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Current and former students' views on two different methods of classroom-based teaching in pharmaceutical care: University of Namibia

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Abstract

Background: Namibia is divided into 34 districts, each with a public hospital supplemented by a number of primary health care facilities. These hospitals shoulder the responsibility of ordering and distributing pharmaceuticals for the district as a whole. As the number of pharmacists in the public sector is quite low, staff often get engrossed in supply chain issues on the expense of pharmaceutical care. Namibia, cognisant of this challenge, established the School of Pharmacy, with one of the goals being to equip the students with knowledge and skills in the area of pharmaceutical care. So far two groups have gone through pharmaceutical care training: the 2014 and 2015 BPharm IVs. The 2014 group received classroom-based training through conventional didactic sessions, while the 2015 group was trained via case-discussions. The two groups were asked to comment on which of the two training methods was better for pharmaceutical care training.

Methods: We summarised the methods of classroom-based training as implemented in 2014 and 2015. We used a Focus Group Discussion with the 2015 group and telephonic discussion with individuals of the 2014 group. Individuals from both groups were asked if they would pursue a career in hospital-based clinical pharmacy. We used the Student's T test to compare the proportions of students who reported wanting to pursue a career in clinical pharmacy, with the confidence level set at 95%, and the significance observed at a p-value ≤ 0.05.

Results: Summaries of the two methods were generated and used to explain the two methods to the respondents. All the respondents (n=9, 2015 group; n=10, 2014 group) said that the case discussion method was better than the conventional didactic sessions. The majority of the respondents (n=8, 89%) from the 2015 group said they would pursue a career in clinical pharmacy.

Conclusion: The case-discussions seem to be a better method for classroom-based training, when compared with the conventional didactic sessions. Even though the proportion of students considering building a career in clinical pharmacy was greater in the Class of 2015 than that in Class of 2014, we cannot conclude that the new method of training was the reason that underscored the difference. A more in-depth assessment is required to provide clarity on the relationship between the module delivery method and pursuing a career in clinical pharmacy.

Keywords: *Clinical Pharmacy, Pharmaceutical Care, Case-Discussions, Didactic Sessions*

Background

Namibia is a country in sub-Saharan Africa with a population of approximately 2.1 million (Namibia Statistics Agency 2014). The country is divided into 34 districts, each with a public hospital, and a number of primary health care facilities. The district hospital pharmacies shoulder the responsibility of processing orders and distribution of pharmaceuticals for themselves, and the respective primary health care facilities. Unfortunately, the public health facilities suffer paucity in the human resource with advanced training in pharmaceutical management and care – that is, the pharmacist. As a result, the few pharmacists in this sector expend massive effort on medicine supply issues, at the expense of pharmaceutical care (Nicole *et al*., 2015).

Pharmaceutical care is a critical component of patient care, and it is the pharmacist's mission to ensure that it is provided (American Society of Health-System Pharmacists [ASHP], 1993). The ASHP defines pharmaceutical care as the direct, responsible provision of medication-related care for the purpose of achieving definite outcomes that improve a patient's quality of life (ASHP, 1993). The World Health Organisation's (WHO) consultative group on the role of the pharmacist is in agreement with ASHP's statement on pharmaceutical care by spelling out the activities of the pharmacist dedicated

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to direct patient care (WHO Consultative Group, 1994). The scarcity of pharmacists has not hindered medicine-based therapy; however, the use of medicines under such circumstances can culminate in medicine use problems (Godoi Rezende *et al*., 2014).

The need for pharmaceutical care services in Namibia is increasingly indicated by, but not limited to, the rapidly increasing numbers of patients receiving life-long antiretroviral therapy (Ministry of Health and Social Services [MoHSS], 2013a), and by the increasing incidence of non-communicable diseases. Patients infected with the human immunodeficiency virus are not excluded from the latter (MoHSS, 2013b). In recognition of these and other public health challenges, Namibia established the School of Pharmacy at the University of Namibia (UNAM) in 2011, which offers a four-year long Bachelor of Pharmacy (BPharm) honours degree. The BPharm degree is designed to, amongst others, equip the students with the relevant knowledge and skills to effectively provide pharmaceutical care.

During the third year of the course, students are introduced to three clinical modules: Systems Pharmacology, Chemotherapy (Pharmacology of anti-infective and anticancer medicines), and Pathophysiology & Pharmacotherapy-I (PP-I). What these modules have in common is that each has aspects of pathophysiology, diagnosis, and monitoring disease progression or response to drug therapy, at variable degrees. For instance, during the implementation of systems pharmacology and chemotherapy, the students are trained on the molecular and physiological bases of pathologic processes that underlie specific diseases. Through this, a foundation for the informed selection of medicines for therapy is established. During the implementation of PP-I, the students are introduced to pharmaceutical care, founded on the Subjective-Objective-Assessment-Plan (SOAP) approach (Koda-Kimble, 2009). During the implementation of PP-I, the students are initiated in the interviewing of patients (subjective evidence); they are introduced to diagnostic equipment, laboratory investigations, and the interpretation of the findings thereof (objective evidence); they are guided to co-relate the subjective with objective evidences so as to understand the patient's health problems and to be able to document or present the clinical status of the patient (Assessment); and finally, they are informed on how the assessment results feed into the design of appropriate interventions (Plan).

In the fourth year, the sole clinical module is Pathophysiology and Pharmacotherapy II (PP-II), during which students receive classroom-, and hospital- based training where they directly interact with 'hypothetical' and real patients, respectively. Having perceived the difficulty in transition of the acquired knowledge from PP-II to patient care, we modified the way the class-based education was implemented: from didactic sessions (mainly one way information sharing) to case discussions.

In this paper we give a summary of the modification we made to the classroom-based training in pharmaceutical care; the views of current and former students' on the new method of classroom-based training in comparison with the old method; and the students' standpoint towards pursuing a career in hospital-based clinical pharmacy.

Objectives

The objectives of this activity were:

Primary objectives

- To document how the classroom-based training of PP-II was implemented in 2015 and 2014
- To determine the views of the BPharm IV students (classes of 2015 and 2014) towards the case-discussion method as a means of class-room based training on pharmaceutical care
- To reveal, from the students viewpoint, what needed to be done to improve knowledge acquisition from the PP-II sessions.

Secondary objective

- Determine if there was a difference in the proportion of students who desired to pursue a career in clinical pharmacy between the two groups: Class of 2015 and Class of 2014.

Ethics

We informed the leadership of the School of Pharmacy of the activity we intended to carry out and we were given approval. The respondents gave consent.

Methods

We summarised the methods of classroom-based training as implemented in 2014 and 2015. We had a focus group discussion with the 2015 group of BPharm IV students, during which we presented the two classroom-based training methods. We asked each student to express which method he/she perceived to be better and to give an explanation as to why he/she preferred that method. This group of students was asked to state what they thought needed to be done to improve knowledge acquisition from the PP-II sessions. During a telephone interview with individuals of the 2014 group of BPharm IV students we explained the two methods, and asked each one to explain why he/she preferred a specific method. Individuals from both groups were asked if they would pursue a career in hospital-based clinical pharmacy. We calculated the percentage of students who reported to want to pursue a career in hospital-based clinical pharmacy for the two groups, and used the Student's *t*-test to compare these proportions for statistical significance, with the confidence level set at 95%, and the significance observed at a p-value ≤ 0.05.

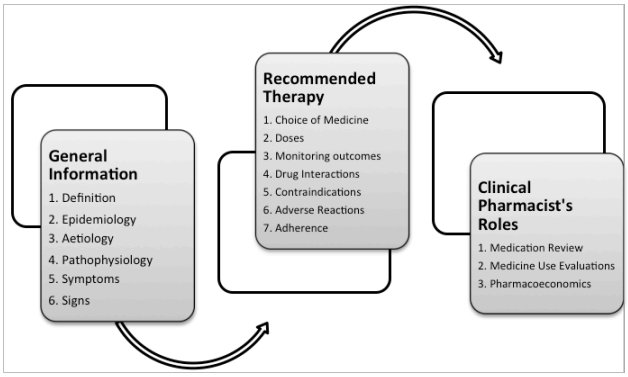
Results

Module Summaries

PP-II Implementation in 2014

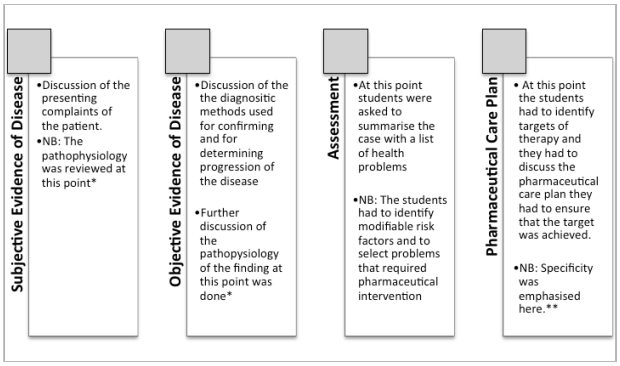
PP-II was first taught in 2014 to our first-ever finalists. The classroom-based training was given through power-point presentations (PPT), with minimal referral to patient cases. The lectures always started with general information about a disease condition, followed by the recommended therapy, and were always concluded with a general reminder of what the roles of the clinical pharmacist are. The general architecture of the sessions is shown in Figure 1.

Figure 1: The structure of the lecture in PP-II in 2014



The lectures were delivered without inclusion of a hypothetical or real case. Students were meant to transfer the information given in class to a patient case.

Figure 2: The case discussion process in 2015



*Any gaps in knowledge of the pathophysiology and diagnostic investigations were covered through the discussion, and many times a student provided an explanation that sealed the knowledge gap in another student.

**Using an asthmatic patient as an example here, students were discouraged from saying that they would ensure that the asthmatic patient got the right medicines, or to ensure that the therapeutic goal was achieved. Rather students were encouraged to be more specific. For example: they would ensure that the patient received the right beta-2 agonist inhaler. Another acceptable response was that they would monitor/follow-up the patient to assess incidences of breathlessness or night time awakenings.

PP-II Implementation in 2015

The classroom-based training in 2015 was case-discussions. Many of the cases that the lecturer used are available in the clinical pharmacy text book entitled 'Drugs-in-Use' (Dodds, 2010). In addition to the questions in Drugs-in-Use, the lecturer designed extra questions purposefully to guide the discussion via the SOAP framework, while ensuring that interactive learning was achieved. Also, the extra questions required the students to retrieve information that they had acquired during the previous year(s). Figure 2 summarises how the discussions were held.

Students' Responses

Frequency

There were 19 respondents in total: 9/9 (100%) of the 2015 group and 10/14 (71.4%) of the 2014 group.

Response on Method of Implementation of PP-II

All the 19 respondents said that case discussions were preferable to the former method of training. Below are excerpts from their responses.

Current BPharm IV students

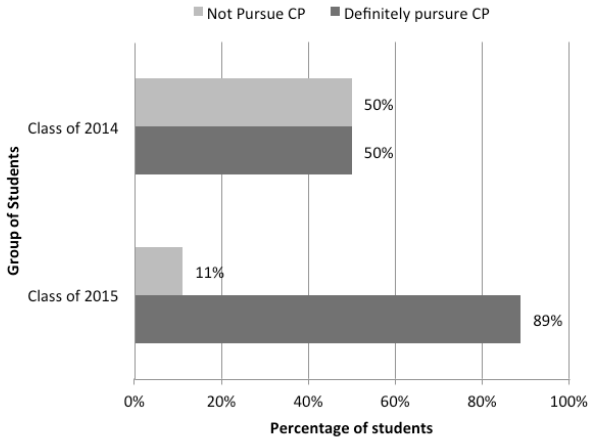
- "…saves time by avoiding the redoing of pathophysiology, which was covered under pharmacology"
- "…allows us to apply the pharmacology we learnt. It builds confidence in us that we indeed learnt our pharmacology"
- "the case discussion leaves one confident that one can treat a disease, e.g. I am confident that I can treat hypertension"
- "the case discussions encourage us to be actively involved in the learning process rather than passively listen to the lecturer"
- "…helps us to have a holistic approach to the patient by looking at various health problems the patient has rather than being fixed on one particular disease condition"
- "…reduces the workload for the lecturers, who then become more effective. Also it reduces workload on the students, because it specifies what we need to learn about the management of a disease rather than learning all the medicines that can be used to treat the disease"

Former BPharm IV students

- "The module is bulky! When you have too many notes and too much information, you tend to forget…, but when you study cases and you meet them again during clinical rotations, you can retrieve the information that you gathered during the classroom based teaching. The case-based approach is better."
- "Case discussions are useful. Sometimes during the power-point presentations in class, one's mind wanders. However, the cases would capture ones attention."
- "The use of case discussions guided by the SOAP approach helps one to gain more knowledge to be applied during practice"
- "Case discussions help to reveal a broad range of information that would otherwise be left out during the lecture"
- "Case discussions help one to remember a lot…"

Responses on Future career in hospital-based clinical pharmacy

Figure 3: Response on pursuing a career in clinical pharmacy



The proportion of students who reported wanting to pursue a career in clinical pharmacy was greater in the 2015 group than the proportion in the 2014 group (95% CI: 88.9% [57.7 – 120.1] vs. 50% [18.8-81.2]; p=0.028).

Responses on Improvement of Training on PP-II

The students said that they needed more assignments, amongst which cases should be included, instead of general topics about diseases. In regards to assessment, they said that viva-voce should be included, believing that this would expose areas that needed one's improvement, and that viva-voce would boost their confidence even more. They categorized group-quizzes as an inappropriate method of assessment, because participatory levels in the groups varied from one student to another. They recommended that the cases to be discussed should be emailed to the students some days prior to the discussion date, as this would point the discussion to the areas they found difficult.

Discussion

Both groups – 2015 and 2014 – groups received the same training in Year III, but the difference in pharmaceutical care training occurred in their fourth years. The classroom-based teaching was meant to be an introduction to pharmaceutical care practice where the students were meant to apply the knowledge acquired in class to real patient cases. The 2014 group of students found it difficult to apply the knowledge they had on real patient cases. Moreover, the bulkiness of the material that the 2014 students had to revise in preparation for the clinical placement made it difficult for them. It may be that the didactic sessions on pharmaceutical care never prepared the students to handle clinical cases. One of the limitations of the didactic sessions is that they are disease specific. All signs and symptoms, laboratory investigations and other objective evidences, and therapy are related to that one condition. The cases to which the students were exposed during the clinical placement were often more complicated than what was studied in class. With the limited timeframe for the placements, the students met various grades of diseases, different types of investigations, different levels of treatments, including co-existing diseases. The student may then perceive the implementation of pharmaceutical care as an uphill task. However, it is not possible to conclude that the gap in application between the didactic sessions and the real cases provide an explanation for the lower number of students wanting to pursue a career in clinical pharmacy. It may be that the exposure to complicated cases, at the beginning of clinical placements, with an existing gap between the didactic session and real cases contributed to the lesser number of students in the 2014 group who reported wanting to pursue a career in clinical pharmacy. Also, the 2014 class was interviewed half-way through their internship. Perhaps something during the internship impacted their perspectives.

Having been introduced to case management through case-discussions, the 2015 BPharm IV students seemed to find it easier to apply the acquired pharmaceutical care knowledge to real patient cases. This group also met complicated cases, but they had met similar cases during the discussions in class. Based on the reports they gave about the case-discussions, in comparison with the didactic sessions; also based on the fact that they too met complicated real cases; it is possible that the case

discussion method may have given them a better view of what pharmaceutical care is about, and that it is not that complicated.

The case-based approach enables the students to apply the knowledge they acquired in the previous year to solve health problems the patient presents with. Therefore the initial clinical modules must provide a firm clinical foundation. The key strengths of the new method of implementation of PP-II are the sustenance of the students' concentration throughout the discussion, and the boosting of memory of critical information required for the provision of pharmaceutical care. Since the two groups agreed that case discussions were better, it is critical that the new method is continued and strengthened. More rigorous assessment methods need to be investigated.

Whether the case-discussion method of classroom-based teaching of pharmaceutical care will work just as well with larger classes is unknown. The class of 2015 BPharm IV is made up of nine students, which made it possible for all students to be involved in the discussion. The upcoming classes are significantly larger than this – the 2016 class is likely to be about four times as large as the 2015 class. Nevertheless, we are pondering the best way to carry-on with the new method of classroom based training of pharmaceutical care.

Limitations

Two different methods of information gathering were used to get information from the two groups: focus group discussion for one, and telephonic dialogue for another. It is possible that the information gathered may have been different from what we would have gathered if one method had been used. Nevertheless, the freedom of expression was assured, and we believe that the information is representative of the reality.

Conclusion

The case-discussions seem to be a better method for classroom-based training, when compared with the conventional didactic sessions. Even though the proportion of students considering building a career in clinical pharmacy was greater in the Class of 2015 than that in Class of 2014, we cannot conclude that the new method of training was the reason that underscored the difference. Other factors such as the lack of clinical pharmacy jobs in the staff establishment of the Ministry of Health and Social Services could have influenced the response from the former students, who at the time of this assessment were intern pharmacists. A more in-depth assessment is required to provide clarity on the relationship between the module delivery method and pursuing a career in clinical pharmacy.

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