreed that the course was delivered in a very understandable manner. Most (n=17, 81%) also agreed that the lecturers are good communicator and had good interaction with students. Sixteen respondents agreed that the contents of the lectures were well prepared.

Twenty respondents (90.9%) agreed that issues in pharmacoepidemiology are well covered in this course. However, (n=1, 4.8%) disagreed and (n=1, 4.8%) strongly disagreed with this statement.

Perception towards assessment

Overall, 18 (81.8%) of respondents agree that the coursework provided in this course gives some 'real – world' exposure on some of the pharmacoepidemiology role. Eighteen respondents (81.81%) agreed that the course's assignment is very interesting and stimulating. Seventeen respondents found that the assignment were very meaningful and provided them opportunity to develop their understanding of pharmacoepidemiology.

Overall, 11 respondents (50%) agreed that the teamwork assessment increased contribution of the team member in the group project. Teamwork peer assessment as a better tool of evaluation of the teamwork was agreed by 13 respondents and strongly agreed by eight respondents. Sixteen (76.2%) of the respondents agreed that the evaluation of the course is fair, while five (22.7%) respondents strongly agreed regarding the evaluation of the course.

Discussion and Conclusion:

This study intended to explore the perceptions of undergraduate students of pharmacy towards the recently introduced pharmacoepidemiology subject. Students were found to have better perception on the subject and can relate it to their future practice as a pharmacist. This finding is laudable as the knowledge and skills in pharmacoepidemiology is an essential component of the current and future practice in Malaysia (6).



Table 1: Students' feedback on pharmacoepidemiology course benefit and delivery

Questions	Response n (%)			
	SD	D	A	SA
I understand the role of pharmacoepidemiology in therapeutic medicine, and public health after attending the course	-	-	17 (77.3)	5 (22.7)
Knowledge gained from pharmacoepidemiology course will be required in my future practice as pharmacist	-	-	10 (45.5)	11 (54.5)
I found that the course being delivered in a very understandable manner.	-	-	20 (90.9)	2 (9.1)
Lecturers are good communicator and have good interaction with students	-	1 (4.6)	17 (77.3)	4 (18.1)
The feedbacks form lecturers are encouraging and inspiring	-	-	15 (68.2)	7 (31.8)
The sequence of lectures content is evident and well-prepared	-	-	16 (72.7)	6 (27.3)
Lecturers are supportive and informative	-	-	15 (68.2)	7 (31.8)
The course contents are interesting if compared to other courses in pharmacy that I have learnt so far	-	13 (59.1)	9 (40.9)	-
The issues in pharmacoepidemiology are well covered in this course	1 (4.6)	1 (4.6)	20 (90.8)	-
The coursework provided in this course gives me some 'real –world' exposure on some of the pharmacoepidemiology role	-	-	18 (81.8)	4 (18.2)
Assignments given in this course is very interesting and stimulating	1 (4.6)	1 (4.6)	18 (81.8)	2 (9)
The assignments given in this course are very meaningful	-	1 (4.6)	17 (77.2)	4 (18.2)
The coursework is beneficial for my skills in appraising and conducting a pharmacoepidemiology study	-	-	14 (63.6)	8 (36.4)
The coursework provide opportunity to develop my understanding of pharmacoepidemiology	-	1 (4.6)	16 (72.7)	5 (22.7)
Teamwork peer assessment allow fair evaluation of team members contribution to the project	-	1 (4.6)	13 (59.1)	8 (36.3)
Teamwork peer assessment increased contribution of team members in the group project	1 (4.6)	3 (13.6)	11 (50)	7 (31.8)
Teamwork peer assessment is a better tools to evaluate teamwork compared to supervisor's assessment of overall teamwork	1 (4.6)	-	13 (59.1)	8 (36.3)
60% contribution of coursework towards total course score gives better assessment of my effort and knowledge in this course	-	4 (18.2)	13 (59.1)	5 (22.7)
The evaluation of the course is fair	-	4 (18.2)	16 (59.1)	5 (22.7)

Overall, I feel that I have benefited from the course and really glad that such course is offered to pharmacy students	-	-	16 (72.7)	6 (27.3)
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(SD=Strongly disagree, D=Disagree, A=Agree, SA=Strongly agree)

Pharmacoepidemiology is useful in providing information about the beneficial and harmful effects of drug, thus permitting a better assessment of the risk/ benefit balance for the use of any particular drug in any particular patient (1).

Majority of the undergraduates agreed that the course was being delivered in a very understandable manner and lecturers are good communicator. This can be attributed to the encouraging and inspiring feedbacks from lecturers. Such feedbacks could provide students with the essential motivation to comprehend the subject (7).

There were negative perceptions among half of the respondents towards the attractiveness of pharmacoepidemiology as compared to other courses. Unfortunately, this study did not explore the item further, thus was unable to determine the specific characteristic that made the subject less attractive. However, previous studies suggested that there are individual and contextual barriers to implementation, adoption and acceptability of new course in curriculum, (8).

In addition, students were satisfied with the coursework and assignments given in this course. This allowed students to gain a more accurate sense of how the theories embedded in course readings apply to the "real world" and thus allowing them to see the relevance of their studies in potential career opportunities as predicted in similar studies (9). The assignments were derived from the real cases and carefully chosen. The present study also indicates that the assignments given were relevant to their own work and to what is presented in class to make them meaningful.

Teamwork peer assessment is a viable tool for evaluating the individual contributions to a discipline-specific teamwork project and by utilizing this technique; poor performers in the groups can be identified. However, the human bias must be adequately adjusted for fair assessments. Almost all the students agreed that teamwork peer assessment played an important role in this course. With it, the students can evaluate the performance of each group member and thus can 'force' each of them to work hard and contribute to the coursework assigned. This assessment is considered fairer as the teamwork can now be judged objectively by the group rather than subjectively by the supervisor as in previous practice in other subject.

This study was done to highlight the perception of final year pharmacy students towards the evaluation of



pharmacoepidemiology course. Generally students have positive and constructive experience from the course. The subject was effectively delivered and objectively appraised. However, further studies need to be done to improve its attractiveness.

We conclude that pharmacoepidemiology can be introduced at undergraduate level. Introduction of the subject at this level is in line with the present practice requirement and curriculum content.

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AUTHORS' CONTRIBUTIONS

Authors contributed equally to all aspects of the study.

PEER REVIEW

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CONFLICTS OF INTEREST

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