

Original Research Article

Students' Perception on Current Teaching Methods in Clinical Pharmacy Courses: A Focus Group Discussion

Nur Natasya Ahmad Ridzuan¹, Shubashini Gnanasan^{1,2}, Mahmathi Karuppanan^{1,2*}

¹Faculty of Pharmacy, Universiti Teknologi MARA (UiTM), 42300 Bandar Puncak Alam, Selangor, Malaysia.

²Department of Pharmacy Practice, Faculty of Pharmacy, Universiti Teknologi MARA (UiTM), 42300 Bandar Puncak Alam, Selangor, Malaysia.

Abstract

This study aimed to explore students' perception on current teaching methods used in clinical pharmacy courses and their preferred teaching methods. Fifteen fourth year pharmacy students in UiTM Puncak Alam consented and participated in this study. Three Focus Group Discussions (FGDs) were conducted which consisted of 5 students in each group. Each FGD lasted about twenty to thirty minutes and was guided by 10 semi-structured questions. Findings from FGDs highlighted four themes about students' perceptions on current teaching methods which were beneficial for clinical skills, exposure to real practice, elevated confidence level and pitfalls of current learning structure. Students have shared various views on current teaching methods in clinical pharmacy courses along with their suggestions to improve didactic lecture and Case-Based learning (CBL) such as introducing clinical skills during third year instead of fourth year of the programme, adding extra slots for both teaching methods and changing current teaching styles. Both didactic lecture and CBL have their own advantages and disadvantages from students' perspective. The fourth-year pharmacy students would prefer CBL than didactic lecture but agreed that combination of teaching methods will enhance their clinical skills. The results from this research can serve as a guide to improve the current curriculum in pharmacy programme and for lecturers to evaluate their current teaching methods.

Keywords: Clinical pharmacy, teaching methods, case-based learning, didactic lecture, focus group discussion

****Corresponding author***

*Dr. Mahmathi Karuppanan
Level 11, FF1 Building, Faculty of Pharmacy,
UiTM Puncak Alam, Bandar Puncak Alam, 42300,
Selangor, Malaysia
mahmathi@uitm.edu.my*

Received 29 Nov 2019; accepted 19 June 2020

Available online: 6 July 2020

1.0 Introduction

Pharmacy education has started to focus on the evolution of pharmacists' role from product-oriented to patient-oriented (1) and it is important that future pharmacists are well trained in clinical skills. Researchers in pharmaceutical education are becoming increasingly concerned on using a variety of teaching methods that may ultimately improve retention of material, as well as enhance students' adaptability in problem-solving situations (2). Schools of pharmacy have been using various teaching methods to impart clinical knowledge to students such as Case Based Learning (CBL) in addition to didactic lecturing for years (3).

Clinical pharmacy is a health science discipline in which pharmacists provide patient care that optimizes medication therapy and promotes health, wellness, and disease prevention (4). Currently, didactic teaching method face challenges in engaging learners and developing their clinical reasoning skills (5). Didactic lecture, which is a traditional teaching method create a passive nature of audience and limit the opportunity of feedback (6). As for CBL, these modern teaching methods required the students to go through the case individually, then collaboratively merge individual perceptions into an improved comprehension of the case through group discussion and finally communicate through a debate with the whole class (6).

The Faculty of Pharmacy, Universiti Teknologi MARA Selangor, Puncak Alam Campus offers its student clinical pharmacy courses in the fourth year of pharmacy programme through didactic lecture and CBL. Current research suggests that understanding a student's learning style is helpful in providing a successful learning experience, no matter what teaching method is utilized (7). However, there are no studies yet in Malaysia that investigates students'

perception on these teaching methods used in clinical pharmacy courses.

Thus, Focus Group Discussion (FGD)s were conducted among 15 fourth year pharmacy students. This approach was hypothesized to provide a clearer evidence for clinical pharmacy lecturers to evaluate their current teaching methods and may also be helpful for the stakeholders in reviewing the curriculum in pharmacy programme. The fourth-year students were expected to share their views on didactic lecture and CBL in clinical pharmacy courses and their preferred method of teaching along with their suggestions to improve the current teaching methods. Thus, this study was designed to assess students' perception on current teaching methods in clinical pharmacy courses and their preferred method of teaching.

2.0 Methods

2.1 Study design

A qualitative approach was chosen for an in-depth discussion on current teaching methods applied in clinical pharmacy courses. FGDs were conducted among fourth year pharmacy students' session 2019/2020 of Universiti Teknologi MARA (UiTM) Selangor, Puncak Alam Campus. This research was approved by Institute of Research Management & Innovation (IRMI), Malaysia 600-IRMI (5/1/6) REC/234/19.

2.2 Sample size

Fourth year pharmacy students were approached to participate in this FGD. Based on convenience sampling, 15 students volunteered to participate. Three FGDs were conducted with five students randomly allocated in each group. Only current fourth year pharmacy students were included in the study. Students repeating or deferred the semester were excluded. Each participant

was labeled using unique code from P1 to P15 and consented to participate in FGDs by filling up the consent form prior to the FGD. Information such as name, age and gender were collected by the researcher during the session but were kept confidential.

2.3 Research Instruments & Data Collection

FGDs were moderated by a same researcher (NN) throughout the three sessions. An independent assistant was appointed to be incharge as time taker and note down important points during the FGDs. The discussion started with an introduction about the research, objectives and significance of the study. Each session of FGD lasted about twenty to thirty minutes. FGDs were guided by 10 semi-structured questions listed in Table 1. Once the objectives of the study have been achieved, the moderator concluded the points at the end of each session. The sessions were audiotaped and transcribed verbatim with the approval of the participants. The written records and audiotapes were reconciled.

2.4 Data analysis

Coding and re-coding of transcriptions of FGDs were conducted by a researcher (NN) to extract themes through thematic analysis. The themes and keywords identified were checked and verified by 2 researchers (MK and SG).

3.0 Results

Three separate FGDs sessions were held in April 2019 with five respondents in each. All the students were between the ages of 22 and 24. There were 8 female and 7 male participants.

Table 1: Semi-structured Questions

1.	What are the teaching methods currently used in clinical pharmacy courses?
2.	Which current teaching method(s) do you prefer?
3.	What do you like about traditional lecture for clinical pharmacy courses?
4.	What do you dislike about traditional lecture for clinical pharmacy courses?
5.	Do you think traditional teaching is still needed for clinical pharmacy courses?
6.	What are your suggestions to improve traditional lecture in clinical pharmacy courses?
7.	What do you like about CBL for clinical pharmacy courses?
8.	What do you dislike about CBL for clinical pharmacy courses?
9.	Do you think CBL is still needed for clinical pharmacy courses?
10.	What are your suggestions to improve CBL in clinical pharmacy courses?

From the FGDs, we identified four themes relating to the perceptions of students on the current teaching methods in clinical pharmacy courses: beneficial for clinical skills, exposure to real practice, elevated confidence level and pitfalls of current learning structure. An additional theme, suggestion by students on clinical pharmacy courses, has also been identified from the data; which was a need for early exposure to clinical pharmacy.

3.1 Beneficial for clinical skills

Table 2 highlights the benefits students perceived on current teaching methods in clinical pharmacy courses. The students mentioned that both didactic lecture and CBL

were beneficial in learning clinical skills. Through didactic lecture, the students gain a better understanding on the current topic especially when the lecturers share their clinical experiences along with the topic. Students agreed that the contents for didactic lecture have been well prepared in simplified manner and they are able to understand which area needs more focus. As for CBL, the students shared that the cases provided for CBL train them to understand the management of certain medical conditions thoroughly. Through case discussions, students are able to apply their clinical knowledge. A student (P12) agreed that didactic lecture on clinical topics alone was insufficient thus CBL will be an added advantage.

3.2 Exposure to real practice

The students agreed that preparing for CBL was challenging as they need to find extra information to solve questions thus allowing them to gain more knowledge (Table 2). Throughout CBL session, students were required to evaluate and review patient histories, drug management, therapeutic drug monitoring, drug-related problems and patient counselling. Various disease management were covered such as cardiovascular diseases, infectious diseases, cancer, gastrointestinal diseases and more. These preliminary preparations during the CBL seems to be helpful in preparing themselves for hospital clinical attachment.

3.3 Elevated confidence level

Currently, CBLs are being conducted as group work and with presentation from each group for 2 hours duration. At the end of the presentation, there will be questions and answer session. Students agreed that by participating in CBL they were able to enhance their communication skills which also elevated their confidence level (Table 2).

3.4 Pitfalls of current learning structure

This theme represents students' view on current teaching methods in clinical pharmacy courses (Table 3).

3.4.1 Breaks

Students commented about insufficient break time during didactic lectured as some of lectures were too lengthy. They claimed it was hard for them to stay focus during the lecture for a straight 2 hours. Usually a 5-minute break is given in between the lecture, and students expressed that it was too short thus suggested for a longer break time at least 10 minutes. They also agree that a short break every 1 hour of class is important so that they can give better attention during the traditional didactic lecture.

3.4.2 Time constriction

Students, during the normal semester, have classes from 8 am to 5 pm for 5 days a week including laboratory and practicals. Each class are conducted for 1-2 hours and usually there will be about 5 classes in a day.

Students claimed that the topics covered in didactic lectures were sometimes too heavy and compressed into 2 hours. Two students (P4 and P9) shared their suggestions regarding this issue:

4: *"We be like, how many slides more left... I think whoever arranged the schedules should consider the amount of lecture has to deliver...so that it's not compressed into one lecture. Maybe, do an extra slot for the lecturers to continue the lecture"*

P9: *"...add more lecture slots so that the lecturers do need to compress the session"*

Rather than compressing few topics in two hours, it was suggested that more lecture

Table 2: Analysis matrix – Benefits of didactic lecture and CBL in clinical pharmacy courses

Traditional lecture is needed	P9: "... lecturers give tips at the end of class. It's a loss to whoever skip the class. When they share their experiences, its easier to understand and we can relate to the topic." P13: "...lecturers already simplified the knowledge. For example, Dr XX during lecture teaches us more on how to manage diseases with real care plan management practice in Malaysia." P15: "... during lectures we can differentiate (the content) which is important..."
CBL is a good training to enhance students' clinical knowledge	P5: "... through CBL we can understand more on how to manage the diseases...." P11: "...during CBL we can apply the knowledge" P12: "... we understand clinical pharmacy more when we participate in the CBL"
CBL was challenging but prepares the students for their clinical attachment in the hospital	P11: "... we can challenge our knowledge when completing the clinical part.... we also can get ready to do clinical cases at the hospital soon" P14: "...CBL makes us to find extra information so that we can learn more and gain more" P8: "CBL sort of forces students to read more.... We need to know suitable choices of drugs for patients in case discussions"
Elevated the confidence level	P13: "...CBL is good because we can enhance communication skills, and know how to deliver information correctly and confidently"

time is given to wider topics. However, before the semester starts the timetable and course plans are usually discussed and changes will be made accordingly. It was also a practice that the timetable is being monitored all the time throughout the semester.

All FGDs also discussed about the duration of CBL session. From the discussions, it was found that two hours CBL sessions was not enough for students to achieve maximum clinical understanding. They also felt that the CBL was rushed especially when there is a class after the CBL session. The suggestion such as change the CBL timetable to evening session was made by a student.

3.5 Suggestion to start clinical pharmacy course during third year

An additional theme was obtained from FGD where the students suggested clinical pharmacy should be introduced during the third year of the programme instead of fourth year (Table 3), so that students can be exposed to clinical management and trained to find for reliable information much earlier. The students agreed that they only started to seek reliable references during fourth year when the clinical pharmacy courses were started and evidence-based information was emphasized.

Table 3: Analysis matrix – pitfalls of current learning structure for didactic lecture and CBL in clinical pharmacy courses

Pitfalls of current learning structure – break time, time constriction	<p><u>Didactic lecture</u></p> <p>P1: “..break time of 5 minutes is too short”</p> <p>P9: “...some lecturers do not provide break time. It is too much for students to absorb input for straight 2 hours”</p> <p>P5: “Some lecturers teach two to three chapters in 2 hours. It is too much.”</p> <p>P14: “Some lecturers cram too many lectures in one session, for example 2 hours, the lecturers speed up to finish the lectures. So, it is too compressed.”</p>
	<p><u>CBL</u></p> <p>P3: “I like CBL that do not have specific time...there are so many things to discuss...if there is time limit, we need to present it in a rush and classmates end up do not understand the presentation”</p> <p>P2: “Sometimes there are lecturers that drag (CBL session), sometimes there are lecturers that follow the timing and some who finish it early”</p>
Clinical pharmacy to be introduced during the third year so that students are exposed to evidence-based information earlier	<p>P5: “...we only start using the clinical guidelines in fourth year.... in the third year, we are still relying on the Internet and books, unsure if the information is reliable...if clinical pharmacy courses were exposed earlier to students, it is better”</p> <p>P1: “For CBL presentation, it is better to have an earlier exposure on how to search for reliable sources”</p>

4.0 Discussion

The introduction of patient-care practices in clinical pharmacy has dramatically changed the ways students learn. Almeman and Alberish (8) suggested that each pharmacy schools should invest in one or more of teaching methods and examine the best application for their students. The combination of few teaching methods such as didactic lecture and CBL have been in practice in Faculty of Pharmacy in UiTM for more than 10 years. CBL is common in pharmacy education (9). It has been

implemented as an adjunct to lectures to strengthen traditional teaching methods through active learning as CBL stimulates the desire to learn and develop clinical reasoning (10).

The primary goal of these FGDs was to investigate students’ perception on current teaching methods in clinical pharmacy courses. Students have shared both positive and negative views on the current teaching methods with additional suggestions to improve.

Overall, students preferred CBL over didactic lecture, but agreed that a

combination of teaching methods were crucial to develop their clinical skills better. A study from Ma et al (11) compared CBL and Lecture Based Learning (LBL) in clinical laboratory courses and found that CBL was the most effective teaching method as compared to LBL. Majority of the students in the CBL group agreed that CBL improved their learning and clinical problem-solving skills, provided them with better understanding and prepared them for examinations (11). A study from Kireete and Shankar (12) concluded that CBL method developed interest in the students to learn new things. Learning and remembering the subject is much easier when they are linked with real life patient cases (12). Similar opinion was given by the students in this study. Another advantage of CBL is deeper learning (7). Students shared the degree of creativity, challenge, interest and enjoyment they gained through the case-study method (8). Thistlethwaite et al (9) reported that majority of students' feedbacks in relation to their CBL experiences was very positive and one of the common words used to describe the students' opinion was: *challenged*.

In line with our findings, a study from Tayem (13) stated that student's participation in small group discussions can improve their teamwork and communication skills. This was also supported by a study conducted by Ciraj (14) whereas the results showed CBL sessions would enhance students' analytic, collaborative and communication skills. Students in this study agreed that while preparing for case discussions their confidence level was elevated and communication skills were enhanced through oral presentation.

Both didactic lecture and CBL however may require changes in the structures but this definitely depends on the logistics and management of the faculty. Students felt that they received insufficient break time during didactic lecture, the lecture slot was too

compressed and the CBL scheduling was inappropriate. A study from Bonwell (10) suggested that one of the ways to incorporate active learning into the classroom was pausing in lectures to allow students to consolidate their notes. Kidd *et al.* (11) mentioned that one of the requirement for a CBL sequence is the appropriate time schedule for the faculty to facilitate the cases. However, there are several barriers which include faculty resistance, class time availability, class size, inadequate materials and equipment, and teacher preparation time (10). Future studies could further investigate on these matters.

Another point suggested by the students were to have early exposure of clinical pharmacy courses. Faculty of Pharmacy in UiTM offered clinical pharmacy courses during the fourth year of programme. However, the students suggested that these courses are offered in third year. Alex Barker (19) shared in Pharmacy Times that year one, two and three in pharmacy programme were spent memorizing material and having fun in between. A study in Saudi Arabia (20) also mentioned that most of the students claimed training in the hospital pharmacy was not enough and only 34.4% of them felt they had enough knowledge and skills to work in the hospital after graduation. Thus, exposing students to clinical pharmacy courses in third year would benefit students as they can enhance their clinical skills earlier and prepare themselves for hospital clinical attachment.

5.0 Limitations

Students' perception could be affected by educational background, current Cumulative Grade Point Average (CGPA) and their interest in clinical field. However, this information was not collected as to make the participants to not feel being judged and participate in FGD with comfort. The

convenience sampling of students' population may lead into biasness. The data may not reflect the fourth-year pharmacy students' population and may affect the final outcomes. However, findings from qualitative studies are usually not generalisable. We also did not have data to accurately measure the students' level of knowledge and skill to determine potential impact of didactic lecture and CBL in their studies as this not the aim for the study. Apart from didactic lecture and CBL, the other teaching methods used in clinical pharmacy courses such as hospital attachment was not discussed because at the time of the study students were not exposed to hospital attachment yet, thus perception of students on hospital attachment was not possible.

6.0 Conclusions

This study identified several positive views of current teaching methods used in clinical pharmacy courses including beneficial for clinical skills, exposure to real practice and elevated confidence level. Students shared that they have gained better understanding in clinical theories and skills through both teaching methods. As for CBL, the clinical cases had challenged students to find extra information to solve the case and this teaching method was regarded as elevating students' confidence level. Other issues identified in this study was pitfalls of current teaching methods. Students shared their views on the breaks and time constriction of teaching methods as they claimed they had insufficient time break for didactic lecture, didactic lecture was too compressed and insufficient CBL and didactic lecture slots. Students also suggested to introduce clinical pharmacy courses in third year, add more CBL sessions and lecture slots. The findings from this study could serve as a guide to improve the current curriculum and teaching method in the pharmacy programme. Whilst

it was conducted in a smaller number of participants, it opens the opportunity for larger studies using descriptive observational methods.

Conflict of interest

Authors declare no conflict of interest in the present work.

References

1. Fakeye TO, Adisa R, Erhun WO. Developing a model for teaching and learning clinical pharmacy components of the pharmacy curriculum in Nigeria. *Pharm Edu.* 2017;17(1):60–6.
2. Vaughn L, Baker R. Teaching in the medical setting: Balancing teaching styles, learning styles and teaching methods. *Med Teach.* 2001;23(6):610–2.
3. Seybert AL, Barton CM. Simulation-based learning to teach blood pressure assessment to doctor of pharmacy students. *Am J Pharm Educ.* 2007;71(3):3–8.
4. American College of Clinical Pharmacy. The definition of clinical pharmacy. *Pharmacotherapy.* 2008;28(6):816–7.
5. Baumann-Birkbeck L, Florentina F, Karatas O, Sun J, Tang T, Thaug V, et al. Appraising the role of the virtual patient for therapeutics health education. *Currents in Pharmacy Teaching & Learning.* 2017 Sep;9(5):934–44.
6. Osinubi A. A Paradigm Shift in Medical, Dental, Nursing, Physiotherapy and Pharmacy Education: From Traditional Method of Teaching to Case-Based Method of Learning- A Review. *Ann Res Rev Biol.* 2014;4(13):2053–72.
7. Brown B. Learning styles and vocational education practice, practice application brief, ERIC Clearinghouse on Adult, Career, and Vocational Education, Ohio, ERIC Document Reproduction Service ED 422 478. 1998.
8. Almeman AA, and Saleh AA. "Chapter 10: Teaching Strategies Used in Pharmacy." *Pharmacy Education Twenty First Century Beyond*, Academic Press, 2018; 125–42.

9. Thomas D. Clinical pharmacy education, practice and research: clinical pharmacy, drug information, pharmacovigilance, pharmacoconomics and clinical research, Elsevier, 2018.
10. Diwan JS, Sanghavi SJ, Shah CJ, Shah AM. Comparison of case-based learning and traditional lectures in physiology among first year undergraduate medical students. *Natl J Physiol Pharm Pharmacol.* 2017;7(7):744–8.
11. Ma X, Luo Y, Wang J, Zhang L, Liang Y, Wu Y, et al. Comparison of student perception and performance between case-based learning and lecture-based learning in a clinical laboratory immunology course. *J Lab Med.* 2016;40(4):283–9.
12. Kireeti AS, Reddy Shankar D. Case based learning (CBL), a better option to traditional teaching for undergraduate students in curriculum of Paediatrics. *Asian J Biomed Pharm Sci.* 2015;5(45):39-41.
13. Tayem YI. The Impact of Small Group Case-based Learning on Traditional Pharmacology Teaching. *Sultan Qaboos Univ Med J.* 2013;13(1):115-20.
14. Ciraj AM, Vinod P, Ramnarayan K. Enhancing active learning in microbiology through case based learning: experiences from an Indian medical school. *Indian J Pathol Microbiol.* 2010;53(4):729-33.
15. McLean SF. Case-Based Learning and its Application in Medical and Health-Care Fields: A Review of Worldwide Literature. *J Med Educ Curric Dev.* 2016;3:JMECD.S20377.
16. Thistlethwaite JE, Davies D, Ekeocha S, et al. The effectiveness of case-based learning in health professional education. A BEME systematic review: BEME Guide No. 23. *Med Teach.* 2012;34(6):e421-e444.
17. Bonwell, CC, Eison, JA. (1991) Active learning: creating excitement in the classroom. ERIC Digest, Available at <http://www.ericdigests.org/1992/active.htm>. (accessed June 2019)
18. Kidd RS, Johnson MS, Smith DL, Robinson ET, Newton DW. An incremental approach to incorporating case-based learning into pharmacy curricula. *Pharm Educ.* 2003;3:17–28.
19. Barker, Alex. “6 Things I Wish I Knew When I Was in Pharmacy School.” *Pharmacy Times*, 9 Dec. 2016, www.pharmacytimes.com/contributor/alex-barker-pharmd/2016/12/6-things-i-wish-i-knew-when-i-was-in-pharmacy-school. (accessed June 2019).
20. Bin Saleh G, Rezk NL, Laika L, Ali A, El-Metwally A. Pharmacist, the pharmaceutical industry and pharmacy education in Saudi Arabia: A questionnaire-based study. *Saudi Pharm J.* 2015;23(5):573-80.