



ADAMSON
UNIVERSITY



APOTHECARIA: RESEARCH ABSTRACT JOURNAL VOLUME 5 - AUGUST 2023

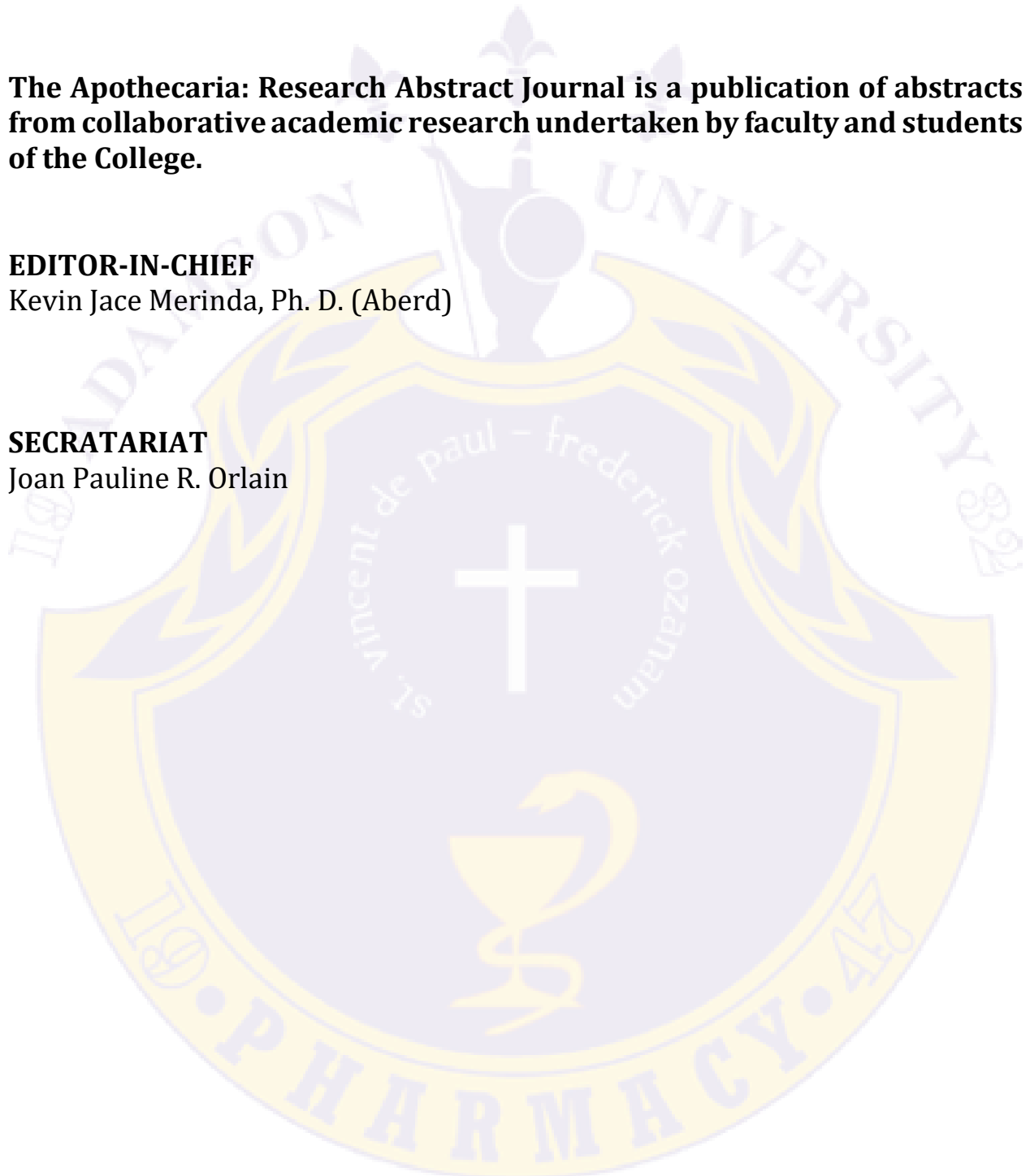
The Apothecaria: Research Abstract Journal is a publication of abstracts from collaborative academic research undertaken by faculty and students of the College.

EDITOR-IN-CHIEF

Kevin Jace Merinda, Ph. D. (Aberd)

SECRETARIAT

Joan Pauline R. Orlain



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RESEARCH GUIDELINES OF THE COLLEGE OF PHARMACY

I. Research Program Objectives

1. To conduct basic and/or applied pharmaceutical research which involves the discovery of natural substances from native flora and fauna in the Philippines that can be utilized as drugs for the socially disadvantaged;
2. To identify problems on pharmacy practice and pharmaceutical science that is worthwhile to investigate and create appropriate recommendations;
3. To disseminate results of research in scholarly manner;
4. To collaborate with other colleges, universities, and industry partners in the conduct of research;
5. To apply for utility model/patent whenever applicable.

II. Research Agenda

The College of Pharmacy has set its 3-year research agenda (effective 1st semester; A.Y. 2022-2023 – 2025-2026) that aims to elevate the quality of research, generate new knowledge, and assist the University in achieving its goals to become a research-intensive university.

The research agenda of the College are as follows:

A. Non-experimental Studies

- Observational Studies
- Qualitative studies
- Mixed methods research
- Systematic Review and Meta-analysis
- Policy analysis

TOPICS covered:

- Pharmacy practice
- Clinical pharmacy
- Hospital Pharmacy
- Community pharmacy
- Pharmacy teaching and education
- Public Health/ Global Health issues
- IT applied in Health Management

B. Experimental Studies

- Natural Products Chemistry (plants, bacteria, fungi) - crude extract is highly discouraged, have at least fractionation
- Metabolomics
- Bioassays
- Formulation studies
- QA/QC Method development
- Instrumental method of analysis of pharmaceuticals
- Pharmaceutics



III. Guidelines For Student-Faculty Member Research

- A. Student-faculty member research are thesis groups partnered with a faculty member considered as co-researcher. Groups may choose a 2nd co-researcher whenever necessary.
- B. Faculty co-researchers are expected to make substantial contribution both in the proposal development and the conduct of research.
- C. Faculty co-researchers are expected to be present on both proposal and final defense. However, the faculty co-researcher is not a part of the group presenting and defending.
- D. Assigning of authorship is conducted at the start of the semester to be decided by the students and the faculty co-researcher.
- E. The primary authors are the **STUDENTS**. Faculty co-researcher is the corresponding author of the paper both in publication and presentation. Research supervisors will be the last author. If the research faculty also serves as the faculty co-researcher, he/she will be both a corresponding and last author.
- F. All studies of student-faculty member research will be under the ownership of College of Pharmacy Adamson University.

IV. Guidelines for Conference Presentation of Student Thesis

- A. Prior to submission to conferences, the student must consult first the research committee for possible advice and recommendations on conference details. Conference with Scopus publication is highly encouraged. Only the presenting author will attend the conference.
- B. Abstracts should be checked and approved by all co-authors.
- C. If students are accepted for ORAL presentation BEFORE the final defense, they must refer to the *Guidelines for Exemption of Final Defense*.
- D. If students are accepted for POSTER presentation BEFORE the final defense, no exemption for Final Defense will be granted but will be given additional points on the Final Defense component of the grade.
- E. Faculty co-researcher does not necessarily need to be present in the conference; however should be coordinated with the VPAA and/or OSA (letter), and CHED for final approval.
- F. Prior to the presentation, the study should be copyrighted.
- G. In case the CRD has decided to fund the presentation of a non-funded research, the presenting author will be the faculty co-researcher, but the primary author will still be the student.
- H. Research which has been published (first 3) will be recognized and given cash incentives. Students who are currently enrolled only will receive the incentive.
*Research presentation under CRD is subject to finalization of the guidelines.

V. Guidelines for Exemption of Final Defense

- A. Thesis groups who wish to be exempted for a Final Defense should apply and be ACCEPTED for ORAL presentation on NATIONAL or INTERNATIONAL LEVEL conference.
- B. On the event that the final defense will fall before the conference, a letter of acceptance for oral presentation AND conference registration are sufficient to exempt the student/s after the verification of the research committee of the conference certificate.
- C. All thesis groups with accepted oral presentation will be given a perfect score for the Final Defense only.
- D. Class standing and the thesis will still be graded accordingly by the panel members.

VI. Guidelines for Journal Publication of Student Thesis

- A. Prior to the submission, the study should be copyrighted.
- B. Prior to submission for journal publication, the students must consult first the research committee for possible advice and recommendations on the details of the journal. Choose a journal without an Article Processing Charge (APC).
- C. If a thesis is accepted for publication, the students will automatically get a 1.0 grade in Research Class provided that acceptance is given before the encoding of grades.
- D. Journals accepted for this merit are ISI and Google Scholar-Indexed journals, and local reputable journals.
- E. Accepted journals will incentivize students provided by the College.

VII. Manuscript for Publication as a Requirement for Graduation

- A. A manuscript for publication is a requirement for student clearance for graduation. No clearance will be signed and released without a manuscript.
- B. A grade of 140 will be encoded until a manuscript for publication has been submitted to the journal. This also applies to those who passed or exempted from the final defense.
- C. The grade will be changed to a numerical value (e.g. 1.50), only after the submission AND revision of manuscript for publication.
- D. Graduating students should comply to this requirement to avoid potential delay.



VIII. Waiver of Authorship

- A. In case, the students and faculty co-researcher opted not to continue the writing of the manuscript, they should sign a waiver to make the other co-researchers (may be faculty handling the course) the first and/or corresponding authors. This is to be done after 2 semesters from the last day of Research 2 class.
- B. Assigning of authorship for co-researchers who have resigned may be done.

IX. Thesis Class Clearance

A. CD Requirement Inclusion:

- 2 Softcopy of the final thesis (PDF and WORD)
- Journal format of the study (Manuscript)
- Poster format of the study
- Soft copy of all forms/certifications
- Revised Power point defense presentation (pptx format)
- Data set
- Forms/certifications*

B. Forms/Certifications

- Oral Defense Approval Certificate
- Certificate of Presentation on Conference/Acceptance Letter
- Turnitin Certification
- Statistical Analysis Certification (if stat service is not done by any AdU-COP faculty member; from statistician faculty of AdU)
- English Editing Certification (from the Languages Department of AdU)
- Copyright application of all papers; Patent for applicable research as identified by the authors.

X. List of Journals

- A. Local journals of UP Diliman and UP Manila that are indexed in Google Scholar and ISI
- B. Acta Medica Philippina
- C. Philippine Journal of Health Research and Development
- D. Philippine Journal of Science
- E. Mindanao Journal of Science and Technology
- F. Wiley
- G. Elsevier
- H. Sage
- I. Taylor and Francis
- J. Scimago – repository of pharmacy, pharmaceutical sciences, and chemistry
ISI-indexed journals

XI. Roles and Responsibilities of Students, Faculty co-researcher and Faculty Handling the Research Course

A. Student-Researchers

1. Conceive and design of study.
2. Acquire data.
3. Analyze and/or Interpret data.
4. Draft the manuscript.
5. Revise the manuscript for significant intellectual content.
6. Seek for approval of the manuscript for publication.

B. Faculty Co-Researcher

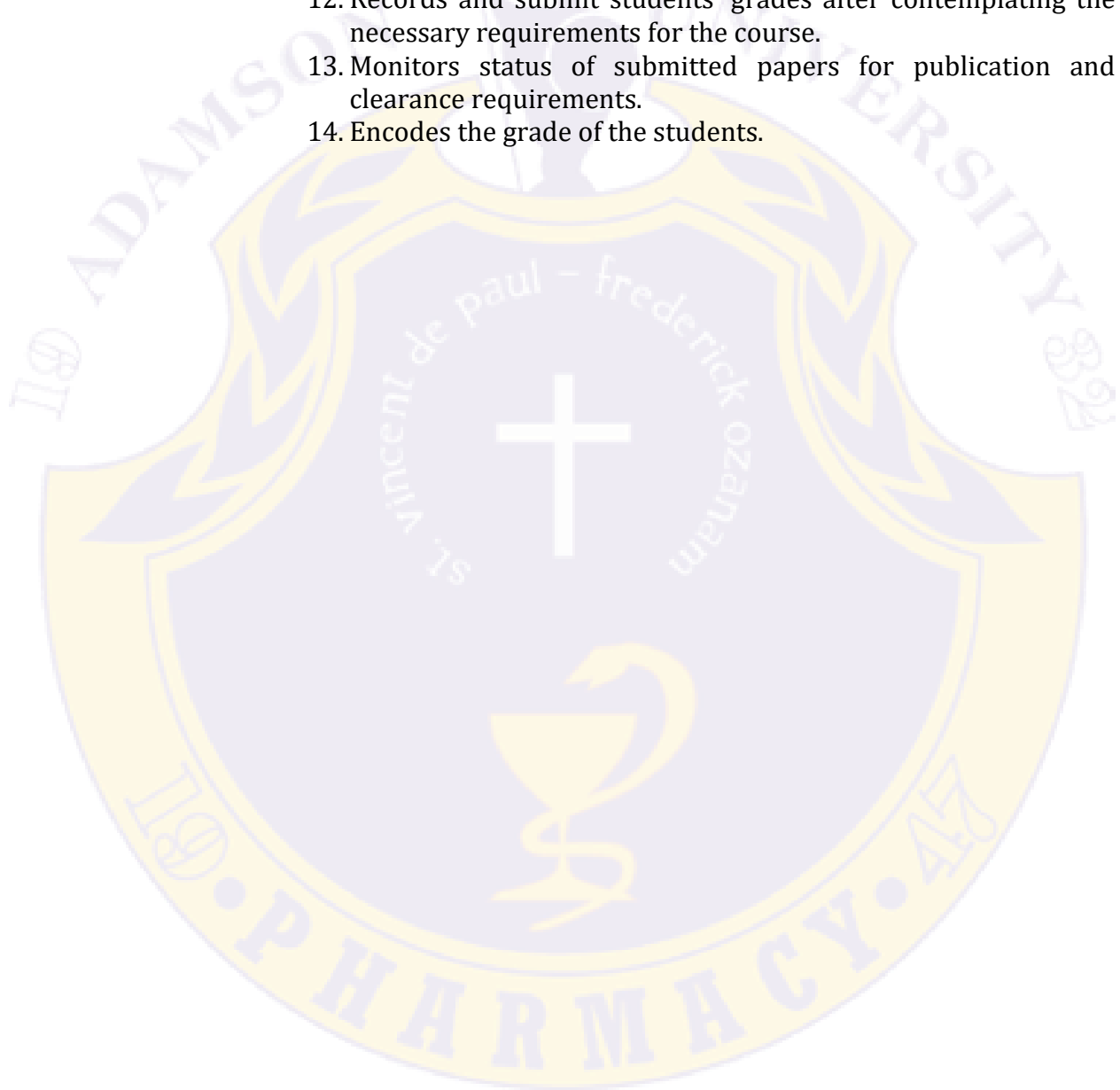
1. Formulates research questions, study design. The content of the research is assigned to the faculty co-researcher with expertise.
2. Ensures ethical conduct of research by submitting it to appropriate review committees and secure Ethics Review Certification.
3. Assists in writing the initial draft of the manuscript.
4. Assists in revising the manuscript for clarity, coherence, and intellectual rigor.
5. Conducts mock defense for protocol and final thesis.
6. Reviews abstracts before submission to local and international conferences.
7. Conducts oral presentation rehearsals and check the quality of posters for conferences.
8. Reviews the manuscript for submission for its logical flow and intellectual content.
9. Acts as corresponding author.
10. Edits abstract for poster/oral presentation.
11. Applies for faculty-student collaborative funding in CRD.

C. Faculty Handling the Research Course

1. Introduces the students to the basics of research by providing induction and orientation at the start of the semester.
2. Provides students with a solid foundation in conducting research through lectures, webinars, and activities.
3. Ensures that students conduct the research with a faculty co-researcher who will oversee the study's methodology, results, and discussion.
4. Provides their intellectual input for the betterment and quality of (methods) the research, including conceptualization, data analysis, and interpretation of results (technical writing).
5. Conducts a periodic progress check in students' work.
6. Conducts mock defense for protocol and final thesis.
7. Schedules the protocol and final defense.



8. Reviews abstract before submission to local and international conferences.
9. Conducts oral presentation rehearsals and check the quality of posters for conferences.
10. Reviews the manuscript for submission for its logical flow and intellectual content.
11. Acts as a bridge between students and faculty co-researchers to ensure compliance with thesis requirements.
12. Records and submit students' grades after contemplating the necessary requirements for the course.
13. Monitors status of submitted papers for publication and clearance requirements.
14. Encodes the grade of the students.

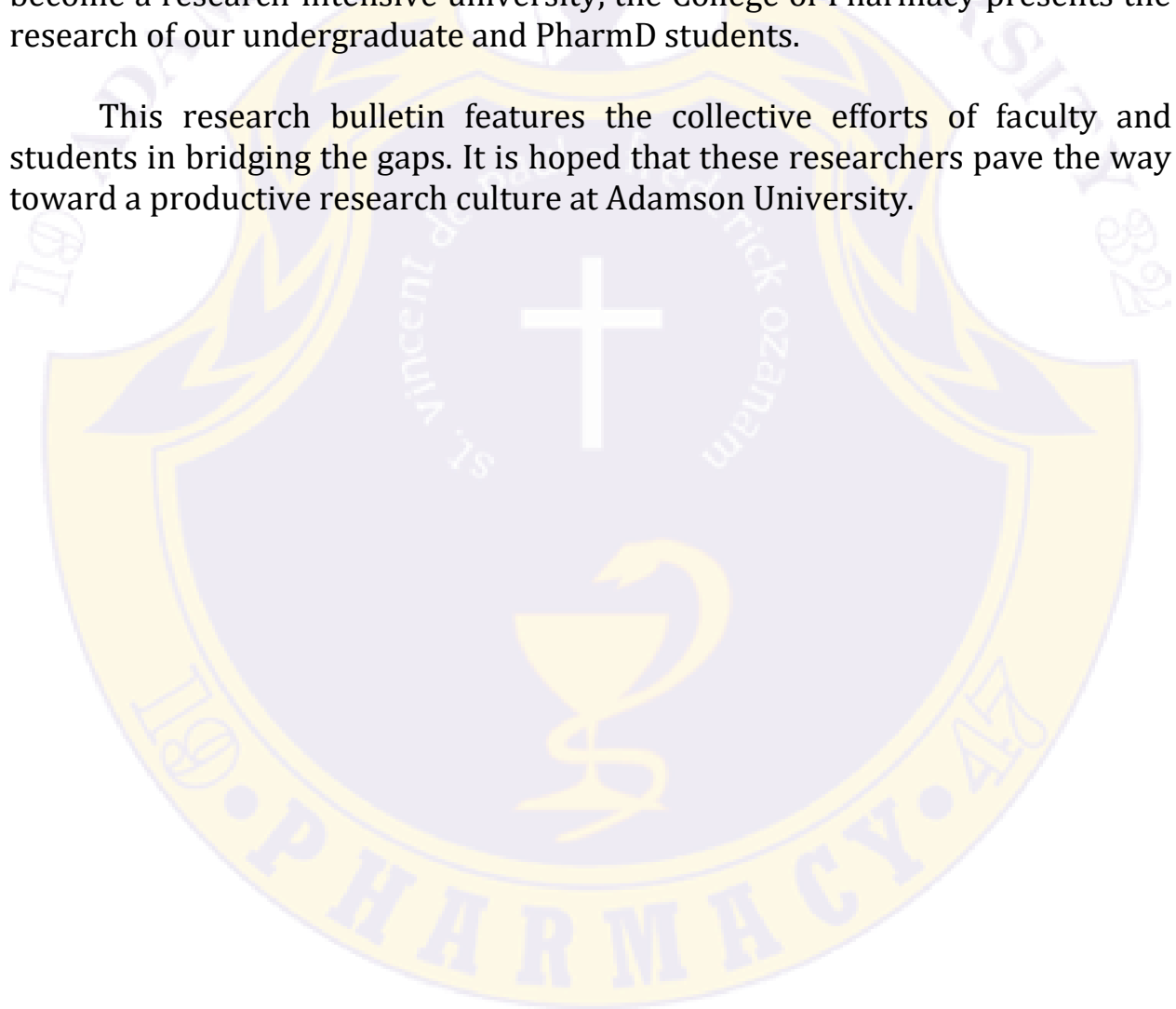


EDITOR'S NOTE

The three main roles of a university are instruction, research, and community extension that supplement one another to achieve the overarching vision of a university.

Research is an integral part of a university's mission to generate and contribute to the *gamut* of knowledge, answer the fundamental questions in each related discipline, and solve problems through innovation which all contribute to nation building. In response to Adamson University's vision to become a research-intensive university, the College of Pharmacy presents the research of our undergraduate and PharmD students.

This research bulletin features the collective efforts of faculty and students in bridging the gaps. It is hoped that these researchers pave the way toward a productive research culture at Adamson University.





OFFICE OF THE DEAN FOREWORD

The College of Pharmacy has begun its venture into faculty-student collaborative research projects which are worthy of knowledge sharing and dissemination. It is the College's desire to continue the publication of this 5th issue of research abstracts to highlight all research presented in local and international conferences and published in Scopus journals.

The College has been exerting its efforts to conduct collaborative research with the other colleges of the University and industry partners. Notably, faculty and students are trained in intellectual property rights. The College looks forward to commercialize its research in partnership with the industry.

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A Narrative Review of the Solanaceae Family in Philippine Medicinal Plants: Mapping the Nightshade Alkaloids

Pearl Shiloh E. Bartolome; Daniel Olajide, Enrico V. Vasquez; Rogie Royce Carandang, RPh, MSc, PhD; and Kevin Jace Miranda, PhD

The Solanaceae family also known as the 'Nightshade family' is one of the most important sources of agriculture in the world. Lately, the Solanaceae has become a research interest in agriculture and medicine because of the pharmacological activity and the presence of alkaloids in the plants belonging to this family. In the Philippines, there are still limited studies in Solanaceae plants found in the Philippines and their chemical constituents. Thus, this study aims to map the alkaloids in the Solanaceae family in identified Philippine medicinal plants, to search for the ethnomedicinal uses of these identified plants, and to determine the relationship between the presence of alkaloids found in Philippine medicinal plants belonging to Solanaceae family and its ethnomedicinal claims. A narrative review of the scientific databases such as PubMed, ScienceDirect, Scopus, Google Scholar, and other available databases as well as non-open online databases was conducted to synthesize the up-to-date and comprehensive literature on the ethnomedicinal use, phytochemistry, and pharmacology of the identified Philippine medicinal plants from the Solanaceae family. A narrative synthesis was used in the evaluation and analysis of the study. PRISMA was utilized to guide the acquisition of any evidence-based material that met the study's eligibility requirements.

There are approximately seven genera with a total of 22 species of the Solanaceae Family found in different parts of the Philippines listed in Medicinal Plants of the Philippines (Quisumbing, 1978). Out of twenty-two (22) identified Solanaceae species, eight (8) Solanaceae plants have ethnomedicinal claims to treat a variety of ailments that mostly came from different tribes in the Philippines. Moreover, fourteen (14) Solanaceous plants have shown the presence of a variety of alkaloids, including capsaicin, hyoscyamine, scopolamine, atropine, solanine, nicotine, solanidine, solasodine, chaconine, and calystegines. There is a significant presence of alkaloids found in the identified Philippine medicinal plants belonging to the Solanaceae family. The researchers found a substantial amount of alkaloids found in the fourteen (14) Solanaceous plants that could be extensively used in folk/ethnomedicine. Furthermore, plants from the Nightshade family have also shown ethnomedicinal uses that were found to be possible presence of alkaloids.

Keywords: Alkaloids, Solanaceae, Nightshade, Philippines, Ethnomedicinal, Pharmacological Activity

A Tracer Study on Pharmacy and Clinical Pharmacy Graduates of a Private University in the Philippines during the COVID-19 Pandemic

Rafael Jose Delos Reyes, Joi Gutierrez, Perlita Crucis, Kevin Jace Miranda and Rogie Royce Carandang

The standardized tracer study questionnaire of the Commission on Higher Education (CHED) was slightly modified for the purpose of this descriptive study to assess the relevance of the curriculum of the Bachelor of Science (BS) in Pharmacy and BS in Clinical Pharmacy graduates from the years 2019 and 2020, and to determine whether the COVID-19 pandemic affected the graduates' employment status.

Regulations and community pharmacy are the top workplace of BS Pharmacy graduates, while community and hospital settings are for the BS Clinical Pharmacy graduates. Despite the pandemic created more workload for employed graduates; lockdowns and health protocols restricted them. The majority (92%) of the BS Pharmacy graduates applied the Graduate Outcome 4 or being Communicator. Communication skills are applied in their work by enforcing pharmaceutical regulations in patient-centered settings. Moreover, 83% of the BS Clinical Pharmacy graduates applied the Graduate Outcome 5 or Pharmaceutical Care Provider attribute to their work. Being a Pharmaceutical Care Provider is an essential and appropriate attribute for BS Clinical Pharmacy graduates. Therefore, BS Pharmacy and BS Clinical Pharmacy curriculum taken by batch 2019 and 2020 graduates was relevant and useful in their present job as pharmacists. However, the COVID-19 pandemic resulted to more workload but restricted their duties due to intensified health protocols then.



Acceptability and Feasibility of HIV Self-testing in Southeast Asia: A Scoping Review^{1 2}

Kianna Marie Muyot, Joshel Mary Entierro, Kimberly Camanag, Mitzi Ingrid Rubio, Kevin Jace Miranda and Rogie Royce Carandang

This scoping review intends to systematically collect and summarize the available literature on the acceptability and feasibility of HIV self-testing (HIVST) in Southeast Asia. Systematic search in eight databases was conducted in 2022, namely PubMed/MEDLINE, CINAHL, Web of Science, Academic Search Complete, SocINDEX, PsycINFO, PsycArticles, and CENTRAL. Acceptability (HIV testing frequency, willingness to pay, use, and recommend the test, ease of use, preference over standard tests, and partner testing) and feasibility (error rate, readability, and diagnostic performance) as parameters guided the review of the qualified literature. A narrative synthesis was done to present findings of the qualified studies in terms of acceptability and feasibility of HIVST.

A total of 5,091 records were identified through database search wherein 362 records remained after deduplication and 18 studies met the inclusion criteria. Results indicate a high acceptability rate due to convenience, increasing awareness about HIVST, availability, and affordability of test kits, and confidentiality of test results. A high feasibility rate has been established due to low occurrence of errors in self-testing, interpretability of results, and low percentage of invalid and false-reactive results. Educational status, user preferences, and availability of test kits in remote areas significantly affect the acceptability and feasibility of HIVST among Southeast Asian countries. Identification of diverse needs of self-testers in terms of preferences on specimen collection, type of supervision, HIVST prices, and intensified education is crucial in increasing HIV screening rates and early detection and diagnosis of HIV.

¹ The research article was published in the Exploratory Research in Clinical and Social Pharmacy of ScienceDirect <https://doi.org/10.1177/09564624231188747>.

² The research article was presented at the 10th Asian Association of Schools of Pharmacy (AASP) Conference held last July 29-31, 2022.

Antibacterial Activity of Fractionated Leaf Extracts of *Uvaria rufa* (*Annonaceae*) against Pathogenic Bacteria

Lawrence Delgado, Rane Angelica Alarcon, Kyla Shane Aldea, Trisha Anne Samaniego, Rogie Royce Carandang and Kevin Jace Miranda

Herbal medicines have been widely used in different regions of the world. Due to the increasing cases of antimicrobial resistance, the healthcare community has studied the potential antimicrobial activity of phytochemicals present in plant-derived compounds. *Uvaria rufa* was studied for the antibacterial and antifungal activity of its fractionated leaf extracts.

U. rufa leaves were extracted with 70% ethanol and fractionated using five solvents, including water, sec-butanol, methanol/water, DCM, and hexane. Phytochemical screening was performed for the identification of different phytochemicals present in crude extracts. Moreover, the Kirby-Bauer test and MIC assay was conducted to determine the inhibitory activity of crude extracts and fractionated leaf extracts of *U. rufa* against bacterial and fungal samples.

Phytochemical screening confirmed the abundance of alkaloids, tannins, saponins, flavonoids, and terpenoids in crude extracts, but no steroids or glycosides were found. The Kirby-Bauer test showed that the crude extracts were susceptible to *Staphylococcus aureus*, *Bacillus subtilis*, and *Escherichia coli*, forming an average zone of inhibition of 14.53 mm, 10.00 mm, and 8.17 mm, respectively. The water (10.3 mm), methanol/water (11.5 mm), and sec-butanol (17.8 mm) fractions also showed inhibitory activity against *S. aureus*. Moreover, the sec-butanol fraction was susceptible to *Pseudomonas aeruginosa*, showing an average zone of inhibition of 9.0 mm. For the MIC assay, the methanol/water fraction inhibited the growth of *S. aureus* at a lower concentration of 67.35 µg/mL. On the other hand, the water and sec-butanol fractions were susceptible to *S. aureus* and *B. subtilis*, giving lower concentrations of 68.1 µg/mL, and 26.21 µg/mL, respectively. The MIC assay showed that the methanol/water and aqueous fractions had antibacterial activity against gram-positive bacteria. Furthermore, the researchers recommend purification, isolation, and structure elucidation of the bioactive compounds responsible for the antibacterial activity of *U. rufa* extracts.

Key words: Antimicrobial resistance, Kirby-Bauer test, MIC assay, Plant-derived compounds, *Uvaria rufa*



Attitude and Satisfaction in Virtual and Traditional Laboratory Modes of Instruction of Pharmacy Students in Manila, Philippines

Ayesa Abiera, Jagger Christian Yap, April Mergelle Lapuz, Riel Anthony Oli, Kevin Jace Miranda and Rogie Royce Carandang

This study determines the attitude and satisfaction of pharmacy students toward virtual and traditional laboratory mode of instruction, and their correlates (i.e., students' demographic profile). This study utilized a school-based cross-sectional method among 138 respondents who were third and fourth-year pharmacy students enrolled in two participating institutions in Manila. The survey was administered via google forms in June and July 2022. Wilcoxon matched pairs signed rank test compared the attitude and satisfaction of students toward virtual and traditional laboratory. Chi-square test of association determined the correlation between the students' demographic profile and their attitude and satisfaction in virtual and traditional laboratory.

The attitude and satisfaction of students in traditional laboratory mode of instruction were more positive than virtual laboratory. The students' demographic profile does not have significant relationship with their attitude and satisfaction in virtual and traditional laboratory. Despite the virtual mode of instruction for laboratory courses to aid the completion of activities during the pandemic, most of the students still prefer the traditional laboratory mode for their courses that require laboratory activities. Further study with a larger scale is recommended to obtain in - depth findings on students' demographics correlation with the use of traditional and virtual laboratory.

Keywords: COVID-19, online learning, pandemic, traditional laboratory, virtual laboratory

Determinants of Community Pharmacists' Attitude in the City of Manila toward the Use of Electronic Prescription during COVID-19 Pandemic³

Renson Lantano, Joseph Emmanuel Nadres, Jovelle Rodulfo, Tanvi Sohal, April Mergelle Lapuz, Riel Anthony Oli, Kevin Jace Miranda, and Rogie Royce Carandang

The overwhelming amount of health information generated from the current pandemic surfaced the need for relevant innovation in medical technologies. The current technologies and practices seem inadequate or even incompatible with the immense volume of data and breakneck pace demand for access to these data. This study intends to determine the knowledge and attitude of community pharmacists in the City of Manila toward using electronic prescription during the COVID-19 pandemic. This descriptive cross-sectional study utilized a researcher-made survey questionnaire distributed via google forms to community pharmacists (n=113) who experienced the use of electronic prescription. The respondents' overall knowledge and attitude were scored using Bloom's cut-off point.

Results show that 69.9% and 64.6% of the respondents have adequate knowledge and positive attitude towards the use of electronic prescriptions, respectively, attributed to more than 10 years of work experience. However, 31.9% of the respondents have experienced troubles in using or handling electronic prescriptions. Using logistic regression analysis with a p-value of less than 0.05, the association of knowledge, socio-demographic's household income and years of work experience, and barriers or challenges experienced by the community pharmacists was determined. Moreover, the barriers or challenges experienced by the community pharmacists were associated with their negative attitude towards using electronic prescription. Future studies can be conducted in other areas of pharmacy practice to establish the generalizability of this study.

Key words: Community pharmacists, electronic prescriptions, Attitude

³ The research article was presented at the MMHRDC 6th International Symposium and 13th Annual Scientific Conference: A Hybrid Format last November 24-25, 2022.



Determinants of Lifestyle-Related Changes among Filipinos with Comorbidities amid COVID-19 Pandemic

Lorraine Ann Nolasco, Avery Caroleen Valencia, Mary Rachelle Macapagal, Jan Mikole Rodriguez, Hazel Anne Catublas, April Mergelle Lapuz, Kevin Jace Miranda, and Rogie Royce Carandang

The COVID-19 pandemic has changed the way of life of most people, such as those with comorbidities from chronic diseases, which can make them more susceptible to the virus due to underlying immunodeficiencies. The study determines the lifestyle-related changes among selected Filipinos with comorbidities and the perceived impact of their condition and other sociodemographic factors on their lifestyle during the pandemic. A community-based cross-sectional study was conducted among 402 Filipino adults with comorbidities such as diabetes, chronic lung diseases, and heart conditions. The online survey utilizing a five-point Likert scale to assess the responses for each lifestyle change employed by the respondents residing in Manila was administered from April to June 2022. Descriptive statistics summarize their sociodemographic profile and considerations in lifestyle changes. Multiple linear regression determines the correlation/s between variables. Principal component analysis (PCA) was used to arrive at a component matrix with the relevant lifestyle changes employed.

Monthly household income is considered as a main determinant of lifestyle - related changes while the other variables are not. Monthly household income greatly has affected the low-income class and have less access to resources. Delaying or preventing progression of the disease is highly considered for lifestyle changes. However, feeling better mentally got the least consideration which may still be prioritized as well since it is a part of one's overall health.

Keywords: Lifestyle change, chronic disease, comorbidity, COVID-19

Development of “Your Rx” Telepharmacy Application: A Facility-based Pilot Study⁴⁵

Maan Balt, Radha Lal, Christine Veronica Misola, Zoe Nicolette Beatrice Oreta, Danica Resuello, Kevin Jace Miranda, and Rogie Royce Carandang

In the Philippines, the current process for patients to avail Telepharmacy services utilizes a variety of existing applications or websites instead of using a single application. Telepharmacy is a method utilized in pharmacy practice where pharmacists interact with patients and deliver pharmaceutical care services via telecommunication technology. Telepharmacy creates an opportunity for pharmacists to extend the provision of health services to patients distantly amidst the COVID-19 pandemic. This study aims to develop a user-friendly application to provide easy access to Telepharmacy services. The study involved three phases: (1) Design and Development Phase; (2) Implementation Phase to orient the registered pharmacists enrolled in the Doctor of Pharmacy program of Adamson University, and the patients on the use of the mobile application; and (3) Evaluation Phase to evaluate the developed Telepharmacy application in terms of functionality, usability, security, and performance by the respondents through survey and interview.

Your Rx is a pioneering telepharmacy mobile application to be utilized as an accessible platform for acquiring pharmaceutical care services, receiving, and processing inquiries at users' convenience with less time and effort.

Your Rx is available for Android users and has the following primary features: video call, sharing, and setting an appointment feature. Forty-six patients used the application. Most of the *Your Rx* users are 19-33 years old (41.3%) and diagnosed with hypertension (23.91%). This application provides an opportunity to learn about telepharmacy since a number of respondents are unaware of it.

Your Rx mobile application provides telepharmacy services, particularly pharmacist-patient counseling. The users can connect through a video call with a licensed pharmacist and receive telepharmacy services at their convenience or designated place and time, therefore, answering their inquiries with less time and effort. Based on the application's overall evaluation, the users were very satisfied with the features of *Your Rx* in terms of navigation, service acquisition, and overall design. Nevertheless, they also suggested to include additional services and features (enhanced security features, recording features, etc.) to provide better pharmaceutical care services to patients.

Keywords: mobile application, telepharmacy, Your Rx

⁴ The research article was presented at the Adamson University – 9th Research Forum held last February 14, 2023.

⁵ The research article was presented in the “Three Minute Pitch to Policymakers 2022 Competition” at the 6th Metro Manila Health Research and Development Consortium (MMHRDC) International Symposium; and at the 13th Annual Scientific Conference “Post COVID-19 Pandemic Transformations and Innovations: Rethinking Practices and Strategies for a Resilient and Healthy Juan and Juana held last November 24-25, 2022 at University of Santo Tomas.



Drug-Excipient Compatibility Testing of Aspirin Using FTIR and DSC Analysis⁶

Richel Joen Cruz, Hannah Patricia Estrada, Dianne Erica Napalang, Christian Plaza, Perlita M. Crucis, April Mergelle R. Lapuz, Rogie Royce Carandang, and Kevin Jace Miranda

Aspirin (Acetylsalicylic acid) is a non-steroidal anti-inflammatory drug known for its antithrombotic effect. In drug development, assessing the interactions between the drug and excipient is vital to establish the desired properties and bioavailability of a drug product. The use of compatibility techniques in pre- formulation studies enables the detection of potential incompatibility to obtain the ideal drug formulation. In this study, aspirin alone and aspirin combined with individual excipients in a (1:1) ratio were subjected to Fourier-transform infrared spectroscopy (FTIR) and differential scanning calorimetry (DSC) with a ranging temperature of 30°C to 400°C for 30 mins to an hour.

The FTIR results exhibited a minor variation of peaks at 2800-3000 cm⁻¹ while the excipients showed a weak isolated peak at 2900 cm⁻¹. The overall combination of aspirin-excipients displayed similarities to the peak structure of aspirin at 1000-1700 cm⁻¹. In the DSC analysis, the first peak is present and nearly has a similar temperature location when observing the aspirin-combined excipients results; however, they differ slightly at 20°C when compared to aspirin alone. The compatibility testing of aspirin and aspirin-combined excipients have demonstrated to be more similar in the FTIR than in the DSC. Aspirin has been shown to be compatible with the excipients.

Key Words: Aspirin, drug-excipient incompatibility, Fourier transform infrared spectroscopy (FTIR), Differential scanning calorimetry (DSC)

⁶ The research article was presented at the Adamson University – 9th Research Forum held last February 14, 2023.

Drug Excipient Compatibility Testing of Cilostazol using FTIR and DSC Analysis⁷⁸

Syrine Faith Diño, Alia Denise Edu, Ralph Gean Francisco, Emmanuel Gutierrez , Perlita Crucis, April Mergelle Lapuz, Rogie Royce Carandang, and Kevin Jace Miranda

Cilostazol possesses pharmacological restrictions, such as its absorption is dissolution rate limited, and formulation studies must be employed accordingly to generate an optimized formulation. Drug excipient compatibility analysis determines any instability that may affect the formulation to guarantee stability, bioavailability, and manufacturability of solid dosage forms. To identify any incompatibilities, cilostazol alone and in combination with the individual excipients such as microcrystalline cellulose, crospovidone, magnesium stearate, isopropyl alcohol, sodium lauryl sulfate, polyvinylpyrrolidone K30, and cornstarch were subjected to Fourier-transform infrared spectroscopy (FTIR) equipped with an attenuated total reflectance method and heat-flow differential scanning calorimetry (DSC) with a temperature ranging from 30 °C to 400 °C at 10 °C/minute ramp rate. The FTIR analysis of cilostazol alone and combined with excipients revealed no evidence of chemical or physical instability. Minor changes in the appearance of the absorbance bands in the FTIR comparison can be seen primarily due to chemical characterization of the excipients, but the characteristic peaks of cilostazol were still present. As for DSC compatibility analysis, the % difference in cilostazol's principal peak temperature alone and with excipients are within the 5% difference standard. This implies that no incompatibilities exist between cilostazol and the excipients.

Keywords: Cilostazol, Drug-excipient compatibility, FTIR, DSC

⁷ The research article was presented at the Adamson University – 9th Research Forum held last February 14, 2023.

⁸ The research article was presented at the 10th Asian Association of Schools of Pharmacy (AASP) Conference held last July 29-31, 2022.



Effectiveness of Cannabidiol on Chronic Pain Management: A Systematic Review⁹¹⁰

Sherin Yasser Mostafa Mohammed, Kaizielyn Leis, Ria Eunice Mercado, Ma. Monica Sheiane Castillo, Kevin Jace Miranda, and Rogie Royce Carandang

Cannabidiol (CBD), a component in Cannabis, is used to treat seizures, anxiety, and pain. However, there is a dearth in literature on its effectiveness in managing chronic pain which is a sensation that can persist for three to six months.

This systematic review evaluated CBD's effectiveness in chronic pain management. The researchers searched eight databases and gray literature for relevant studies in August, 2022. Only 15 studies were qualified among 1,516 identified original research articles with various study designs published in English that involved patients who used CBD to manage their chronic pain. The narrative synthesis analyzed the results. Two authors assessed the risk of bias and certainty of evidence using the Grading of Recommendations Assessment, Development, and Evaluation approach. Majority of the studies indicate pain reduction ranging from 42% - 66% with CBD alone and CBD with Tetrahydrocannabinol (THC). Three studies showed no significant improvement in reducing pain, and one had mixed findings in pain control. The reviewed studies use various methods of measuring pain reduction, mostly through self-reporting and scales such as visual analog scales and verbal numerical scales, among others.

CBD may be useful in treating chronic pain. Findings must be interpreted carefully due to the small number of included studies and heterogeneity brought about by different study designs and outcome measures. More studies with robust designs are warranted to evaluate further CBD's effectiveness in treating chronic pain.

⁹ The research article was presented at the Adamson University – 9th Research Forum held last February 14, 2023.

¹⁰ The research article was presented at the 10th Asian Association of Schools of Pharmacy (AASP) Conference held last July 29-31, 2022.

Effectiveness of Tocilizumab in COVID-19 Patients with Pneumonia: A Systematic Review

Johanah Laisah Salo, Lyka Jam Marcelo, Arianna Claire Sanchez, Chonamae Marcelino and Hazel Anne Lamadrid- Catublas, Kevin Jace Miranda and Rogie Royce Carandang

This study aims to review the effectiveness of tocilizumab in treating patients with severe COVID-19 pneumonia who are 50 years old and above. The researchers systematically searched several databases namely Web of Science, CINAHL, Academic Search Complete, PsychINFO, PsycArticles, SocINDEX, CENTRAL/Cochrane Library, PubMed/MEDLINE and gray literature for original research articles in English across several study designs published in 2020-2022; and conducted a narrative synthesis. NIH quality assessment tool for observational cohort studies assessed the risk of bias; while GRADE assessed the certainty of evidence. Five studies were qualified among 539 identified studies.

Tocilizumab has mixed effects in reducing mortality rate and improving survival in severe COVID-19 patients with pneumonia. Moreover, the effects of Tocilizumab in the requirement and duration of mechanical ventilation with severe COVID-19 pneumonia in the hospital are mixed. In addition, Tocilizumab patients had a shorter length of stay in the hospital ward and ICU. Furthermore, there is a mixed effect between tocilizumab and secondary infection due to the immunosuppressive effects of tocilizumab.

Administration of tocilizumab in COVID-19 patients with pneumonia did not reduce the risk of mortality and the survival rate of patients. Most findings indicate that the administration of tocilizumab shortens hospital stays. Tocilizumab is linked to the incidence of secondary infections; hence, this medication should be closely monitored for side effects. Tocilizumab decreases the need for mechanical ventilation and reduces ICU transfer.



Evaluation of Hypoglycemic and Antioxidant Activities and Metabolomic Study of the Fractionated Extract of the *Crescentia cujete* Linn. Fruit

Jan Edward S. Bautista, Camille Angela D. Bolaños, Kim Andrew A. Macatangay, Daniel Edward Paje, Rogie Royce Carandang, and Kevin Jace Miranda

Diabetes mellitus (DM) is a prevalent disease that is the sixth leading cause of death in the Philippines. The fruit juice of *Crescentia cujete* (*C. cujete*), or miracle fruit, has been utilized by some locals in the Philippines as an anti-diabetic and antioxidant treatment alternative or additive due to the high costs of their current prescriptions. Phytochemical screening of the fruit extract indicates the presence of alkaloids and reducing sugars with trace amounts of saponins, volatile oil, tannins, and polyphenols. Hypoglycemic and antioxidant assays determine the potential activity. α -glucosidase inhibition at 10 ppm of the fruit exhibited low enzyme inhibition activity. Methanol/H₂O solvent fraction shows notable antioxidant activity in the 2,2-Diphenyl-1-PicrylHydrazyl (DPPH) assay, averaging 55.69% inhibition. Testing at a concentration gradient should establish half maximal inhibitory concentration (IC₅₀) and determine at which concentration the fruit will elicit antioxidant and antidiabetic activities.

The metabolite profile of the extract was established using ultra-high performance liquid chromatography high-resolution tandem mass spectrometry (UPLC-HRMS/MS) and generated results from a data-dependent analysis (DDA). Putative hits to the NIST14 Mass Spectral Library included 1-Stearoyl-2-hydroxy-sn-glycero-3-phosphocholine, 15(S)-15-Methyl Prostaglandin E1, and 5,6-Dihydroxy-8Z,11Z,14Z-eicosatrienoic acid. Fragmentation analysis of the tandem mass spectra also derived a number of alkaloidal compounds by dereplication using the molecular formula of compounds based on their monoisotopic mass in ChemSpider: 2-Amino-3-heptyl-1-(2-hydroxyethyl)-1H-benzimidazol-3-ium, [4-(Isobutylamino)-1-(octahydro-1H-pyrazolo[3,4-d]pyrimidin-4-yl)-4-piperidinyl]methanol, 2-Methyl-1-{2-methyl-4-[1-(1-methylcyclobutyl)-5-tetrazolidinyl]-1-piperazinyl}-2-propanol, [1-({1-[(3-Ethyl-4-imidazolidinyl)methyl]-4-piperidinyl)methyl}-1,2,3-triazolidin-4-yl]methanol, and 4-[(4-[(2-Hydroxyethyl)(3-pentanyl)amino]cyclohexyl)amino]methyl]-N,N-bis(1H-imidazol-2-ylmethyl)benzamide.

Keywords: *Crescentia cujete*, hypoglycemic, antioxidant, metabolite profiling

Factors Affecting the Knowledge and Attitude of Telepharmacy Service Users in the Philippines amidst COVID-19 Pandemic¹¹

Althea Gem R. Alegre, Diosdado R. Cabilino III, Mia Laureen R. Daroy, Juan Carlo Q. Rallos, Charina Gail O. Baloy, Kevin Jace Miranda and Rogie Royce Carandang

Pharmacists have always been one of the most easily accessible health professionals in a patient's healthcare team. However, due to the restrictions brought about by limited face-to-face contact during the COVID-19 pandemic, patients' access to proper pharmaceutical care such as counseling and medication management has drastically declined. In this manner, pharmacists and patients alike have resorted to using telepharmacy services. Telepharmacy refers to a type of pharmaceutical treatment so that pharmacists and patients who are in different location may communicate using information and communication technology (ICT). This study intends to determine the factors that affect the Filipinos' knowledge and attitude to telepharmacy services during the pandemic.

The 650 sample was subjected to OpenEpi Statistical Calculator, an open-source epidemiologic statistics for public health, to obtain the final sample size of 242—in which 24 more was added after adding 10% to account for possible withdrawal of some respondents. The qualified respondents included adults, 18 years old and above, who have experienced availing telepharmacy services from either University of the Philippines, Adamson University, or both on their first year of service. This cross-sectional study utilized researcher-made online survey questionnaire with dichotomous true or false scale and four (4)-point Likert scale. The respondents' overall knowledge and attitude were scored using Bloom's cut-off point. Descriptive statistics summarizes the respondents' sociodemographic characteristics and the individual statements for both knowledge and attitude assessment part. Multiple logistic regression analysis draws inferences on the factors associated with both the respondents' level of knowledge and attitude.

Among 286 respondents, only 250 were valid responses. Majority or 96.8% of the respondents have adequate level of knowledge on telepharmacy services; while only 3.2% have moderate level of knowledge. Moreover, 70% have a 'positive' attitude on telepharmacy services; 30% have a 'moderate' attitude. The factors associated with the respondents' level of knowledge in telepharmacy services include sex (adjusted odds ratio [AOR] = 1.41, $p < 0.001$); highest educational attainment (AOR = 6.55, $p = 0.040$); location for telepharmacy availment or telepharmacy provider (AOR = 10.10, $p < 0.001$); and skills in technology (AOR = 7.45, $p < 0.001$). On the other hand, the factors associated with the respondents' level of attitude to telepharmacy services include age (AOR = 0.93, $p < 0.001$); highest educational attainment (AOR = 3.75, $p = 0.041$); and location for telepharmacy availment or telepharmacy provider (AOR = 1.84, $p = 0.004$).

¹¹ This research article was presented in the "Three Minute Pitch to Policymakers 2022 Competition" at the 6th Metro Manila Health Research and Development Consortium (MMHRDC) International Symposium and at the 13th Annual Scientific Conference "Post COVID-19 Pandemic Transformations and Innovations: Rethinking Practices and Strategies for a Resilient and Healthy Juan and Juana held last November 24-25, 2022 at University of Santo Tomas.



Therefore, the respondents have adequate level of knowledge and positive level of attitude towards telepharmacy services. Sex, highest educational attainment, telepharmacy provider, and skills in technology are associated with their level of knowledge; while age, highest educational attainment, and telepharmacy provider are associated with their level of attitude.

Keywords: Telepharmacy, Telemedicine, ICT, COVID-19, pandemic



Factors Associated with Proper Disposal of Unwanted Medicines among College Students in Metro Manila, Philippines¹²

Nicole Allison Macalisang , Juzteen Aira Ragos , Patricia Marie Roxas , Cristine Tempra, Riel Anthony Oli, Kevin Jace Miranda, and Rogie Royce Carandang

The World Health Organization (WHO) reported that 50.0% of all medications are prescribed and sold to patients inappropriately which results in unused, unwanted, or expired medicines that often end up in landfill and water systems. As a result, the disposal of these medicines becomes a global environmental and public health concern. In the Philippines, little is known about disposal practices of medicines. This study aims to measure the baseline knowledge on proper disposal of unwanted medicines and to examine the factors associated with its proper disposal.

A school-based cross-sectional study was conducted online using a structured questionnaire among 770 college students in Metro Manila, Philippines in June and July 2022. Logistic regression analysis examines the factors associated with proper disposal of unwanted medicines. Bivariate analysis shows that students with adequate knowledge of unwanted medicines are more likely to have adequate knowledge of its proper disposal (Odds ratio [OR] = 2.61; 95% Confidence Interval [CI] = 1.93,3.53). In the multivariable analysis, only knowledge in proper disposal, year level, and field of study were significantly associated with the students' disposal practices.

The baseline knowledge on proper disposal of unwanted medicines among college students was moderate to good. However, this knowledge does not equate to practice. Despite students have more knowledge, they tend not to practice proper disposal. Students in the higher year level and in health-related field are more likely to practice proper disposal than those in the lower year level and non-health background, respectively.

Keywords: Environmental hazard, health-related program, non-health related program, pharmaceutical waste, proper disposal, unwanted medicine

¹² The research article was presented at the MMHRDC 6th International Symposium and 13th Annual Scientific Conference: A Hybrid Format held last November 24-25, 2022.



Factors Associated with Willingness of Community Pharmacists in Metro Manila in Participating in Immunizing Pharmacist Certification Program¹³

Mary Angeline A. Aguinaldo, Klariz Jane P. Dela Cruz, Marinelle Shane B. Gaudicos, Allysa Jane G. Lorico, Danica L. Resuelo, Kevin Jace Miranda, and Rogie Royce Carandang

Immunizing Pharmacist Certification Program (IPCP) has been promulgated to train Filipino pharmacists in administering adult vaccines. IPCP is a new program where the participation of pharmacists is crucial to accelerate vaccination rates. IPCP can maximize the vital role of Filipino pharmacists in immunization delivery, including vaccine administration, facilitating vaccination, and patient counseling about the possible side effects. However, the full utilization of Filipino pharmacists in immunization programs and rendering quality service can be affected by their awareness and willingness thus should be considered.

This study aims to evaluate the community pharmacists' level of knowledge and attitude towards IPCP, and the factors associated with their willingness to participate. This community-based cross-sectional study utilized purposive sampling to qualify the 306 who are 21 to 40 years old, with at least 1-year work experience in a community pharmacy in Metro Manila and did not undergo immunization training. An online survey was conducted using a standardized questionnaire. Descriptive statistics analyze the demographic profile of the respondents and determine their level of knowledge and attitude towards IPCP. Moreover, simple and multiple logistic regression analyses determine the factors associated with their willingness to participate in the IPCP. StataMP64 ver. 13 was used to process the data.

A total of 154 community pharmacists responded to the survey questionnaire yielding a response rate of 42.8%. Majority or 91.6% of the respondents have adequate knowledge; and 97.4% have positive attitude toward IPCP. The results of simple regression analysis indicate that there is a significant association between age, marital status, type of community pharmacy, years of practice and with the willingness of the community pharmacists to participate in the IPCP with p-values of <0.001 to 0.001. It also shows that knowledge and attitude are not significant predictors of community pharmacists' willingness to participate in the IPCP with p-values of 0.932 and 0.101, respectively. Furthermore, multiple logistic regression analysis shows that knowledge (AOR = 0.74; adjusted p-value = 0.669) and attitude (AOR = 4.26; adjusted p-value = 0.311) are not significant predictors of willingness to participate in IPCP when adjusted for type of community pharmacy and years of practice. The type of pharmacy and chain pharmacy have adjusted p-value of 0.002. Whereas 6 years and above of practice have an adjusted p-value of <0.001 are associated to the willingness of the community pharmacists to participate in the IPCP. Majority of the community pharmacists show willingness to participate in the IPCP; have adequate knowledge and positive attitude towards IPCP. However, having adequate knowledge and positive attitude are not significant predictors of the community

¹³ The research article was presented at the 9th School of Healthcare Professions International Research Conference held last March 21, 2023

pharmacists' willingness to participate in IPCP. Age, marital status, type of community pharmacy, and years of practice as community pharmacists are significant predictors of the willingness of community pharmacists to participate in the training program. However, multiple logistic regression analysis reveals that the only variables associated with their willingness to take part in the IPCP were the type of community pharmacy and the number of years of practice as community pharmacists. However, the results of this study is not generalizable due to small sample size. Future studies may examine the barriers perceived by pharmacists regarding immunization training programs as well as immunization delivery.

Keywords: adult vaccines, immunization, immunizing pharmacist, PPhA-IPCP, willingness





In-vitro Inhibition of α -glucosidase by *Rubus rosifolius* Leaf and Fruit Extracts¹⁴¹⁵¹⁶

Louie R. Delgado, Franz Heinrich R. Nimer, Joshua M. Jimenez, Marvi Ann Zurita, Angeli Ann Rescober, Kevin Jace Miranda, and Rogie Royce Carandang

Rubus rosifolius, commonly known in the northern parts of the Philippines as *sampinit*, may pose an effective and safe herbal functional to α -glucosidase inhibitors for managing diabetes mellitus (DM) with fewer side effects. This study aims to investigate the in-vitro α -glucosidase inhibitory activity of *Rubus rosifolius* methanolic leaf and fruit extracts to develop alternative ways of addressing DM.

Spectrophotometric method was performed to examine the α -glucosidase inhibitory activity of the methanolic leaf and fruit extracts. 50% maximal inhibitory concentration (IC 50) was computed using a dose-response curve with linear regression interpolation expressed as % inhibition. α -glucosidase inhibition at 405 nm showed the following activities at 1,000 $\mu\text{g/mL}$: 98.42% (fruit extract), 93.33% (leaf extract), and 76.18% (acarbose). However, one-way ANOVA reported significantly different % inhibitions at various concentrations among various groups (p -value = 0.05). The leaf extract had higher hypoglycemic activity than the fruit extract and acarbose, with IC 50 values of 22.24 $\mu\text{g/mL}$, 195.32 $\mu\text{g/mL}$, & 367.96 $\mu\text{g/mL}$, respectively.

Among treatment groups at various concentrations, the leaf extract is more potent than the fruit extract in inhibiting α -glucosidase. Both *R. rosifolius* methanolic extracts are good alternative supplements to acarbose in lowering plasma glucose levels.

Keywords: *A-glucosidase Inhibition, Anthocyanins, Diabetes mellitus, Rubus rosifolius, Sampinit*

¹⁴ The research poster was presented at the Adamson University Center for Research and Development as part of the Student Scientific Poster Exhibition held last February 16, 2023.

¹⁵ The research article was presented at the Adamson University – 9th Research Forum held last February 14, 2023.

¹⁶ The research article was presented at the 28th Federation of Asian Pharmaceutical Associations (FAPA) Congress 2022 held in Kuala Lumpur, Malaysia held last November 2022.

Knowledge and Attitude toward Telemedicine Services in Caloocan City, Philippines: A Cross-Sectional Study

Kyla M. Pararuan, James D. Sara, Isabella Maria S. Velasco, Jose Gerardo Aquino, Kevin Jace Miranda, and Rogie Royce Carandang

The telemedicine industry has flourished in the middle of the coronavirus disease 2019 (COVID-19) pandemic, where the provision of consultations is offered remotely with the use of telemedicine services. The healthcare professionals have tried these services to determine whether it would be beneficial, especially in a developing country like the Philippines. Telemedicine is a service provided by medical professionals to diagnose, evaluate, and treat patients using technology such as computers and mobile devices like tablets and smartphones. Projects and programs on telemedicine in low-resource settings allow distant health workers to diagnose, manage patient care, follow-up, evaluate care to patients, and improve access to tertiary level care advice. When visiting a healthcare facility, a person is exposed to germs from a variety of sources. The elderly are at higher risk of contracting direct infections from being exposed to infectious environments like hospitals and to avoid contact with sick people. Instead, they opt to telemedicine to be evaluated by a doctor.

This study aims to assess the knowledge and attitude of residents of Caloocan City toward telemedicine services and to determine the significant difference in the level of knowledge and attitude of the respondents toward telemedicine service when grouped according to their sociodemographic profile; and to determine if the level of knowledge and attitude of the residents of Caloocan City are factors to utilize telemedicine services.

A community-based cross-sectional study was conducted using structured self-administered questionnaires among 438 residents of Caloocan City, Philippines in June and July, 2022. Data entry and analysis were done using Stata/MP version 13. Means, standard deviation, frequency (count), and relative frequency (percentage) were used for categorical data. Multiple logistic regression analysis determines the factors associated with availing telemedicine services. A value of < 0.05 was considered significant. Among 438 participants in Caloocan City, 51.1% have adequate knowledge in telemedicine services, while 48.9% have poor knowledge. Majority or 90.9% of the respondents have negative attitude toward telemedicine services, while 9.1% have positive attitudes. Multiple logistic regression analysis shows that knowledge and attitude toward telemedicine services are significant predictors of availing of telemedicine services.

Knowledge and attitude are significant predictors of availing telemedicine services when adjusted for highest educational attainment. Those with adequate knowledge and with positive attitude toward telemedicine services are more likely to avail it.

Keywords: Telemedicine, Healthcare delivery, Patient care, Developing Country, Knowledge, Attitudes



Knowledge and Practices of Men in Using Skin-lightening Products: A Cross-sectional Study Conducted in Manila¹⁷

Ma. Gabriela Bautista, Jan Albert Bustos, Riel Anthony Oli, Kevin Jace Miranda, and Rogie Royce Carandang

Skin-lightening products are used to remove localized dark patches by decreasing the melanin pigment through tyrosinase catalytic action inhibition. These products are commonly used by women. Thus, formulations as well as studies on these types of products are focused on women and minimal is known for men. The study aims to assess the knowledge and practices of men in using skin-lightening agents and the association of its unwanted effects. This descriptive cross-sectional study utilizing a researcher-made survey questionnaire was conducted in Manila City Philippines.

The male respondents have adequate knowledge and good practice in using skin-lightening products. However, demographics, knowledge, and practices of the male respondents are not associated with the number of unwanted effects that they experienced from using skin-lightening products. Despite the high knowledge and practice in using skin-lightening products, a high percentage of the respondents have experienced unwanted effects from the products used. Therefore, there is a need to review the formulations of the said products to match the skin type of men to minimize unwanted effects.

Keywords: Men, skin-lightening, unwanted effects

¹⁷ The research article was presented at the MMHRDC 6th International Symposium and 13th Annual Scientific Conference: A Hybrid Format held last November 24-25, 2022.

Motivation on the Uptake of SARS-CoV-2 Vaccines in CALABARZON Region, Philippines

Gillie Grace Laguc , Patricia Camille Quilantang, Merry Joyce Respicio , Joyce Rea Mae Fernandez, Jose Gerardo Aquino, Kevin Jace Miranda, and Rogie Royce Carandang

This study aims to determine the factors that motivated Filipino residents in Cavite, Laguna, Batangas, Rizal, Quezon Province, or the CALABARZON region to get vaccinated with the SARS-CoV-2 vaccines. This descriptive cross-sectional study utilized a researcher-made survey questionnaire distributed online through google forms with the respondents who are either fully or partially vaccinated with SARS-CoV-2 vaccines or have received their booster shots. Descriptive statistics examines the extrinsic and intrinsic factors toward uptake of SARS-CoV-2 vaccines. The respondents' overall knowledge and attitude were scored using Bloom's cut-off point.

Out of 398 respondents, 55.3% are female; 77.1% are 29 years old and below. Family/friends, lifestyle, government, community, and peers/associates are the extrinsic factors that motivated them to get vaccinated. As for the intrinsic factors, 86.4% have adequate knowledge and 63.6% have positive attitude toward SARS-CoV-2 vaccine. To have a successful vaccination campaign, both extrinsic and intrinsic factors must be considered when exploring the motivation of residents to get vaccinated against COVID-19. Family/friends are the primary extrinsic factor, followed by lifestyle, government, community, and peers/associates. Most respondents have adequate knowledge and positive attitude toward SARS-CoV-2 vaccine.

Keywords: Attitudes, CALABARZON, COVID-19, Extrinsic Factors, Knowledge, SARS-CoV-2 Vaccine



PrescripLine - A Prototype Internet-based Platform for the Storage of Prescription and Medication History in Telemedicine¹⁸¹⁹²⁰

Rosemarie M. Alonte, Justine Ann S. Arenas, Bryce Edison L. Bagas, Miles S. Supendio, Denzel John B. Alonte, Mark Kenneth R. Marcos, Kevin Jace Miranda, and Rogie Royce Carandang

E-prescribing is a computerized system of generating, transmitting, and filling prescriptions. However, the available e-prescribing platforms in the Philippines do not include the repository and filling process area of electronic prescriptions.

The study has three specific objectives: (1) to determine the desirable features of an electronic prescription/electronic prescribing application based on the perception of the physicians, community pharmacists, and patient; (2) to create a software prototype where patients can reposit their prescriptions and physicians can prescribe medications that may aid the telemedicine; and (3) to alpha test and evaluate the software prototype using an adopted questionnaire from International Organization for Standardization/International Electrotechnical Commission 25010 (ISO/IEC 25010).

The descriptive study involves two parts: a cross-sectional study with open-ended question for the baseline survey and a descriptive quantitative design for the alpha testing of the prototype software. The lowest frequency approval recorded for the baseline survey was 90%. Only 4 themes out of the 7 generated from the open-ended question were applied to develop the prototype software. Evaluation of the prototype software during the alpha test yielded a rating of “Excellent” in accordance with the ISO/IEC 25010 criteria.

Therefore, PrescripLine works as a storage of prescriptions and medication history, and as a tool for updating an electronic prescription that may aid the telemedicine it conforms to the criteria measure of ISO/IEC 25010.

Key words: PrescripLine, e-prescription, telemedicine, prototype, software, e-prescribing, telehealth

¹⁸ The research article was presented at the Philippine Pharmacists Association National Convention 2023 held last May 24 and 26, 2023.

¹⁹ The research poster was presented at the Adamson University Center for Research and Development as part of the Student Scientific Poster Exhibition held last February 16, 2023.

²⁰ The research article was presented at the Adamson University – 9th Research Forum held last February 14, 2023.

**ADAMSON UNIVERSITY COLLEGE OF
PHARMACY**

**DOCTOR OF PHARMACY PROGRAM
RESEARCH ABSTRACT S.Y. 2021 - 2022**



Accessibility of Cannabinoid Products Utilizing the Compassionate Use Permit Process: A Policy Review

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Ma. Christina Q. Quitaleg, RPh; Dennis F. Quilala, MA; and Peter F. Quilala, MD, RPh

There is a demand for medical cannabis use in the Philippines. However due to law restrictions, patients have difficulty in acquiring such products. The use of the Compassionate Special Permit (CSP) through the Food and Drug Authority (FDA) is supposed to be an instrument for patients to be able to use medical cannabis. The Dangerous Drug Board (DDB) has allowed cannabidiol (CBD) with no more than 0.1% tetrahydrocannabinol (THC) and reclassified Cannabis from Schedule 1 and 2 to Schedule 4. However, it is still considered as a dangerous drug. The only product available that fits into the criteria set by DDB is Epidiolex®, a product costing up to \$35,000 (₱1,851,850) annually. However, there are no specific existing implementing rules and regulations for the acquisition of such dangerous drugs prompting for a policy review. A semi-structured interview on the overall experience with CSP and a Likert scale questionnaire on the perception of stakeholders and policymakers on the level of difficulty in acquiring the requirements for CSP were administered. The gathered data was analyzed thematically and statistically. Five main themes emerged: (1) Burden of Prescribers, (2) Process Efficiency (3) Creating possibilities and/or opportunities for medical cannabis for the greater population, (4) Benevolence of CSP, (5) Perception Variability. Statistical analysis shows that the acquisition of Individual Patient Use requirements for CSP obtained a difficult rating while Institutional Use got a very easy rating.

However, no statistical difference in the perception of ease among policymakers and stakeholders due to paucity of end-user respondents. Therefore, the current process on CSP acquisition provided by the FDA is lacking and restrictive for cannabinoid products. The stakeholders no longer view the CSP process as a viable way to acquire medical cannabis, instead are advocating for the legalization of medical marijuana.

Keywords: Cannabinoids, Policy Review, Epidiolex®, Medical Cannabis, Compassionate Special Permit

Experiences, Perception, and Challenges of Filipino Immunizing Pharmacists: A Phenomenological Study

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and Ariane Marie G. Bayro, MSc, PharmD, RPh

Vaccination campaigns in both private and public clinics, hospitals, and other Philippine health systems are usually led and provided by doctors, nurses, and other primary care practitioners — with pharmacists as an exception. In April 2021, Filipino pharmacists were given the privilege to administer adult vaccines because of the COVID-19 pandemic to increase immunization rates in the Philippines. This study aims to describe the experiences, perceptions, and challenges of Filipino pharmacists, as certified immunizers, in the provision of immunization of the Filipinos. A semi-structured in-depth interview through virtual platforms (Messenger app, Google meet, Zoom meetings, or Viber) was conducted. The qualitative data were transcribed then analyzed via thematic analysis. Four main themes emerged — (1) positive experiences and influences on pharmacy practice and relationships; (2) perceptions and attitudes towards the new role; (3) barriers and challenges in pharmacy-based immunization; and (4) addressing the gaps in pharmacy-based immunization.

Most of the participants felt an improvement in their pharmacy practice in the Philippines and in their relationships with their healthcare colleagues as well as patients. The participants also felt an increased sense of professional growth and satisfaction with the new role of immunization. However, there were still some barriers and challenges that came along that most of the participants observed, such as gaps in practice and training program, barriers in professional competence, and challenges in relationships. The new role of immunization has paved the way for Filipino pharmacists to be recognized as part of the healthcare team. Since immunization by Filipino pharmacists is still a new practice in the Philippine setting, there are still some barriers, challenges, and gaps that need to be addressed for a better implementation of pharmacy-based immunization in the country.

Keywords: Filipino immunizing pharmacist, Immunizing Pharmacist Certification Program, pharmacy-based immunization, vaccination, vaccine hesitancy



Evaluation of Hospital Pharmacy Experiential Pharmacy Practice of Adamson University During Pandemic Period

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The hospital pharmacy internship program is an essential part of pharmacy practice in the Philippines. Its evaluation is necessary to continuously develop a comprehensive program according to the needs and changing role of the profession. Due to the pandemic, many colleges and universities are continuously searching for ways to improve the general experience of not conducting face-to-face interaction to sustain the good quality of education. The Commission of Higher Education provided a memorandum order on the guidelines in the practice of pharmacy students during the pandemic period, which includes a list of virtual activities to ensure that students will continue to improve their ability to integrate their learning that could better prepare them for their future workplace environments. This study intends to evaluate the Experiential Pharmacy Practice program outlined for the Hospital Pharmacy Practice Experience at Adamson University. This study evaluated whether the students gained the fundamental knowledge and skills provided by the Hospital Pharmacy Host Training Establishment (HTE) aligned with the program outcome of the university.

This study performed the Wilcoxon Signed-Rank Test to determine whether the knowledge and skills were attained and the Mann-Whitney Test to compare the attainment based on the internship site in analyzing the correlation between the 67 respondents and the three domains. This study found that the program outline for hospital pharmacy experiential pharmacy practice at the university adhered to the guidelines set by CMO No. 5 series of 2021.

Keywords: Hospital Pharmacy, Experiential Pharmacy Practice, Pandemic period

Knowledge, Attitude, and Perception of Bachelor of Science in Pharmacy Students from Selected Universities toward Immunizing Pharmacist in the Philippines

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Vaccine providers have worked in hospitals, doctors' offices, clinics, health departments, and schools. Vaccines are only given by doctors and nurses. As the scope of pharmacy practice grows and incorporates more services, several countries also include vaccination in the pharmacist's scope of practice like in the Philippines. Immunizing pharmacists has been accepted in different countries worldwide. This quantitative descriptive study assessed the knowledge, attitude, and perception of selected Bachelor of Science in Pharmacy students from selected universities toward immunizing pharmacists in the Philippines. The findings show that respondents have adequate knowledge and highly positive attitude toward immunizing pharmacists in the country. Moreover, they have moderate perceived support toward immunizing pharmacists in the country. However, there is no significant relationship on the attitude and perception of pharmacy students toward immunizing pharmacist when grouped according to their demographic profile.

There is a statistically significant relationship between the pharmacy students' attitude and perception toward immunizing pharmacists in the Philippines. This study recommends the inclusion of the training and certification program for immunizing pharmacists in the curriculum of the BS Pharmacy; conduct talks and open forum in universities; initiate information brigade and awareness program about immunizing pharmacists' practice in the Philippines to gather more support not only among pharmacy students but also from the public.

Keywords: Attitude, Immunizing Pharmacists, Knowledge, Perception, Vaccines, Vaccination



Knowledge, Attitude, Perception of Clinical Pharmacists in Tertiary Hospitals in Metro Manila on the Integration of Telepharmacy as a Pharmacy Service

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The clinical pharmacists play a critical role in disease prevention, management, treatment, and containment. The healthcare workers have been experiencing fatigue and depression due to the overwhelming experiences in the hospitals. Telepharmacy can provide easier access in inpatient and outpatient pharmacy consultation services during a public health crisis, and advancement in healthcare services to provide high quality pharmacy services to rural and remote areas. The study aims to determine the knowledge, attitude, and perception of clinical pharmacists in selected tertiary hospitals in Metro Manila on the integration of telepharmacy. This descriptive cross-sectional survey involved respondents with at least one year work experience, and with or without experience in telepharmacy. Kruskal-Wallis and Wilcoxon Rank Sum (Mann-Whitney test) were performed.

Most of the respondents are knowledgeable in the description, usefulness and potential benefits, advantages and overall concept of telepharmacy as well as their awareness about telepharmacy integration. According to their level of attitude, most of them agreed on the different description, usefulness, benefits, advantages, and overall concept of telepharmacy in clinical pharmacy. Most of them agreed on the perceived characteristics and benefits of telepharmacy which entails that they have positive perception and view toward the integration of telepharmacy in the healthcare facilities.

Keywords: Attitude, Clinical Pharmacists, Clinical Pharmacy, Hospitals, Telepharmacy

The Influence of Social Media and Perception on COVID-19 Vaccination among Residents in Metro Manila

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The blistering pace of the COVID-19 vaccine discovery and creation have become a global concern. The contrasting views between agreeing and refusing to get vaccinated due to personal reasons and perception. In this digital age, infodemics spread fast which caused panic and deception running the gamut. Ideas ranged from discrediting the threat of COVID-19 to conspiracy theories that COVID vaccines may alter DNA or may contain a microchip or software that will track people down. Social media are often regarded as one of the most effective vehicles for mass education but may frequently contain erroneous, inconsistent, and insufficient data, especially during the pandemic. Thus, it is critical to educate people about the importance of vaccination. This study intends to examine the relationship between COVID-19 vaccination, social media exposure, and interpersonal deliberation about COVID-19 vaccination.

This quantitative descriptive-correlational study utilized survey. Findings shows that 33.00% of the respondents are Gen Z who are 18 to 25 years old; 26.30% are millennials who are 26 to 41 years old; 17.62% are Gen X who are 42 to 57 years old; and 23.08% are boomers who are 58 years old and above. Most of the respondents are Gen Z. Majority of the respondents considered social media had affected their decision to be vaccinated against COVID-19. This indicates that social media positively influence the respondents to be vaccinated.

However, the decision to be vaccinated is influenced by other factors. Social media use indicators may be used to assess public perception of COVID-19 immunizations. This study addresses solely the general correlation between age groups, perception, and impact of COVID-19 vaccination. This study recommends examining fully each variable association to establish a strong link between age, social media, attitude toward COVID-19 vaccination.

Keywords: social media, vaccination, perception, infodemic, COVID – 19



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