Students' Perceived Counseling Behavior and Feedback on a University-led Patient Medication Counseling Program Implemented in a Tertiary Government Hospital

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ABSTRACT

Background and Objectives. Pharmacists are in a unique position to provide important medication information, prevent errors, and help improve patient outcomes. Patient medication counseling (PMC) is integral in medication therapy management of pharmacists. Students perceive PMC as an important step in ensuring the most appropriate pharmacotherapy for the patients and as an essential component of drug management. The objective of the study is to describe the students' perceptions on a university-led patient medication counseling program implemented in a patient medication counseling course.

Methods. The study employs a qualitative study design with a total population sampling of forty-two (42) Clin Pharm 176 BS Pharmacy students in a College of Pharmacy. A self-evaluation adapted from the United States Pharmacopeia medication counseling behavior guidelines (USP-MCBG) scale was performed which has with four components: needs assessment, precautions and warnings, management of the treatment, and communication. A synthesis session was conducted utilizing a semi-structured questionnaire. The data was analyzed using measures of central tendency and thematic analysis.

Results. Forty-two (42) students answered the USP-MCBG scale and participated in the synthesis session. Participants rated highest in communication (88.81 ± 8.78) and lowest in treatment management (79.49 ± 12.90) which suggests that the students were better equipped in displaying effective nonverbal behaviors and using appropriate language but were least confident in developing and managing treatment plans. There were five main domains on how the students evaluated the course and the PMC program which include pre-counseling session requirements, challenges in patient interaction, interprofessional collaboration, professional outlook, and program recommendations.

Conclusion. A university-led PMC program is effective in providing training for student pharmacists to identify and provide recommendations on medication therapy problems, and to practice interprofessional collaboration. It is recommended to continue the student training in the PMC program and to integrate this in the student internship program to evaluate the skills development of students during their clinical rotations.

Keywords: patient medication counseling, USP medication counseling behavior guidelines scale, pharmacy students

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INTRODUCTION

Background

Pharmacists have expanded their role as medication experts who provide patient-centered care. Community pharmacists are widely recognized as the first point of contact of patients to healthcare professionals, while hospital pharmacists who have clinical roles have the capacity to assess and address medication therapy problems of patients during and after hospitalization.[1,2] Thus, pharmacists are in a unique position to provide important medication information, prevent medication errors and near misses, and ultimately contribute to improving patient outcomes.[2,3]

Patient Medication Counseling

Patient medication counseling (PMC) is an integral part of our current healthcare system, especially in medication therapy management. According to the American Society of Health System Pharmacists (ASHP), patient counseling is described as the provision of verbal or written information on medications to the patient or their caregiver. This may include information on the medication name, use and expected benefits, directions for preparing and using the medication, missed doses, precautions, adverse effects, monitoring, storage, and diet and lifestyle modifications.[4] Pharmacists have the capability to address medication-related concerns or queries of patients, and provide efficient strategies for managing side effects and incorporating their treatment regimen into their daily lives. With this, PMC is identified as a crucial pharmaceutical service focused on providing patients with personalized health education to help prepare and encourage them to follow their regimens and monitoring plans and thus, optimizing drug use, promoting patient safety, and improving treatment outcomes.[1,4]

Perception and Evaluation of Pharmacy Students on PMC

Among pharmacy students, there is a consensus about PMC in terms of its value in patient care. Patients can communicate about their medications through PMC, which students view as an important step in ensuring the most appropriate pharmacotherapy and an essential component of medical management. Students also recognize the relevance of communication skills in accomplishing the duties of pharmacists as well as the importance of pharmacists in the healthcare team, particularly as experts on medications.[5]

Although PMC is a widely recognized role of a pharmacist, there are still differences in terms of how students are formally educated to perform such a role. Pharmacy schools worldwide use different techniques, influenced by cultural and system diversities, public expectations, and exposure to PMC during internships. For instance, some countries have already shifted towards a more clinical approach while some are still limited to just a dispensary function which could affect how pharmacy schools develop their course curriculum. Some students may already be exposed to PMC during their earlier years while some may only be exposed during their internship years.[5] Furthermore, the differences may also be attributed to the school's economic status and the availability of teaching resources. In developed countries, for example, pharmacy schools use trained patient actors during simulations and technologies that allow recording and playback of PMC sessions for assessment purposes. Meanwhile, in underdeveloped and developing countries, limited resources require alternative strategies.[6]

Despite these limitations, pharmacy students from different colleges in Metro Manila generally perceive themselves as more competent with their communication skills than their technical, administrative, or research skills. This suggests that students may be prepared enough to offer PMC services. However, they also perceive themselves as more competent in communicating medication-related information to patients than other healthcare professionals. Although PMC is mostly directed towards patients, it is not limited to patient communication as patient care involves collaboration among healthcare professionals, patients, and caregivers.[7]

Nonetheless, the skills needed to perform PMC are evidently not easy to learn and may need theoretical background about communication and its techniques. Theoretical knowledge alone, however, is not enough to acquire the needed skills for PMC without practice. This highlights the importance of simulation activities with patient actors and counseling with actual patients provided that the students are under the supervision of a licensed pharmacist.[5]

As pharmacy practice shifts towards a more patient-centered approach, the value of PMC is accentuated. Thus, the use of a standardized tool to evaluate the performance of pharmacy students in counseling will further help them acquire the necessary skills. Such an example would be the USP Medication Counseling Behavior Guidelines (MCBG) developed by the USP Consumer Interests Health Education Panel which is a 35-item scale that is designed to assess the behaviors associated with the four components of medication counseling: (1) needs assessment, (2) precautions and warnings, (3) treatment management, and (4) communication. With the use of similar tools, pharmacy students are expected to develop and improve their counseling techniques and conduct self-assessment of counseling practices.[8]

Component 1 (Needs Assessment) includes gathering relevant patient information, responding with empathy, reviewing patient records, presenting facts in a logical manner, using appropriate counseling aides, conducting counseling introduction, and assessing patient problems.[8] A study by Hasan et al. noted that pharmacy students excelled in general patient interviewing.[9] Implementation of additional hands-on training, such as simulations, should be conducted to determine effective pedagogical methods in education.[10] A strong foundation in pharmacotherapy significantly improves student knowledge in human patient simulations.

These sessions help in developing the clinical competence, confidence, and interprofessional communication skills of the students.[11] Another study showed that students have difficulty in counseling compared to conducting prescription review, provision of drug information, OTC counseling, and pharmaceutical care service.[12]

Component 2 (Precautions and Warnings) includes explaining potential problems, side effects, drug interactions, missed doses, precautions, preventing and managing side effects, and generating solutions to potential problems.[8] Stayduhar et al. found that student pharmacists were confident in counseling patients on herbal supplements' side effects, but struggle with counseling on their use and interactions.[13] Similarly, Camiel et al. found that 83% of pharmacy students felt uncomfortable answering questions about herbal or dietary supplements, affecting their ability to discuss drug interactions and adverse effects appropriately.[14]

Component 3 (Treatment Management) includes discussing storage requirements, explaining drug duration, and planning follow-up consultations.[8] In a study by Garza et al., students generally scored high in terms of management strategies and monitoring and follow-up in their evaluations.[15] Additionally, the perceptions of students on providing medication-related information generally improve after undergoing a workshop, suggesting that interactive workshops that involves simulation and role-playing increases the students' confidence in providing disease management and treatment information.[16]

Component 4 (Communication) includes using appropriate language, providing accurate information, practicing effective nonverbal behaviors, and obtaining feedback.[8] In the same study by Garza et al., students have high communication scores from both self- and peer-evaluations and practical exam. Although high student scores indicate positive performance, the variation between the scores from the self-evaluation and practical exam suggests that students underestimate their own communication skills. Factors such as low self-confidence, inexperience with reflective learning, and assessment anxiety may contribute to this underestimation.[15] In another study, students have better perception of their communication skills after undergoing a workshop that involves role-play exercises to simulate actual patient counseling. Such workshops have been shown to assist students in developing the necessary communication skills for patient care.[16]

UP Medication Counseling Program

The University of the Philippines Manila – College of Pharmacy (UPCP), in collaboration with the Philippine General Hospital (PGH) Pharmacy Department and the PGH Department of Medicine, implemented a medication counseling program through the course Clin Pharm 176: Medication Counseling in the hospital. PGH is the biggest tertiary hospital in the Philippines and a national referral center for tertiary care. This program was implemented in the General Medicine service of the Department of Medicine Outpatient Clinic, UPM-PGH Faculty Medical Arts Building (FMAB), and the PGH Pharmacy Department. Counselors were composed of 4th Year BS Pharmacy student counselors and faculty coordinators from the UPCP Department of Pharmacy. The program offers face-to-face counseling and telepharmacy to provide patients with medication information, lifestyle modifications, and therapy management.

In the outpatient department, physicians refer patients to medication counseling sessions for drug information and evidence-based health recommendations. The counseling session consists of a pair of student counselors, supervised by faculty coordinators, who provided personalized sessions tailored to treatment goals. The primary counselor probes, offers advice, and discusses medication-related concerns, while the assistant gathers information, assesses risks for interactions, and prepares the leaflets. Afterwards, all patients are asked to answer a satisfaction form to evaluate the counselors' service.

The program implemented in PGH-FMAB follows the same guidelines; however, student counselors were instructed to offer such counseling services to any patient near the designated counseling room. Student counselors are assigned to find patients through actively communicating the importance and benefits of this free service. Thus, only patients who are willing to undergo the counseling session will be provided with the service. For both settings (OPD and FMAB), the faculty coordinators are in close proximity to see and hear the counseling sessions and help in providing additional information, verifying information, and facilitating communication with student pharmacists and prescribing physicians when necessary.

Clin Pharm 176 also offered telepharmacy services, where student counselors are directed to counsel patients through phone calls. Student counselors are provided with the patient chart from the PGH Computerized Registry of Admissions and Discharges (RADISH) which provides an overview of the health background and needs of patients. Then they are tasked to contact their patient through text messages and calls, and ask for their availability. Once the final schedule is determined, the student counselors remind the patient through a text message a day before the schedule. The same guidelines with the medication counseling program implemented in both OPD and FMAB are followed. However, the primary student counselor counsels the patient through a phone call, and the counselors are expected to still probe the patient based on the provided information. After the counseling session, the student counselors accomplish the RADISH notes, the medication safety alert form, and the pharmacist's notes for their recommendations if a therapy problem was found.

This university-led patient medication counseling program was implemented for the first time on the Second Semester of Academic Year 2022-2023. Therefore, there is a need to understand the benefits of the counseling program to student counselors enrolled in Clin Pharm 176 in achieving

the counseling skills, and to understand the effectiveness of the program for the students to achieve the outcomes of the program and the course. There are no direct benefits to the participants, however, the results of the study will help in improving the provision of patient medication counseling by student pharmacists and pharmacists altogether. It will also contribute to the improvement of didactic sessions to equip student pharmacists with the appropriate set of skills and knowledge to counsel patients in the real-world setting.

This study aims to describe the students' perceptions on a university-led patient medication counseling program implemented in a patient medication counseling course. Specifically, the study aims to (1) describe the students' perceived counseling behavior through their counseling technique related to needs assessment, precautions, and warnings, managing of the treatment, and communication; (2) describe the feedback of students on the implementation of the patient medication counseling program in Clin Pharm 176.

MATERIALS AND METHODS

Study Design

The study employs a qualitative study design through a phenomenological approach to understand the perceptions of students on their lived experiences as student counselors in the university-led patient medication counseling program. Phenomenological research appropriately provides the perceptions of students when they conducted the service and their feedback.

The study adapted the United States Pharmacopeia (USP) medication counseling behavior guidelines (USP-MCBG) scale which focuses on four components of a counseling session, namely: needs assessment, precautions and warnings, treatment management, and communication to provide descriptive information on student feedback. The USP-MCBG scale was used in this study as it has been statistically tested to have good construct validity and internal consistency for the assessment of patient medication counseling provided by pharmacists to their patients. It was deemed as a flexible instrument as it can retain its validity and reliability even after modifications have been made. However, its comprehensiveness limits the use of the instrument.[8] Furthermore, the study utilized a synthesis session with student pharmacists after the implementation of the course Clin Pharm 176: Medication Counseling in UP College of Pharmacy.

Description of the Course

The UP College of Pharmacy offers the course Clin Pharm 176: Medication Counseling for 4th year BS Pharmacy students with the following course outcomes: (1) deliver clear, accurate, and comprehensive counseling on the proper use of medicines; (2) address through medication counseling potential and actual drug-related problems and needs of a patient; and (3) tailor content and delivery of drug information provided based on the patient's attributes and needs.

Clin Pharm 176 is a 3-unit course composed of 1-unit lecture and 2-units laboratory equivalent to one hour of weekly lecture and six hours of weekly laboratory sessions. The course had a modular implementation where all didactic and simulation sessions were conducted from February 9 to March 16, 2023 while actual counseling sessions were conducted from April 12 to June 2, 2023.

Didactic sessions provided theoretical background of counseling models and communication tools, while simulation sessions were designed to provide simulation exercises of counseling sessions on different diseases and types of patients. There were two Objective Structured Clinical Examinations (OSCEs) conducted with patient actors: one at the start of the semester which aimed to benchmark the counseling skills of the students, and one at the end of the didactic and simulation sessions to test how they counsel after learning different counseling models.

Student pharmacists were grouped into pairs for the actual counseling sessions which were implemented in three (3) counseling sites in the UP-Philippine General Hospital (UP-PGH) with different modes of communication, types of patients, and resources. These sites are described in Table 1.

Pairs are assigned two shifts for every counseling site. They are pre-assigned with one (1) patient in the UP-PGH Pharmacy Department Telepharmacy Service whom they will contact to inform the patient of the counseling session schedule while they accommodated all patients during their shift in OPD and FMAB.

Table 1. Characteristics of Counseling Sites

Counseling Site	Mode of Communication	Type of Patient	Resources
UP-PGH Pharmacy Department Telepharmacy Service	Phone call	Active and passive, mostly low-income class	Phone, online drug information databases, patient chart, patient counseling tools
UP-PGH Outpatient Department (OPD)	Face-to-face	Active and passive, mostly low-income class	Laptop with internet, online drug information databases, patient chart, patient counseling tools
UP-PGH Faculty Medical Arts Building (FMAB)	Face-to-face	Mostly active, mostly middle- to high-income class	Laptop with slow internet speed, limited access to online drug information databases, patient counseling tools

Population and Sampling Plan

The participants involved in the study are 4th year BS Pharmacy students of UP College of Pharmacy who were enrolled in Clin Pharm 176: Medication Counseling and performed counseling sessions in the three (3) areas: UP-PGH Pharmacy Department Telepharmacy Service, UP-PGH Outpatient Department, and UP-PGH Faculty Medical Arts Building. Total population sampling of 42 enrolled students was employed to effectively collate the evaluation of the class.

Instrumentation

The USP-MCBG scale which is a 35-item questionnaire composed of four (4) components was used to describe the student's medication counseling behavior: needs assessment (9 items), precautions and warnings (8 items), treatment management (13 items), and communication (5 items). Furthermore, a synthesis session was performed using a semi-structured questionnaire composed of seven (7) questions. Clarificatory questions were added during the session to gather relevant and rich information relating to the main questions from the questionnaire.

Data Processing and Analysis

The self-evaluation tool was converted into an MS Excel spreadsheet and was removed of any student identifiers. The spreadsheet was imported to StataMP 17 (Serial No.: 501709316212) to analyze the data. Measures of central tendency, specifically mean and population standard deviation, were performed to describe the self-evaluation of student pharmacists on their counseling behavior.

Meanwhile, the synthesis session was recorded and transcribed by the three researchers together. Consensus among the researchers was done when parts of the recording were unclear. The transcription was saved in an MS Word document and uploaded to NVivo 12 QSR International Pty Ltd for coding and thematic analysis.

Ethical Considerations

Data gathered from this study are confidential and are presented with strict anonymity. As the data gathered used in the study were based on course requirements to fulfill the course outcomes of Clin Pharm 176, the study only used secondary data based on the course requirements. Due to this, the study is not required to undergo ethical review.

RESULTS

Forty-two (42) students (100%) answered the USP-MCBG scale and participated in the synthesis session. The results of the student self-evaluation are found in Table 2. Among the components of the USP-MCBG scale, participants scored highest in communication (88.81 ± 8.78) followed by needs assessment (84.43 ± 8.37) and precautions and warnings (82.44 ± 10.27). Meanwhile, the participants scored the lowest in treatment management (79.49 ± 12.90) which suggests that the student pharmacists were least confident in providing medication-related information.

Meanwhile, the results of the synthesis session identified five (5) main domains on how the students evaluated the course and the PMC program, these are: (1) pre-counseling session requirements; (2) challenges in patient interaction; (3) interprofessional collaboration; (4) professional outlook; and (5) program recommendations (Table 3).

Domain 1: Pre-Counseling Session Requirements

Significance of didactic and simulation sessions

The participants described that there is a perceived difficulty of performing counseling during the benchmarking OSCE at the start of the semester because there was a lack of flow when the student pharmacist is conducting the counseling session with the patient actor since the benchmarking OSCE was done before the didactic sessions. Meanwhile, the didactic sessions were able to provide counseling models that they can follow and use to construct the flow of the session which can consequently help them in communicating with the patients. The participants mentioned that pharmacotherapeutic courses were also helpful in improving their knowledge about medicines and diseases which they can utilize during the counseling session.

Table 2. Self-Assessment Scores of Participants *(adapted from USP-MCBG)*

Components	Mean %	SD
Needs Assessment	84.43	8.37
Precautions and Warnings	82.44	10.27
Treatment Management	79.49	12.90
Communication	88.81	8.78

Table 3. Domain and Subdomains Identified

Domain	Subdomain
Pre-Counseling Session Requirements	1. Significance of didactic and simulation sessions 2. Preparation for counseling sessions
Challenges in Patient Interaction	1. Handling difficult patients 2. Providing medication adherence advice
Interprofessional Collaboration	1. Identification of medication errors and providing treatment recommendations 2. Good professional relationship with prescribing physicians
Professional Outlook	1. Importance of pharmacist's role in identifying and solving drug-related problems during PMC
Program Recommendations	1. Capacity building 2. Simplify process of producing drug information leaflet

Preparation for counseling sessions

The participants recognized that encountering and handling different kinds of patients is a good head start for students as they prepare to become registered pharmacists. As the PMC program was implemented in different sites, preparation to conduct PMC varied which are discussed below:

Telepharmacy

For the telepharmacy service, participants noted that it was difficult to prepare for counseling sessions for patients with polypharmacy — some of whom are taking 17 different medications, especially when there is information still needed to be collected during the actual counseling session. Participants expressed that they need to purposefully explain the purpose and importance of the counseling sessions in order to ensure patient participation and engagement. During the counseling sessions, student pharmacists often find themselves under pressure since they are expected to provide immediate and accurate information on the spot while talking to the patient or caregiver on the phone. In line with this, some pre-assigned patient charts may be incomplete and thus hinder the provision of the most accurate and reliable information.

Another challenge in the telepharmacy service was the lack of option to communicate with the prescribing physicians. Participants noted that there are instances where there are discrepancies in the patient's chart that required clarification from the prescribing physician; thus, it can be difficult to provide patients the best advice when there is no direct line of communication. A participant also noted that there were difficulties in obtaining a complete medication history since not all medications were listed in the patient chart due to patients visiting multiple clinics or pharmacies. This highlights the need for comprehensive medication reconcilation.

PGH-OPD

Participants acknowledged that there is an inadequate time available for preparation for counseling wherein due to the random nature of patient assignments, they were unable to adequately prepare and familiarize themselves with the patient's history and medical needs. However, participants revealed that patients in PGH-OPD were more receptive, respectful, and attentive to the information provided to them as compared to other areas which lacked patient engagement. This gives them confidence and good engagement with the patient which enables them to provide sufficient medication counseling advice.

FMAB

The participants shared how patients in FMAB were not very forthcoming and that they were having a difficult time preparing themselves to be rejected when they invite the patients for a counseling session. When asked about the reason why patients reject receiving medication counseling, the participants expressed that the patients are not approachable or are not willing to be counseled due to various reasons such as lack of time. In a few cases, the participants reported about how patients even respond to student pharmacists with unpleasant replies.

Domain 2: Challenges during Patient Interaction

Handling difficult patients

Generally, participants noted that they showed empathy and allowed ample time for patients to share their experience throughout the counseling session. They were also able to invite the patients to partake in a counseling session once they have received a new prescription.

A significant challenge during the counseling sessions was the behavior of difficult patients across the different areas. The participants noted that some patients changed the topic of the conversation, a few were only passively listening throughout the session, and others did not clearly understand what the medication counseling session was for. A participant reported that there were some patients who absentmindedly answered when asked if they understood the counseling advice; however, when such patients were asked to provide feedback about the said advice, they were not able to do so. Handling difficult patients was a serious challenge to the services provided; thus, participants emphasized the need to assert their authority in order to direct and take control of the flow of the counseling session.

Providing medication adherence advice

The participants discussed the difficulty of assessing the level of understanding of patients when conducting medication counseling over the phone, where the student pharmacists cannot see the nonverbal gestures of patients. Patients also sometimes involuntarily rank healthcare providers and place more weight on the doctor's advice than other healthcare professionals.

To help improve medication adherence among the patients, the student pharmacists provide adherence tools such as drug information leaflets, personally tailored stickers, and forms for the patients. Financial capacity and nonadherence of the patients were noted to be significant barriers for patients to follow the advice of student pharmacists. Participants noted that patients with low financial capacity often face significant barriers to accessing and affording their medications, thus negatively affecting their adherence and leading to ineffective counseling on the use of their medications.

Patients practicing polypharmacy are also at risk of medication nonadherence due to the complexity of their treatment regimens. Therefore, participants highlighted the need to effectively provide advice on how to make medication taking easier.

Domain 3: Interprofessional Collaboration

Identification of medication errors and provision of treatment recommendations

Change in dose

A participant shared their experience on the need to change the dose of the patient's medication due to unavailability of such dose in the Philippine market. The participant discussed the need to change the dose of Metformin-Sitagliptin 1g/150mg preparation to Metformin-Sitagliptin 1g/100mg of a patient with diabetes. Such recommendation was also brought up to the prescribing physician for appropriate changes.

Change in dose frequency

Another participant shared that they recommended changes to the treatment regimen of the patient, specifically changing the frequency of Propranolol from TID to BID due to the risk of interaction with the patient's other medications, particularly Iodine isotope.

Addition of medicine based on drug indication

Furthermore, another participant talked about their experience when a prescribing physician forgot to include statins in the treatment plan of a patient with dyslipidemia. Due to the student pharmacist's intervention, Atorvastatin was then added to the patient's regimen.

Drug substitution

One participant discussed their experience with drug substitution. During a counseling session with a patient with asthma, the student pharmacists noticed a drug-drug interaction between Carvedilol and Salmeterol which could cause persistent coughing when taken by patients who have asthma. To address the drug therapy problem, the student pharmacists suggested to the physician of the patient to substitute Carvedilol with Bisoprolol in order to eliminate the drug-drug interaction.

Good professional relationship with prescribing physicians

The participants recognized how receptive doctors were to the recommendations of student pharmacists. They reported that doctors re-evaluate the medications prescribed to their patient once the student pharmacists notify them. Furthermore, the doctors also communicate openly with the student pharmacists to discuss the rationale behind their decision in prescribing a certain medication and to collaborate with the student pharmacists in an attempt to arrive at a shared decision for the patient.

Domain 4: Professional Outlook

Importance of pharmacist's role in identifying and solving drug-related problems during PMC

The participants agreed that they perceive medication counseling as a way to directly contribute to patient healthcare. They recognized the importance of patient medication counseling in addressing patient's medication-related problems and physician's unintentional prescribing errors. Medication counseling provides student pharmacists with a tangible purpose as future pharmacists since patients and doctors alike acknowledge and implement their recommendations. The participants noted that time spent by the patients during the counseling sessions was not wasted and was valuable since the student pharmacists were able to review patients' medication regimens, detect potential medication errors, and address patient concerns.

Domain 5: Program Recommendations

Capacity building

Participants actively recommended preserving the PMC program in the PGH Outpatient Department. Concentrating the efforts in the PGH-OPD will have an irrefutable impact on the patients, as medication counseling can form a critical part of the continuum of care for the patients. Specifically, those who will benefit the most include patients with multiple and severe conditions, patients who are practicing polypharmacy, and patients who are using different medical devices that are commonly encountered in the PGH-OPD.

Additionally, the participants also recommended placing a dedicated printer in the counseling site solely for the patient medication counseling service. This will help the student pharmacists provide clear, printed instructions to the patient. Moreover, this will give student pharmacists more time for counseling instead of writing drug-related information in the counseling forms to be dispensed to the patients.

Simplify process of producing drug information leaflet

The participants suggested having a consolidated counseling form which aggregates the forms and drug information leaflets that are originally provided to the patients separately. Ideally, this consolidated form should contain standardized information based on the specific needs of the patient. It shall be printed right after the counseling session to be provided to the patients which they can use for future reference.

DISCUSSION

Student Self-Evaluation of Counseling Behavior

Among the components identified through the USP-MCBG scale, it was noted that the participants scored the highest in communication (88.81 ± 8.78) and lowest

in treatment management (79.49 ± 12.90). This shows that student participants were more equipped in providing accurate information, displaying effective nonverbal behaviors, and using language that the patient is likely to understand compared to helping patients develop their treatment plan and manage their medication regimens.

Similarly, a study of Showande and Laniyan which used the USP-MCBG scale showed that community pharmacists gave a higher perceived quality of counseling in the communication component (82.93 ± 14.50); but, contrary to the findings of this study, they revealed that the pharmacists also scored high in the treatment management component (75.39 ± 15.54) which may be due to their confidence as licensed professionals already compared to student pharmacists who are also still learning pharmacotherapy. Furthermore, the community pharmacists scored the lowest in the needs assessment component (71.17 ± 1.96) which reflects that in actual setting, pharmacists perceived themselves to be the least competent in terms of probing and gathering relevant patient information. In addition to this, the study found that while community pharmacists' perceived quality of counseling was generally satisfactory, drugstore clients, on the other hand, perceived the quality of counseling provided to be unsatisfactory.[1]

Student Course and PMC Program Evaluation

The didactic and simulation sessions as well as the pharmacotherapy courses helped student pharmacists in constructing a flow and in understanding drug mechanisms and pathophysiology allowing them to better communicate with the patients. This is in line with other studies wherein students have significantly better perception of their skills, attitudes, and confidence after undergoing a workshop that involves interactive lectures, group work, and role-playing.[16,17]

With the telepharmacy medication counseling service, the students mentioned multiple difficulties including incomplete patient medical information, lack of nonverbal communication, and poor real-time communication with the prescribing physicians. This is consistent with the study by Alhmoud et al. in which pharmacists expressed that they relied mostly on patient electronic charts and deficiencies in them may result in vital patient-related information being overlooked. It was also hard for them to counsel patients with complex comorbidities, especially when trying to educate them on how to use medical devices as visual demonstration of the proper technique is not possible. They also reported that it was difficult reaching healthcare professionals to discuss their treatment recommendations especially in patients with doctors of different specialties.[18]

According to Hamadouk et al., the major barrier to effective medication counseling is the patient's lack of interest, similar to the patients encountered in the study's PMC program, such as inattentive patients, patients who refuse to be counseled, or patients who have a preconceived notion that the medication advice of doctors outweighs that of pharmacists.[19] In general, the lack of interest of patients can be addressed through public education about the importance of patient medication counseling and knowledge of medication-related information relevant to them. However, during the actual counseling session, the pharmacist can improve patient interaction by controlling distractions, leaning toward the patient, practicing open body posture, facing the patient, maintaining eye contact, and relaxing. Furthermore, for patients who refuse medication counseling services due to not appreciating the service enough, lack of time, or distractions due to other concerns, the pharmacists should provide written counseling tools and contact information when applicable.[20] Lastly, the study of Kaae et al. validated that some patients prefer discussing their medication use with the general practitioner rather than with a pharmacist, specifically with the use of prescription medications. In this kind of scenario, pharmacists shall provide the patients with a general understanding of the importance of medication counseling specifically provided by a pharmacist.[21]

Financial incapacity and polypharmacy were some of the barriers to adherence that were noted by the student pharmacists among their patients. This is consistent with the study by Higuchi which reveals that financial constraints are the main factor for nonadherence in patients with diabetes in the country. The study also suggests that outpatient benefits through the government health insurance can help encourage adherence by reducing the financial burden placed on the patients.[22] A systematic review by Gellad et al. also determined polypharmacy as one of the drug-related factors associated with nonadherence together with adverse effects.[23] This is supported by another study which states that the adherence decreases as the number of medications increases. The study also recommended that multifaceted solutions must be developed as reasons for nonadherence in elderly patients are widely varying.[24]

The student pharmacists were able to practice interprofessional collaboration with the prescribing physicians in terms of communicating their recommendations about the treatment regimen of patients, notably in OPD and FMAB. In a systematic review by Waszyk-Nowaczyk et al., interprofessional collaboration between physicians and clinical pharmacists also prevails in most hospitals. Pharmacists impart extensive and unique knowledge about medications that is significantly valuable in modifying treatment regimens. For instance, pharmacists perform the following functions in the healthcare team: apply drug education, monitor the safety of the therapy, ensure effective use of drugs, and improve medication adherence. The cooperation between physicians and pharmacists has resulted in reduced drug-related adverse effects, improved treatment outcomes, and faster therapeutic decisions as each profession covers different competencies and perception of drug therapy, leading to more competent and strengthened patient care.[25] This shows the importance of the role of pharmacists in medication counseling to address medication therapy problems, identify

medication errors, and directly contribute to patient care. This is further strengthened by various studies that show that student pharmacists and registered pharmacists provide effective medication counseling in different transitions of care in the hospital setting resulting in increased patient awareness and knowledge about their medications and better understanding of side effects and drug interactions.[1,2]

Results indicate that participants prefer to retain the medication counseling service in PGH-OPD compared to other areas. The program can play crucial roles in the continuum of care for patients in this area, especially those with polypharmacy, multimorbidity, using various medical devices, and other high-risk patients.

In a randomized controlled trial by Kripalani et al., certain patient populations, including the elderly, patients with cognitive impairment or poor health literacy, or those who have administered a lot of high-risk drugs, all seem to be at higher risk for clinically significant medication errors; therefore, medication counseling interventions are necessary to mitigate harm among hospitalized patients by reducing errors and adverse events. Medication counseling interventions among these populations resulted in improved patient comprehension of their medications, increased adherence, and fewer hospitalizations.[26] Several studies also highlighted that the provision of these services helps in mitigating risks, enhancing patient satisfaction, ensuring the rational use of medications, and achieving better health outcomes.[27,28]

Moreover, the participants expressed that the provision of a consolidated counseling form consisting of standardized medication information can help create a more seamless counseling session and reduce time lost. However, a study by Owusu et al. noted that the majority of their participants (62%) were likely to stop taking a particular medicine due to anxiety caused by some information they read on the leaflet, thus emphasizing the need to enhance the template and interface of the patient information leaflets.[29] Contrary to this study, a cross-sectional study reported that older, female, and educated participants perceived patient information leaflets to be beneficial in enhancing patient adherence. Pharmacists should advocate for patient medication leaflets and promote them as a useful resource to enhance patient adherence and understanding.[30]

While this study provides valuable insights and implications for improving pharmacists' skills in medication counseling and optimizing patient safety, it is not without limitations. The study's population is limited to the BS Pharmacy students of Clin Pharm 176 from a single institution, hindering generalizability to a broader population. Self-selection bias may also arise since the students voluntarily participated in the study as opposed to being randomly selected. Reliance on self-reported data may also introduce bias, as students may have provided responses they perceived as desirable or in line with academic expectations. Therefore, these limitations should be considered when interpreting the findings of this study.

CONCLUSION AND RECOMMENDATIONS

The student pharmacists who participated in a university-led patient medication counseling program received effective training for such service, as they were able to identify and provide appropriate recommendations on medication therapy problems encountered by their patients and practice interprofessional collaboration.

The students rated themselves highly in their communication skills, which is an important aspect to develop for effective counseling to be able to connect with patients for better understanding, feedback, and retention. Furthermore, student pharmacists rated themselves poorly in their confidence to manage treatment, which may be because they are also still taking pharmacotherapeutics courses, which can affect their knowledge on the therapy of different diseases.

The students also found that didactic and simulation sessions, as well as pharmacotherapy courses, helped them construct a counseling flow and understand drug mechanisms and pathophysiology. These sessions helped them communicate with their patients more effectively.

Moreover, they provided in-depth recommendations for the PMC program, such as extended preparation time, more interactions with the prescribing physician, concentrating the program in one counseling site, and revision of existing resources, which will be used to reassess its implementation in the next academic year.

It is recommended to continue the student training in the PMC program and to integrate this into the student internship program to evaluate the skills development of students during their clinical rotations.

Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

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