

IGSCPS SPECIAL EDITION

RESEARCH ARTICLE

Competency analysis of health workers: Interprofessional collaboration practices in a tertiary referral hospital in Surabaya

Hanum Firda Tsabitalya¹, Fauna Herawati², Halim Priyahau Jaya³, Rika Yulia², Setiasih⁴

¹ Bachelor of Pharmacy Programme, Faculty of Pharmacy, University of Surabaya, Surabaya, Indonesia

² Department of Clinical and Community Pharmacy, Faculty of Pharmacy, University of Surabaya, Surabaya, Indonesia

³ Regional General Hospital, Dr. Soetomo, Surabaya, Indonesia

⁴ Developmental Psychology Laboratory, Faculty of Psychology, University of Surabaya, Surabaya, Indonesia

Keywords

CICS29

Competence

Health worker

Hospital

Interprofessional collaboration

Correspondence

Rika Yulia

Clinical and Community Pharmacy

Faculty of Pharmacy

University of Surabaya

Surabaya

Indonesia

rika_y@staff.ubaya.ac.id

Abstract

Background: There is a rising need for high-quality, efficient healthcare. Implementing interprofessional cooperation (IPC) between healthcare professionals is one of the initiatives that has raised the standard of treatment in hospitals. The disparity in competence amongst health professionals is one of several elements that affect the requirements for the successful implementation of cooperation. **Objective:** To examine the attitudes, abilities, teamwork, and positive roles implemented by health workers in interprofessional collaboration practices. **Method:** Cross-sectional research methodology was used in this observational study. The Chiba Interprofessional Competency Scale (CICS29) instrument, which has 29 verified items, was used to evaluate the proficiency of health workers. The value of five (always) until one (never) was used to distinguish between the various categories. **Result:** A very good Cronbach alpha score of 0.921 was used to verify the questionnaire. Exactly 109 health professionals, including 21 physicians, 34 pharmacists, 50 nurses, and four nutritionists, participated in the study as respondents. **Conclusion:** Based on the study's findings, it was determined that health professionals, including physicians, pharmacists, nurses, and nutritionists, possess a high level of competence or capacity regarding interprofessional collaboration in hospitals.

Introduction

The responsibilities placed on healthcare professionals today are becoming more complicated in delivering high-quality, efficient healthcare (Ulumiyah, 2018). Interprofessional practice collaboration (IPC) among healthcare professionals in hospitals is necessary to receive high-quality service (Kusumaningrum *et al.*, 2018). So, health workers must work in multidisciplinary teams and implement interprofessional collaboration throughout the chain to achieve optimal health service results and significantly reduce errors and costs (Sacre *et al.*, 2021). IPC, when it functions well, is one of the pillars of health services in the twenty-first century and

serves as a link to the administration of health services, which is becoming increasingly complicated and involves a variety of professionals (Carron *et al.*, 2021). When health professionals collaborate, they can accomplish more than work alone (Purnasiwi & Jenie, 2021). Some individuals are still opposed to successful collaboration, although doing so is not significant work (Rahmatiar & Sulistyaningsih, 2022).

IPC has the potential to revolutionise clinical practice across various healthcare domains. It is a collaborative process that involves professional caregivers or multi-professional health professionals operating as an interdisciplinary team with interprofessional collaboration to provide healthcare to patients (Sippli

et al., 2017). The World Health Organisation has recognised interprofessional collaboration as a critical strategy to enhance patient safety in healthcare since 2013. The benefits of collaboration in clinical practice among medical specialists are numerous, including reduced patient mortality risks, clinical error rates, length of stay (LOS), disputes and tensions between medical staff, and delays in care provision (Mukaromah *et al.*, 2018). Our study underscores these practical implications and highlights the significant potential for IPC to improve healthcare outcomes.

There are still no bridges nor a sense of a need for pharmacist-doctor collaboration in hospitals because of several factors that have been reported as barriers to IPC, including the feeling that giving recommendations could lead to mistakes, the fact that pharmacists still feel inferior to doctors, and the fact that competencies regarding pharmacist knowledge in more detail in the field of clinical pharmacy and pharmacotherapy are still insufficient (Wei *et al.*, 2022). Health professionals must embrace their competence to remove these barriers and ensure that IPC practices go smoothly (Bollen *et al.*, 2019). The intended competencies are the capacity to collaborate in teams and knowledge of the function of the profession of health workers. Knowledge, skills, and attitudes comprise interprofessional competence (Soemantari *et al.*, 2019).

Health workers must communicate well with patients or other health workers, so communication becomes one of the competencies in carrying out IPC (Wahyuni *et al.*, 2023). The pharmacist profession requires clinical pharmacy competence and must be brave in providing input or recommendations to doctors or clinicians in drug therapy based on evidence-based pharmacy (Al-Quteimat *et al.*, 2016). Clinical pharmacy competency, a profession required for pharmacists, requires courage when offering advice or suggestions to clinicians or doctors for drug therapy based on evidence-based pharmacy (Al-Quteimat *et al.*, 2016). Inter-professional collaboration is necessary to help clinician doctors give therapy and ensure they are mutually committed to working effectively to treat patients (Wei *et al.*, 2022).

A 2022 study by Soemantri and colleagues on 300 health professionals, including physicians, dentists, public health nurses, and pharmacists, demonstrated the implementation of IPC practice and showed that competence in IPC may be impacted. The four components of IPC implementation are relational (professional power, hierarchy, and socialisation processes), communicative (time and space for collaboration), organisational (systems and resources

for collaboration), and contextual (social culture, politics, and economics) issues.

Methods

Design

Convenience sampling was used since it is a non-probability sampling methodology. Inclusion standards for medical professionals working at the hospital, such as physicians, pharmacists, pharmacy technicians, and dietitians, were that they were willing to complete surveys. Physicians, pharmacists, and nutritionists on leave or ill throughout the data collection period were excluded from the study. Respondents were recruited by providing informed consent before filling out the questionnaire.

Instrument

With its Indonesian translation, the Chiba Interprofessional Competence Scale (CICS29) was used for this study. Twenty-nine statement items and six domains comprise CICS29, with a maximum possible total score of 145. CICS29 were from Japan and has previously undergone forward translation into the Indonesian language in the study by Soemantri and colleagues in 2022.

Data analysis

A Likert scale was used to determine the evaluation score for the CICS29 questionnaire, where each item had a possible response: always, frequently, not sure, nearly never, never, with score levels of five, four, three, two and one. Reactions to the competence questionnaire for health workers, to calculate the median score of respondents' responses and evaluate the differences in perceptions of health workers toward interprofessional collaboration practices, and interprofessional collaboration practices obtained from completing the Indonesian version of the CICS29 questionnaire were analysed using the SPSS (Statistical Program for Social Science) version 25 software. A non-parametric test called Kruskal-Wallis was conducted. In November 2022, this study was done at Dr. Soetomo Hospital in Surabaya, Indonesia. A post hoc analysis using Mann-Whitney determined the significant differences across occupations.

Ethical approval

The research and development ethics team at Dr Soetomo Hospital Surabaya granted ethical approval

for this study under the number 1144/LOE/301.4.2/XI/2022.

Results

In this study, 121 respondents (health workers in various hospital rooms) were physically administered questionnaires. Among the health professionals who responded to the questionnaire were twenty-one physicians, thirty-four pharmacists, fifty nurses, and four nutritionists (Table I). Surgery inpatient facilities, respiratory and pulmonology inpatient facilities, paediatric inpatient facilities, oncology, pharmacy inpatient facilities, and cardiac care facilities participated in this study. They utilised Google Forms to distribute surveys directly. After that, 109 surveys were completed, and only 12 weren't returned. Respondents from Dr. Soetomo Hospital, Surabaya, including physicians, pharmacists, nurses, and nutritionists, filled out the surveys.

To ascertain whether there were variations in competence between occupations, the respondent scores obtained in each domain were further examined using SPSS version 25. The CICS29 score included differences in the replies that might be affected by several variables, such as expertise and understanding in fostering interprofessional collaboration.

The data were not normally distributed according to the normality statistical test; hence, a non-parametric test using Kruskal-Wallis was conducted. The findings of the various tests on the CICS29 questionnaire's overall score revealed significant disparities across professions in each category, showing differences ($p < 0.05$) in interprofessional cooperation ability, as shown in Table II. According to Kruskal Wallis scores

for each profession across all domains, there were disparities in competence in each profession. The Mann-Whitney post hoc analysis revealed substantial variations in competency or ability among the doctors and the nurses in all categories ($p < 0.05$).

Table I: Demographic distribution

Demographic characteristics	Total (N=109)	Percentage (%)
Gender		
Man	31	28.44
Woman	78	71.55
Ages		
20 - 29	21	19.26
30 – 39	56	51.37
40 – 49	16	14.67
> 50 years old	16	14.67
Profession		
Doctor	21	19.66
[†] Pharmaceutical	34	31.19
Nurse	50	45.87
Nutritionist	4	3.67
Educational background		
Associate Degree		
Pharmaceutical	10	9.17
Nurse	18	16.51
Nutritionist	2	1.83
Bachelor degree		
Doctor	21	19.27
Pharmaceutical	12	11.00
Nurse	32	29.36
Nutritionist	2	1.83
Postgraduate		
[†] Pharmaceutical	11	10.09

[†]Pharmaceutical = Pharmacist and Pharmacy Assistant

Table II: Test results for each CICS29 domain by total score difference based on profession

Domain	Median Likert score (Kruskal Wallis)				Total	p-value (Kruskal Wallis)
	Doctor	[†] Pharmaceutical	Nurse	Nutritionist		
Attitude and convictions as a professional	4	5	5	4	5	0.001 [†]
Team management skills	5	4	5	4	5	0.000 [†]
Goal-achieving actions	4	5	5	4	5	0.001 [†]
Patient-centred services	4	5	5	4	5	0.001 [†]
Attitudes and behaviours that enhance team cohesion	4	5	5	4	5	0.001 [†]
Implementation of the professional role	4	5	5	4	5	0.002 [†]
Total	4	5	5	4	5	0.000[†]

[†] $p < 0.05$ There is a noticeable distinction [†]Pharmaceutical = Pharmacist and Pharmacy Assistant

Due to the data's non-normal distribution, healthcare professionals' competency was evaluated using the median value. Based on Table II, the outcomes were the median competence score for each domain on the Likert scale. A median score of four was attained in the medical field, indicating that the doctors were competent. A median score of five was achieved for the pharmaceutical industry (pharmacists and pharmacy technicians), suggesting they had a high level of competence. A median score of five in nursing indicates that the nurses were competent. The median value in the field of nutritionists was four, which denotes a high level of competency.

Discussion

The characteristics of respondents in occupations where women make up many healthcare professionals were evaluated. There were 78 respondents in this group, and 51.37% had bachelor's degrees. Nurses had the highest percentage of responders across all occupations, with 50 responses and an average tenure of more than 30 months.

Much research has been done on health professionals with more work experience and better attitudes toward procedures, including interprofessional collaboration (Yusra *et al.*, 2019). Most of the respondents in this research worked as nurses. This is because Dr Soetomo Hospital employs many nurses, and on average, they have long work experience. This is in tandem with the beliefs expressed by Fagerström and colleagues in 2018 that a higher ratio is recommended if a higher number of healthcare workers is required, as this will likely improve patient outcomes.

The level of education, knowledge of collaboration, and comprehension of the roles of doctors or nurses can impact their attitude toward interprofessional collaboration (Munthe, 2019) regarding the relationship between attitudes and behaviour of collaboration and collaborative practice. The connection between attitudes and behaviours of collaboration and collaborative practice, the attitude of doctors and nurses toward interprofessional collaboration, can be influenced by three things: 1) their level of education, 2) their knowledge of collaboration, and 3) their understanding of the role of their profession. One of the elements of collaboration competency is knowledge.

Dennis and colleagues (2024) also explained that in the United States, professional degree programs in pharmacy and medicine apply interprofessional

practice education (IPE) because when providing health services, it is also essential to take a collaborative team approach in all professions. Implementing collaborative practices in a multidisciplinary educational environment can improve abilities to solve problems related to health services or collaborate in teams (Rabbani *et al.*, 2021). Knowledge and understanding of collaboration will give physicians and nurses a perspective or overview that can affect their attitudes toward interprofessional cooperation (Salangeti *et al.*, 2017).

The relationship between doctors and pharmacists in several areas, such as actions to achieve goals, services that value patients, and implementation of the role as a professional, shows that there are significant differences ($p < 0.05$) in the post hoc test, which can be concluded that both doctors and pharmacists have different competencies or abilities in this area. This was also clarified in the study by Viani and colleagues in 2021 on the coordination process, which also frequently happens between physicians and pharmacists. Still, when noticed, pharmacists help doctors deliver health services such as those connected to usage and knowledge about pharmaceuticals.

A survey by Khan and colleagues in 2020 on 483 respondents in hospitals in Pakistan revealed that 86.7% of doctors still trusted pharmacists to administer medications to patients safely and accurately, and 86.1% of doctors required the pharmacist's role in making drug recommendations to other doctors. In a post hoc test, the association between nurses and pharmacists in attitudes and beliefs as professionals, team management skills, attitudes, and behaviours that foster team cohesion revealed substantial variations in competence or ability ($p < 0.05$) between the two professions. Viani and colleagues, in 2021, found that when leadership was present, nurses might have felt as though they still had some right in connection with drug access or use. This may prevent them from reaching their objectives for patient care.

When collaborating, health workers' competencies or skills have an overall Likert scale score of five (5), which signifies good across all categories. Through self-ratings that demonstrate well with a value of five from one to five, the nursing and pharmaceutical professions evaluate their competency or capacity to perform interprofessional collaboration. Doctors and nutritionists evaluate their competencies or skills regarding inter-professional collaboration practices, and they do well, scoring four out of five possible points. This suggests that health workers displaying their attitudes can foster positive working connections in their respective fields of expertise (Ansa *et al.*, 2020). Personal attitude is also a part of competence, which

means attitude is one of the most essential components of teamwork (Morley et al., 2017).

According to Croft and colleagues in 2019, to become a pharmacist, one must be competent in providing health services to patients to achieve optimal results and can also collaborate in collaborative practices with other health workers. For instance, pharmacists must be active healthcare team members, so they require skills and attitudes that allow them to carry out various tasks (Thamby et al., 2014). Competence, or the capacity to work together, such as the information, abilities, and attitudes each person possesses, will lead to fruitful outcomes in collaborative practice (Janssen et al., 2020).

There is a shortage of research on the capacity for collaboration among health professionals. However, a study by MacNaughton et al. (2013) shows that competence can motivate healthcare professionals to engage in interprofessional collaborative activities. This led to the hypothesis that health professionals would join a collaborative team if they knew their duties in offering healthcare to the community.

Limitations

There are research limitations due to the limited characteristics of the respondents. Despite these limitations, we believe that this research contributes to understanding the competence of health workers in interprofessional collaboration in the context of providing health services. Further research is needed to provide more locations and various influencing factors in collaborative practice and examine the relationship between interprofessional collaboration competencies in health services.

Conclusion

The study's findings led to the conclusion that physicians, pharmacists, nurses, and nutritionists have a high level of competency or capability when it comes to the practice of interprofessional collaboration in hospitals.

Acknowledgement

Ministry of Education and Culture for Research and Technology for providing research grants with contract number 017/SPLit/LPPM01/KemendikbudRistek/Multi/FF/V/2023.

Conflict of Interest

The author certifies that no substantial conflicting financial, professional, or personal interests might affect how the work described in this paper is performed or presented.

References

- Ansa, B. E., Zechariah, S., Gates, A. M., Johnson, S. W., Heboyan, V., & De Leo, G. (2020). Attitudes and behaviour towards interprofessional collaboration among healthcare professionals in a large academic medical centre. *Healthcare* (Basel, Switzerland), *8*(3), 323. <https://doi.org/10.3390/healthcare8030323>
- Al-Quteimat, O. M., & Amer, A. M. (2016). Evidence-based pharmaceutical care: The next chapter in pharmacy practice. *Saudi Pharmaceutical Journal SPJ: the official publication of the Saudi Pharmaceutical Society*, *24*(4), 447–451. <https://doi.org/10.1016/j.jsps.2014.07.010>
- Bollen, A., Harrison, R., Aslani, P., & van Haastregt, J. C. M. (2018). Factors influencing interprofessional collaboration between community pharmacists and general practitioners systematic review. *Health & social care in the community*, *27*(4), e189–e212. <https://doi.org/10.1111/hsc.12705>
- Croft, H. A., Glass, B., Gilligan, C., Rasiah, R., & Levett-Jones, T. (2019). Integrated simulation-based skills assessment for evaluating pharmacist competence: A scoping review. *Pharmacy Education*, *19*(1), 381–396. <https://pharmacyeducation.fip.org/pharmacyeducation/article/view/667>
- Dennis, V., Neely, S., & Goldston, L. (2024). Cohort assessment of medical and pharmacy student interprofessional attitudes at an academic medical centre from baseline to programme completion. *Pharmacy Education*, *24*(1), 164–177. <https://doi.org/10.46542/pe.2024.241.164177>
- Fagerström, L., Kinnunen, M., & Saarela, J. (2018). Nursing workload, patient safety incidents and mortality: An observational study from Finland. *BMJ open*, *8*(4), e016367. <https://doi.org/10.1136/bmjopen-2017-016367>
- Janssen, M., Sagasser, M. H., Fluit, C. R. M. G., Assendelft, W. J. J., de Graaf, J., & Scherpbier, N. D. (2020). Competencies to promote collaboration between primary and secondary care doctors: An integrative review. *BMC family practice*, *21*(1), 179. <https://doi.org/10.1186/s12875-020-01234-6>
- Khan, N., McGarry, K., Naqvi, A. A., & Holden, K. (2020). Doctors' perceptions, expectations and experience regarding the role of pharmacist in hospital settings of Pakistan. *International journal of clinical pharmacy*, *42*(2), 549–566. <https://doi.org/10.1007/s11096-020-00991-9>
- Kusumaningrum, P. R., & Anggorowati, A. (2018). Interprofessional Education (IPE) as an effort to build nurses' abilities in collaborating with other health workers. *Journal of Nursing Leadership and Management*, *1*(1), 14–19. <https://doi.org/10.32584/jkkm.v1i1.72>

- Mukaromah, R. S., Dwiantoro, L., & Santoso, A. (2018). Efforts to increase interprofessional communication through Interprofessional Collaborative Practice (ICP)(Systematic review). *Journal of Nursing Leadership and Management*, *1*(1), 1–6. <https://doi.org/10.32584/jkmk.v1i1.70>
- Purnasiwi, D., & Jenie, I. M. (2021). Literature review: Effect of interprofessional collaboration Implementation of patient services. *The Indonesian Journal of Occupational Safety and Health*, *10*(2), 265–272. <https://doi.org/10.20473/ijosh.v10i2.2021.265-272>
- Sacre, H., Akel, M., Zeenny, R., Hajj, A., Hallit, S., & Salameh, P. (2021). Pharmacy education, workforce, practice, and sciences in Lebanon: Benchmarking with the FIP Development Goals. *Pharmacy Education*, *21*, 105–120. <https://doi.org/10.46542/pe.2021.211.105120>
- Soemantri, D., Sari, S. P., Wahyuni, T., Ayubi, D., Mulyono, S., Adiatman, M., & Findyartini, A. (2019). Measuring the interprofessional collaborative competencies of healthcare students using a validated Indonesian version of the CICS29. *Journal of Interprofessional Care*, *34*(6), 763–771. <https://doi.org/10.1080/13561820.2019.1697215>
- Soemantri, D., Findyartini, A., Werdhani, R. A., Koesnoe, S., & Dahlia, D. (2022). Are we ready to collaborate? The interprofessional collaborative competencies of healthcare professionals in the Global South context. *Frontiers in medicine*, *9*, 904658. <https://doi.org/10.3389/fmed.2022.904658>
- Sippli, K., Rieger, M. A., & Huettig, F. (2017). GPs' and dentists' experiences and expectations of interprofessional collaboration: Findings from a qualitative study in Germany. *BMC health services research*, *17*(1), 179. <https://doi.org/10.1186/s12913-017-2116-4>
- Thamby, S. A., & Subramani, P. (2014). Seven-star pharmacist concept of WHO. *Journal of Young Pharmacists*, *6*(2), 1. [http://dx.doi.org/10.5530/jyp.2014.2.6\(2\).1](http://dx.doi.org/10.5530/jyp.2014.2.6(2).1)
- Ulumiyah, N. H. (2018). Improving the quality of health services by implementing patient safety efforts at community health centres. *Indonesian Journal of Health Administration*, *6*(2), 149–155. <https://doi.org/10.20473/jaki.v6i2.2018.149-155>
- Viani, E., Yulia, R., & Herawati, F. (2021). Health professionals' perceptions of interprofessional collaborative practices in antibiotic therapy in orthopaedic surgery. *Journal of Pharmaceutical & Clinical Sciences*, *8*(3), 296–302. <https://doi.org/10.25077/jsfk.8.3.296-302.2021>
- Wahyuni, K. I., Nita, Y., & Zairina, E. (2023). Perception of healthcare personnel in interprofessional collaborations: A study in two “type c” hospitals in East Java. *Pharmacy Education*, *23*(4), 344–348. <https://doi.org/10.46542/pe.2023.234.344348>
- Wei, H., Horns, P., Sears, S. F., Huang, K., Smith, C. M., & Wei, T. L. (2022). A systematic meta-review of systematic reviews about interprofessional collaboration: facilitators, barriers, and outcomes. *Journal of Interprofessional Care*, *36*(5), 735–749. <https://doi.org/10.1080/13561820.2021.1973975>
- World Health Organisation. (2013). *Interprofessional collaborative practice in primary health care: Nursing and midwifery perspectives*. World Health Organisation.
- Yusra, R. Y., Findyartini, A., & Soemantri, D. (2019). Healthcare professionals' perceptions regarding interprofessional collaborative practice in Indonesia. *Journal of Interprofessional Education & Practice*, *15*, 24–29. <https://doi.org/10.1016/j.xiepp.2019.01.005>



Pharmacy
Education



[Current](#)

[Archives](#)

[Announcements](#)

[About ▾](#)

Editorial Team

Editor in Chief

Prof Ian Bates, FIP Global Pharmaceutical Observatory and Hub Director, United Kingdom

Journal Editor

Dr Sherly Meilianti, FIP Data and Intelligence Specialist, United Kingdom

Senior Associate Editors

Dr Marwan Akel, United States

Assoc Prof Jennifer Marriott, Monash University, Australia

Managing Editor

Ms Nisa Masyitah, FIP Data and Projects Coordinator, Indonesia

Associate Editors

Dr Mark Hewitt, University of Wolverhampton, United Kingdom

Prof Joyce Addo-Atuah, Touro College of Pharmacy, United States

Prof Patricia Acuna-Johnson, University of Valparaiso, Chile

Dr Syed Imran Ahmed, University of Lincoln, United Kingdom

Prof Alba Mahmoud Albsoul-Younes, The University of Jordan, Jordan

Prof. Ammar Almaaytah, Jordan University of Science and Technology, Jordan

Dr Filipa Alves Da Costa, University of Lisbon, Portugal

Mr Chima Amadi, Pharmacists Council of Nigeria, Nigeria

Dr Mudassar Iqbal Arain, , University of Sindh, Pakistan

Prof Lilian M. Azzopardi, University of Malta, Malta

Prof Rula Darwish, The University of Jordon, Jordan

Dr Divakar Goli, Acharya Institutes, India

Prof Yahdiana Harahap, University of Indonesia, Indonesia

Prof Martin Henman, Trinity College Dublin, Ireland

Dr Shazia Jamshed, International Medical University Malaysia, Malaysia

Dr Abby Kahaleh, Roosevelt University, United States

Prof Silvana Nair Leite, Federal University of Santa Catarina, Brazil

Dr Subhash Chandra Mandal, Directorate of Drugs Control, India

Mr Khalid Garba Mohammed, University of Milan, Italy

Dr Christos Petrou, University of Nicosia, Cyprus

Dr Ukamaka Okafor, Pharmacists Council of Nigeria, Nigeria

Dr Carl Schneider, The University of Sydney, Australia

Prof Bruno Sepodes, University of Lisbon, Portugal

Prof M Chandra Sekar, University of Findlay, United States

Dr Rajani Shakya, Kathmandu University, Nepal

Dr Judilynn Solidum, University of the Philippines, Philippines

Prof Shigeo Yamamura, Josai International University, Japan

Dr M. Nazli Sencan, Acibadem University, Istanbul, Turkey

Prof Abeer Al-Ghananeem, Sullivan University College of Pharmacy & Health Sciences
Kentucky, United States

Dr. Pravinkumar Vishwanath Ingle, International Medical University, Malaysia

Open Journal Systems

PKP Publishing Services

Part of the
PKP Publishing Services Network



ISSN: 1477-2701

Vol. 24 No. 3 (2024): IGSCPS Special Edition

International Graduate Student Conference on Pharmaceutical Sciences

Published: 01-05-2024

Special Edition

The role of IL-1, IL-6 and TNF- α in breast cancer development and progression

Ahmed A Al-Qubati, Mahardian Rahmadi, Tri Widiandani, Jamal N Al-Maamari, Junaidi Khotib (Author)
p. 32-38



Formulation of self-nanoemulsifying drug delivery system (SNEDDS) of combined 70% ethanolic of Begonia medicinalis herbs and Moringa oleifera leaves

Nur Asita, Muhammad Sulaiman Zubair, Yandi Syukri, Evi Sulastri (Author)
p. 304-309



Practice module training to increase pharmacist knowledge and skills in identifying drug therapy problems in hypertensive patients

I Nyoman Wijaya, Umi Athiyah, Fasich, Andi Hermansyah (Author)
p. 82-87



Cost-effectiveness analysis of amlodipine and candesartan in the inpatient setting at Mataram University Hospital in Indonesia, 2021

Nunung Uswatun Hasanah, Ni Made Amelia Ratnata Dewi, Yoga Dwi Saputra (Author)
p. 228-233



Effect of montmorillonite K-10 catalyst on the synthesis of (E)-1-phenyl-3-(2-methoxyphenyl)-2-propen-1-one using the microwave irradiation method

Suzana, Evieta Rohana, Tutuk Budiati (Author)

p. 69-74



Immunotherapies for food allergy: Exploring new targets and innovative strategies for enhanced efficacy

Jamal Nasser Saleh Al-Maamari, Ahmed Al-Qubati, Junaidi Khotib, Mahardian Rahmadi (Author)

p. 266-272



Analysis of cost of illness and diagnosis-related group payment system in breast cancer patients with chemotherapy in Indonesia

Dinda Monika Nusantara Ratri, Annisa Arifatul Fitriyah, Midfa'ul Haawan Fitayaatin Mawaddah, Budi Suprpti, Pradana Zaky Romadhon, Samirah (Author)

p. 147-152



Impact of different NaOH treatments on biocellulose properties from coconut water fermented by *Lentilactobacillus parafarraginis*

Indah Yulia Ningsih, Mochammad Amrun Hidayat, Tristiana Erawati, Bambang Kuswandi (Author)

p. 75-81



Development of natural polymers-based inhaled microspheres for tuberculosis

Yotomi Desia Eka Rani, Mahardian Rahmadi, Dewi Melani Hariyadi (Author)

p. 123-128



Zebrafish as a model for the study of wound healing in hyperglycemia

Lia Nurkhasanah, Farida Hayati, Rochmy Istikharah (Author)

p. 111-115



Pinostrobin and its derivatives as novel anti-breast cancer agents against human oestrogen receptor alpha: In silico studies of ADMET, docking, and molecular dynamics

Delis Susilawati, Tri Widiandani, Siswandono Siswodihardjo, Suzana Suzana, Bambang Tri Purwanto (Author)

p. 51-56



Effect of heating temperature on citric acid-locust bean gum synthesis

Wuryanto Hadinugroho, Stephanie Florencia Winarko, Echa Imanuela Sinta, Senny Yesery Esar, Jefri Prasetyo (Author)

p. 216-221



Evaluation of phagocytic index and haematological parameters of *Sida rhombifolia* extracts in mice as immunomodulator

Tutik Sri Wahyuni, Widya Wasityastuti, Dwi Aris Agung Nugrahaningsih, Suratno Lulut Ratnoglik, Laura Navika Yamani, Ahmad El-Shamy, Aty Widyawaruyanti (Author)

p. 95-100



Analysis of drug-related problems in the home medication review practice by the master of pharmacy students

Vitarani Dwi Ananda Ningrum, Adib Samudra Putra, Lusiana Rahmadiyah Panggabean, Martania Pratiwi, M. Yusuf Zainudin, Sarah Kulsum Toyyibah, Ulyatul Khoiroh, Andika Dwi Mahendra, Mitha Dwi Puspitasari, Rusmina Iswanti Kumala Dewi (Author)

p. 222-227



Anthelmintic mass drug administration in the Kusan Hilir subdistrict, Tanah Bumbu Regency, South Borneo 2021

Nita Rahayu, Yuniarti Suryatinah (Author)

p. 39-44



Competency analysis of health workers: Interprofessional collaboration practices in a tertiary referral hospital in Surabaya

Hanum Firda Tsabitalya, Fauna Herawati, Halim Priyahau Jaya, Rika Yulia, Setiasih (Author)

p. 280-285



An evaluation of the validity and reliability of the tuberculosis patient knowledge questionnaire

Syaripah Ulandari, Abdul Rahem, Yuni Priyandani (Author)

p. 173-177



Evaluation of the four mg warfarin initiation dose in patients with cardiovascular disease

Eunice Marlene Sicilia Kundiman, Zahrah Tatta Ramadhanty, Budi Suprapti, Mochamad Yusuf Alsagaff, Bambang Subakti Zulkarnain, Wenny Putri Nilamsari (Author)

p. 292-297



Evaluation of antipsychotic side effects on schizophrenia patients at Dr Radjiman Wediodiningrat Hospital, Indonesia

Divaz Hedy Putri, Julaeaha Julaeaha, Agus Sugianto (Author)

p. 191-196



Formulation, physicochemical characterisation, and in vitro evaluation of quercetin-alginate microsphere system

Dewi Melani Hariyadi, Shafa Azaria, Lintang Arum Cindravani, Annisa Dayu Syifa Ramadhani, Yotomi Desia Eka Rani, I Nengah Budi Sumartha, Ahmad Dzulfikri Nurhan, Toetik Aryani, Mahardian Rahmadi, Yashwant V Pathak, Chrismawan Ardianto (Author)

p. 19-24



The efficacy of combining ondansetron with dexamethasone in delayed chemotherapy-induced nausea and vomiting

Ratih Pratiwi Sari, Muhammad Darwin Prenggono, Aditya Maulana Perdana Putra, Dewi Susanti Atmaja, Mahardian Rahmadi, Suharjono (Author)

p. 211-215



A comparative study of real hospital costs and INA-CBG rates for stroke in Indonesia

I Gusti Agung Putu Deddy Mahardika, Yunita Nita, Yuni Priyandani (Author)

p. 166-172



Drug utilisation study of parenteral nutrition in neonate patients

Arina Dery Puspitasari, Satya Andiva, Hargus Haraudi Barkah, Mahendra Tri Arif Sampurna, Budi Suprapti, Mariah Ulfa, Diah Sukmawati Pangarsih, Widia Yuniarti (Author)

p. 310-314



Evaluation of the effect of aminophylline on inflammatory parameters in COVID-19 patients with acute respiratory distress syndrome

Arina Dery Puspitasari, Erika Astanti, Novika Selvia Putri, Anna Surgean Veterini (Author)

p. 135-140



Identification of factors causing stunting in Lamper Tengah primary healthcare centre, Semarang City

Firdha Fauzia, Gusti Noorrizka Veronika Achmad, Ana Yuda (Author)

p. 273-279



Role of acyl-homoserine lactone quorum-sensing system in oral biofilm formation: A review

Ala'a Saif Alqhtani, Baher Al-Tayar, Titiek Berniyanti, Indah Lisitania Kriswandini (Author)

p. 129-134



Use of anticoagulant drugs for hospitalised patients: A multicentre study

Lily Annisa, Nurfina Dian Kartikawati, Vitarani Dwi Ananda Ningrum (Author)

p. 286-291



Docking study of ferulic acid derivates on FGFR1, ADME prediction, and QSPR analysis

Darwin Riyan Ramadhan, Juni Ekowati, Denayu Pebrianti, Farrah Yulian Listyandi, Nuzul Wahyuning Diyah, Muhammad Faris Adrianto, Deepakkumar Mishra (Author)

p. 178-184



In silico approach of *Garcinia mangostana* and *Ortosiphon stamineus* to restore adipokines level as drug candidate for metabolic syndrome

Danti Nur Indistuti, Nada Salsabila, Bellinda Zalzabillah Tazkira, Arifa Mustika, Suharjono, Sukardiman (Author)

p. 159-165



Implementation of a pharmacovigilance system to detect adverse events and improve medication appropriateness in a hospital in Indonesia

Dewi Susanti Atmaja, Yulistiani Yulistiani, Suharjono Suharjono, Elida Zairina (Author)

p. 7-11



Development and physicochemical characterization of nanostructured lipid carriers for entrapment of vitamin D3 prepared at different lipid ratios

Ida Kristianingsih, Esti Hendradi, Siswandono Siswodihardjo, Mochammad Yuwono (Author)
p. 204-210



Prevalence and predictors of polypharmacy in elderly patients discharged from a tertiary care teaching hospital in Swat, Pakistan: A retrospective cross-sectional study

Shah Faisal, Junaidi khotib, Elida Zairina (Author)
p. 1-6



Correlation between knowledge and characteristics of patients with type 2 diabetes mellitus in controlling blood glucose

Ninik Mas Ulfa, Suharjono, Andi Hermansyah (Author)
p. 298-303



Design of acyl salicylic acid derivates as COX-1 inhibitors using QSAR approach, molecular docking and QSPR analysis

Nuzul Wahyuning Diyah, Dhea Ananda Ainurrizma, Denayu Pebrianti (Author)
p. 88-94



Evaluation of drug related problems among hospitalised elderly patients at a secondary hospital in East Borneo

Welinda Dyah Ayu, Elida Zairina, Umi Athiyah (Author)
p. 240-243



Hydrogen bond analysis of the p-coumaric acid-nicotinamide cocrystal using the DFT and AIM method

Fery Eko Pujiono, Dwi Setyawan, Juni Ekowati (Author)
p. 57-62



Assessing knowledge and practice of online medication purchasing: A pilot study

Gita Nola Sri Haestuti, Nanda Puspita, Khairun Nida (Author)
p. 260-265



Optimisation of the extraction process of pectin polymer from red dragon skin (*Hylocereus polyrhizus*)

Muhammad Fariez Kurniawan, Dewi Melani Hariyadi, Dwi Setyawan (Author)

p. 116-122



Molecular docking of ferulic acid analogue compounds against epidermal growth factor receptor as a potential therapy for breast cancer

Dhea Ananda Ainurrizma, Juni Ekowati, Denayu Pebrianti, Nuzul Wahyuning Diyah, Muhammad Faris Adrianto, Ravi Kiran Deevi, Iwan Sahrial Hamid (Author)

p. 185-190



Andrographolide exerts an anxiolytic-like effect possibly via regulation of the hypothalamic-orexinergic system

I Nengah Budi Sumartha, Pingkan Aprilia, Muhammad Hilal Salim, Linda Wiwid Kurniasari, Ghaliya Afra Yasmine, Mahardian Rahmadi, Muhammad Zaki Bin Ramli, Amar Daud Iskandar Abdullah, Junaidi khotib, Chrismawan Ardianto (Author)

p. 12-18



Vancomycin bioanalysis for TDM services by using immunoassay and HPLC: A scoping review

Vitarani Dwi Ananda Ningrum, Senya Puteri Amalia, Ari Wibowo (Author)

p. 197-203



Chronic intake of energy drinks affects changes in kidney function biomarkers in a diabetes mellitus animal model

Mahardian Rahmadi, Zamrotul Izzah, Ahmad Dzulfikri Nurhan, Suharjono Suharjono (Author)

p. 25-31



The readiness and acceptance of patients with tuberculosis to use telecare

Devi Ristian Octavia, Andi Hermansyah, Yunita Nita (Author)

p. 251-255



ABC-VEN analysis of drug use in outpatients at a neurology department in Indonesia

Dewi Damayanti, Budi Suprpti, Mareta Rindang Andarsari, Abdulloh Machin, Lukman Nul Hakim (Author)

p. 63-68



Utilisation study of antipyretic drugs in paediatric patients

Arina Dery Puspitasari, Anita Nur Azizah, Wenny Putri Nilamsari, Robby Nurhariansyah, Ika Nursetyo Palupi (Author)

p. 234-239



Mechanical characterisation of polylactic acid-alendronate bioscrew in different concentrations of glutaraldehyde

Samirah, Nadea Kalila Yasmin, Aniek Setiya Budiatin, Dinda Monika Nusantara Ratri, Ani Nurul Fauziyah, Toetik Aryani, Dewi Wara Shinta (Author)

p. 101-104



Knowledge and uses of iron supplements to treat anaemia among adolescent girls in Surabaya

Nafiladiniaulia Jihanwasila, Gusti Noorrizka Veronika Achmad, Mareta Rindang Andarsari, Ana Yuda (Author)

p. 256-259



Molecular docking of gingerol and shogaol for immunomodulatory effect in lupus disease

Herni Setyawati, Oeke Yunita, Achmad Syahrani (Author)

p. 141-146



The pH-solubility profiles of levofloxacin hemihydrate and ciprofloxacin lactate

Dewi Isadiartuti, Retno Sari, Dini Retnowati, Risma Dama Yanti, Violyta Ade Gunawan, Oki Yudiswara (Author)

p. 105-110



An in silico study of the effects of chemical compounds in Petiveria alliacea leaf extract on inflammatory mediators

Nurmawati Fatimah, Arifa Mustika, Sri Agus Sudjarwo, Ahmad Cholifa Fahrudin, Lutfiah Anjarwati

(Author)
p. 153-158



Perception of online interprofessional education among pharmacy and medical students in tertiary university

Ganesh Sritheran Paneerselvam, Muhammad Junaid Farrukh, Long Chiau Ming, Andi Hermansyah
(Author)
p. 45-50



5-O-Acetylpinostrobin derivatives inhibit estrogen alpha and progesterone receptors through a molecular docking approach

Anita Puspa Widiyana, Tri Widiandani, Siswandono Siswodihardjo (Author)
p. 244-250



[Open Journal Systems](#)

PKP Publishing
Services

Part of the
[PKP Publishing Services Network](#)



unesco

Network Member



ADVANCING
PHARMACY
WORLDWIDE

ISSN: 1477-2701

Pharmacy Education

COUNTRY	SUBJECT AREA AND CATEGORY	PUBLISHER	H-INDEX
Netherlands  Universities and research institutions in Netherlands  Media Ranking in Netherlands	Health Professions Pharmacy Pharmacology, Toxicology and Pharmaceutics Pharmaceutical Science Social Sciences Education	International Pharmaceutical Federation	20
PUBLICATION TYPE	ISSN	COVERAGE	INFORMATION
Journals	14772701, 15602214	1973-1978, 2002-2023	Homepage How to publish in this journal pej@fip.org

SCOPE

Pharmacy Education journal provides a research, development and evaluation forum for communication between academic teachers, researchers and practitioners in professional and pharmacy education, with an emphasis on new and established teaching and learning methods, new curriculum and syllabus directions, educational outcomes, guidance on structuring courses and assessing achievement, and workforce development. It is a peer-reviewed online open access platform for the dissemination of new ideas in professional pharmacy education and workforce development. Pharmacy Education supports Open Access (OA): free, unrestricted online access to research outputs. Readers are able to access the Journal and individual published articles for free - there are no subscription fees or 'pay per view' charges. Authors wishing to publish their work in Pharmacy Education do so without incurring any financial costs.

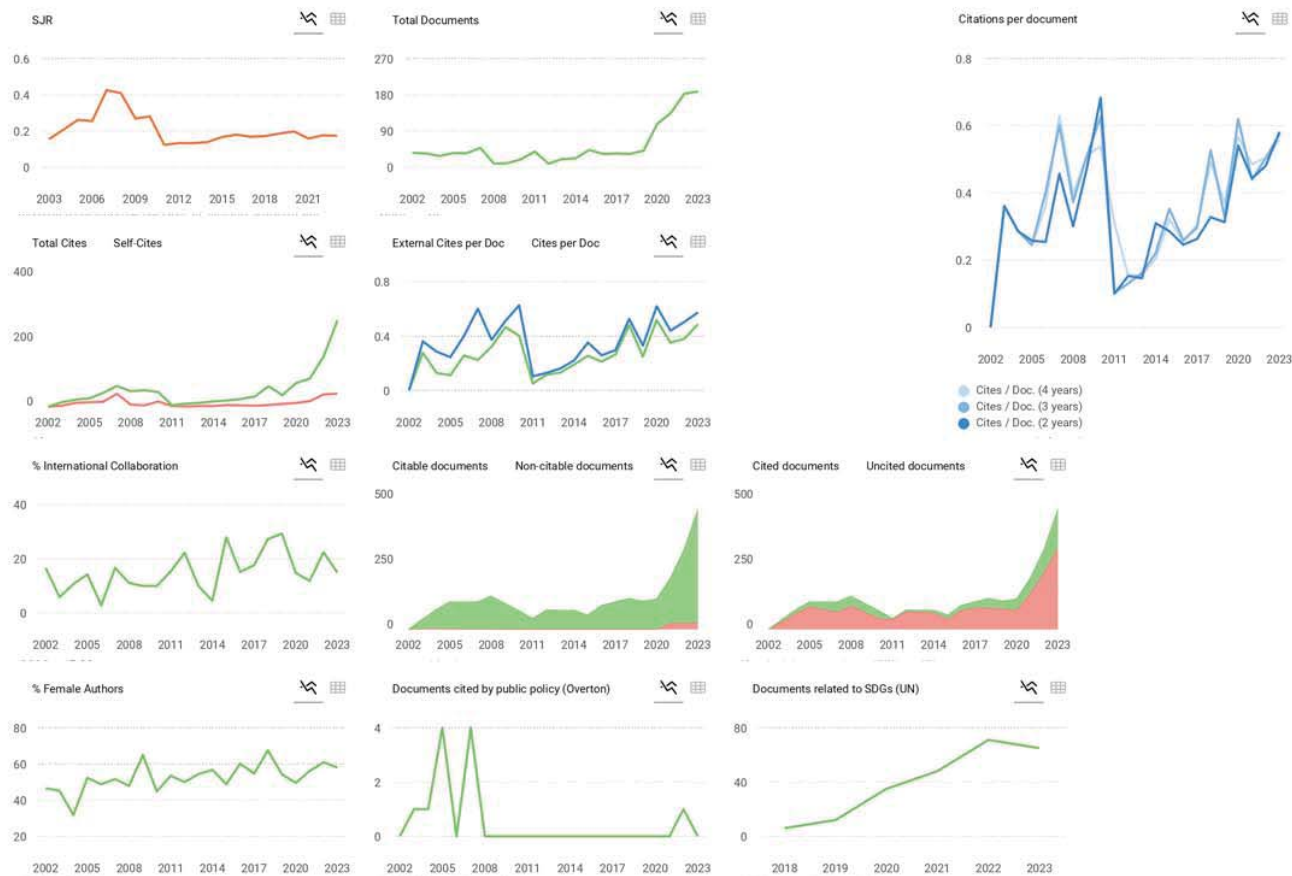
 Join the conversation about this journal

 Quartiles

FIND SIMILAR JOURNALS

options 

1 American Journal of Pharmaceutical Education USA  83% similarity	2 Currents in Pharmacy Teaching and Learning USA  82% similarity	3 Journal of Educational Evaluation for Health KOR  30% similarity	4 Pharmacy Practice ESP  20% similarity	5 International Journal of Pharmacy Practice GBR  16% similarity
---	---	---	--	---



Pharmacy Education

Q3 Pharmaceutical Science

SJR 2023 0.17

powered by scimagojr.com

Show this widget in your own website

Just copy the code below and paste within your html code:

``

SCImago Graphica

Explore, visually communicate and make sense of data with our new data visualization tool.

Metrics based on Scopus® data as of March 2024

A Adaobi 4 years ago

Good day,

I observed some discrepancies while attempting to submit an article at the Pharmacy Education journal. the information on this website states that the publisher of the journal is Taylor and Francis while on the journal website it states the International Pharmaceutical Federation (FIP).

Secondly, after clicking on the button for submission, I was redirected to the home page which has nothing to do with the submission portal. I really wonder if the journal is still active.

Please could you help me clarify my doubts?

I have registered and I am afraid I have given out my personal information.

Thank you.

reply

K Kully Rennie 4 years ago

Hi there, I can confirm that the journal Pharmacy Education is still active and our website homepage is: <https://pharmacyeducation.fip.org/pharmacyeducation/>

Since 2007 we have been published by FIP who took over publishing from T



Melanie Ortiz 4 years ago

SCImago Team

Dear Adaobi,

Thank you for contacting us.

As you probably know, SJR is a portal with scientometric indicators of journals indexed in Scopus. All the data (like the Publisher's name) have been provided By Scopus /Elsevier and SCImago doesn't have the authority over this data which are property of Scopus/ Elsevier. SCImago has a signed agreement that limits our performance to the generation of scientometric indicators derived from the metadata sent in the last update. Referring this issue, please contact with Scopus support:

https://service.elsevier.com/app/answers/detail/a_id/14883/kw/scimago/supporthub/scopus/ for reporting the corresponding inconsistencies or modifications.

Referring the Submission system of this journal, if you click on "How to Publish" above , you will be redirected to the Submission section indicated in the journal's website:

<http://pharmacyeducation.fip.org/pharmacyeducation/about/submissions#onlineSubmissions>

If you have some troubles to submit or access the platform, please contact the editorial's staff directly, so they can help you with this matter.

Best Regards, SCImago Team

J

Joydip Das 4 years ago

Hi,

I am writing to inquire about the journal Pharmacy Education for submitting a manuscript. Do you have a website for this journal? Please send the author's guidelines.

Thank you,

Joydip Das

Professor of Medicinal Chemistry

University of Houston

reply



Melanie Ortiz 4 years ago

SCImago Team

Dear Joydip, thank you very much for your comment, we suggest you to look for author's instructions/submission guidelines in the journal's website or click on "How to Publish" just above. Best Regards, SCImago Team

Leave a comment

Name

Email

(will not be published)

Submit

The users of Scimago Journal & Country Rank have the possibility to dialogue through comments linked to a specific journal. The purpose is to have a forum in which general doubts about the processes of publication in the journal, experiences and other issues derived from the publication of papers are resolved. For topics on particular articles, maintain the dialogue through the usual channels with your editor.

Developed by:



Powered by:



Follow us on @ScimagoJR

Scimago Lab, Copyright 2007-2024. Data Source: Scopus®

EST MODUS IN REBUS
Version 1.0.0 (2024)

[Legal Notice](#)

[Privacy Policy](#)





Source details

Pharmacy Education

Scopus coverage years: from 1973 to 1978, from 2002 to Present

Publisher: International Pharmaceutical Federation

ISSN: 1560-2214 E-ISSN: 1477-2701

Subject area: Health Professions: Pharmacy Pharmacology, Toxicology and Pharmaceutics: Pharmaceutical Science Social Sciences: Education

Source type: Journal

[View all documents >](#) [Set document alert](#) [Save to source list](#)

CiteScore 2022
0.6 ⓘ

SJR 2022
0.176 ⓘ

SNIP 2022
0.259 ⓘ

[CiteScore](#) [CiteScore rank & trend](#) [Scopus content coverage](#)

CiteScore 2022

0.6 = $\frac{248 \text{ Citations 2019 - 2022}}{429 \text{ Documents 2019 - 2022}}$

Calculated on 05 May, 2023

CiteScoreTracker 2023 ⓘ

0.8 = $\frac{469 \text{ Citations to date}}{591 \text{ Documents to date}}$

Last updated on 05 April, 2024 • Updated monthly

CiteScore rank 2022 ⓘ

Category	Rank	Percentile
Health Professions		
Pharmacy	#25/35	30th
Pharmacology, Toxicology and Pharmaceutics		
Pharmaceutical Science	#134/171	21st

[View CiteScore methodology >](#) [CiteScore FAQ >](#) [Add CiteScore to your site ↗](#)

About Scopus

[What is Scopus](#)

[Content coverage](#)

[Scopus blog](#)

[Scopus API](#)

[Privacy matters](#)

Language

[日本語版を表示する](#)

[查看简体中文版本](#)

[查看繁體中文版本](#)

[Просмотр версии на русском языке](#)

Customer Service

[Help](#)

[Tutorials](#)

[Contact us](#)

ELSEVIER

[Terms and conditions ↗](#) [Privacy policy ↗](#)

All content on this site: Copyright © 2024 Elsevier B.V. ↗, its licensors, and contributors. All rights are reserved, including those for text and data mining, AI training, and similar technologies. For all open access content, the Creative Commons licensing terms apply.

We use cookies to help provide and enhance our service and tailor content. By continuing, you agree to the use of cookies ↗.

