INTEGRATING PHARMACY PRACTICE INTO FIRST YEAR PHARMD CURRICULUM

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INTRODUCTION

Since 2007, Pharmacy Practice has been included in the Libyan International Medical University (LIMU) curriculum for 4th Year Pharmacy students. In 2016, with LIMU transition to its first professional Pharmacy degree; Doctor of Pharmacy, curricular and program changes are underway [1-3]. Consequently, Pharmacy Practice curriculum was integrated into the first year PharmD Block II Problem-Based Learning (PBL) curriculum, noting that compounded formulations, e.g. syrups, elixirs, suspensions and emulsions have been integrated into another Block in the curriculum.

OBJECTIVES

To describe the integrated Pharmacy Practice disciplines into first year PharmD curriculum. explain the unique features of integrated disciplines and highlight the impact of integrating these disciplines as evidenced by students and instructors evaluation.

DESIGN

First year PharmD integrated Block II curriculum design and implementation were based on delivery through PBL and active learning sessions, with most of the Block objectives to be achieved by students' self-learning.
The disciplines; Pharmaceutical Calculations, Extemporaneous Compounding, Prescription Processing and Effective Communication were integrated into Block II that is also containing Calculus, Physics and Physical Pharmacy. Block II entitled "General Dispensing" was delivered to first year PharmD students in a total period of 8 weeks.
Noting that students were also exposed to Clinical Skills Training and Pharmacy Practice Lab and a two hour session of community training. Integrated Block II disciplines' contents are summarized in Table 1.
Curriculum implementation was done under the direct supervision of the Block instructors, Faculty of Pharmacy curriculum development committee and LIMU Vice President for Learning Affairs.
Students' progress through self-paced learning activities, lab activities, weekly seminars, PBL activities, discussions, tutorials, presentations, reports and assignments, was followed and scored.
Students' and instructors' opinions regarding quality of learning and teaching methods, quality of assessment methods, quality of Block contents, instructors' performance and students behavior and interest were all evaluated using 5-point Likert scale.

RESULTS AND DISCUSSION

Integrated courses allowed students to master and apply basic concepts of Pharmaceutical Calculations, Extemporaneous Compounding and patient counseling techniques in an integrative effective manner as presented by students' scores.
Students were able to observe, practice, search, analyse, solve, demonstrate, and report important concepts and bridging Pharmaceutics and Pharmacy Practice as an example of horizontal curricular integration and bridging foundational sciences and patient care as an example of vertical integration in the first year of the PharmD program.
Students and instructors overall mean evaluation of Block II are summarized in Tables 2 and 3 respectively.

Table 1. Integrated disciplines

DISCIPLINE	TOTAL HOURS	CONTENTS
Calculus	12	• Functions, Derivatives, differentiation and integration methods and rules. • Differential equations in Pharmacy: basic properties, vector fields, initial value problems. • Autonomus systems and linear equations.
Physics	12	• Radioactivity • Nuclear Medicine • Lenses, mirrors & imaging devices • Gravity, density & surface tension
Physical Pharmacy	12	• Stability of dosage forms • Shelf-life of products • Particle size reduction & analysis • Flow properties & flowability • Mixing techniques • Dispersed systems
Pharmaceutical calculations	12	• Fractions & ratios conversions • Master formula concept • Reduce & enlarge formula • Household measures & Apothecaries' system • Unit of activity and standardised measures of potency • Dose & dosage regimen • Patient compliance
Extemporaneous compounding	8	• Formulations using metric quantities and proportions • Latin terms and abbreviation in the prescription and medication order • Powders for oral solutions, suspensions and for parenteral use • Prefabricated dosage forms • Capsule filling and suppository preparations
Effective Communication	6	• Effective listening • Self-assertiveness • Conflict resolution • Effective patient communication • Elements of verbal & non-verbal communication • Barriers to communication with patient • Communication with special cases
Clinical Skills Lab	8	• Prescription processing • Patient counseling process • Vital signs • Hand washing & suturing techniques

Table 2. Block II evaluation by students

ITEM	OVERALL MEAN
Quality of Block contents	3.48
Quality of learning & teaching methods	3.85
Quality of assessment methods	2.62
Instructors' performance	3.55

Table 3. Block II evaluation by instructors

ITEM	OVERALL MEAN
Quality of learning resources	4.22
Quality of learning & teaching methods	4.47
Quality of assessment methods	4.23
Student behavior and interest	3.92

CONCLUSION

Both students and instructors positively evaluated their first experience of implementing an integrated approach to learning. This was reflected in students' scores as well as students and instructors responses to the Block evaluation. Students realized the value of basic science instruction as essential foundation of pharmacy education to prepare students to contemporary pharmacy practice. Students started exhibiting leadership abilities and became problem-solvers and self-learners.

REFERENCES

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