

[Home](#) / [About the Journal](#)

About the Journal

Focus and 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.

In addition we are listed in EBSCO, and indexed in the [Emerging Sources Citation Index](#) (ESCI - Web of Science), EMBASE and [SCOPUS](#).

The Journal also recognises the importance of policy issues and current trends in the context of education, professional development and workforce.

The Journal publishes reports of research and innovation in all aspects of professional pharmacy education and training, case studies, country studies, innovations in laboratory and professional educational practice, workforce issues and development, reviews and reports on information technology in education and reviews of current literature.

The Journal has a clear international perspective, and has a longstanding policy of facilitating publication, in particular for younger faculty, and those authors whose first language may not be English, and manuscripts from all regions seeking low cost engagement with the wider global community.

The Journal is published by the [International Pharmaceutical Federation \(IFP\)](#) and is aligned to the global mission of advancing education, advancing practice and advancing science.

Peer Review Process

Pharmacy Education has adopted a double-blind peer review process - the identities of the Authors and Reviewers are kept from being known to each other. A step-by-step checklist is provided for Authors, Reviewers and Editors to ensure this.

[Open Journal Systems](#)


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

Peer Review Process

Pharmacy Education has adopted a double-blind peer review process - the identities of the Authors and Reviewers are kept from being known to each other. A step-by-step checklist is provided for Authors, Reviewers and Editors to ensure this.

Peer Review Process: Once a submission is received, the assigned Editor will select appropriate Reviewers based on their expertise and proven ability to critique. The peer reviews received will assist the Editor in determining the validity, significance and originality of the work submitted. Reviewers will also provide comment on manuscript content for scientific value, check for adherence to general scientific practice as well as *Pharmacy Education's* specific guidelines. The Peer Review process will look closely at methodology and the data validity, and consider the ethical approach. Reviewers are encouraged to provide suggestions for improvement and recommend to Editors if manuscripts should be accepted, accepted with revisions, or rejected.

Please note that an invitation for Authors to submit a revised version is not a guarantee of acceptance. Ultimately, the final decision lies with the Editor assigned to each submission. An Editor can reject any article at any time before publication, including after acceptance if concerns arise about the integrity of the work.

As part of their agreement with *Pharmacy Education*, Reviewers will keep manuscripts and associated material strictly confidential, and will not appropriate Authors' ideas before the manuscript is published. Once a review has been completed, Reviewers will be directed and expected to permanently delete/destroy any retained copies of manuscripts they hold (see Privacy Statement).

Timeliness: Reviewers are expected to respond promptly to requests to review and to submit reviews within the time agreed. Reviewers are also required to declare their conflicts of interest and recuse themselves from the Peer Review process if a conflict exists. Editors will do their utmost to ensure timely processing of manuscripts. Authors will be notified on any unusual delays in publication of manuscripts via email. Authors will be notified as soon as possible if a manuscript is going to be rejected, either by the Journal Manager or Editorial Team.

Journal Ownership and Editorial Scope

Pharmacy Education is published by the International Pharmaceutical Federation (FIP). Appointments and dismissals to the Editorial Team are made by the Editor-in-Chief in consultation with FIP.

Editorial roles and responsibilities

Editor-in-chief - The Editor-in-Chief has full authority over content publication in *Pharmacy Education*. In cooperation with the wider Editorial Team and publisher, they direct overall strategy of the journal. Together with the Editors and Associate Editors, the Editor-in-Chief reviews and decides upon submitted manuscripts, ensuring timely publication of submissions.

[Home](#) / [Editorial Team](#)

Editorial Team

Editor in Chief

Prof Ian Bates, FIP Education, United Kingdom

Journal Editor

Dr Marwan Bi Akef, Pharmacy Education

Senior Associate Editors

Dr Andreia Bruno-Tomé, Monash University, Australia

Assoc Prof Jennifer Marriott, Monash University, Australia

Production Editor

Dr Sheryl Melliant, Pharmacy Education

Associate Editors

Prof Joyce Addo-Atuah, Touro College of Pharmacy USA

Prof Patricia Acuna-Johnson, University of Valparaiso, Chile

Dr Syed Imran Ahmed, University of Lincoln, United Kingdom

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

Dr Amnour Almaaytah, Middle East University, 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

Open Journal Systems

PKP Publishing
Services

Part of the

PKP Publishing Services Network

Prof Lillian M. Azzopardi, University of Malta, Malta

Prof Rula Darwish, The University of Jordan, Jordan

Dr Ruth Edwards, Aston University, UK

Dr Divakar Gol, Acharya Institutes, India

Prof Yahdiana Harahap, University of Indonesia, Indonesia,

Prof Martin Henman, Trinity College Dublin, Ireland

Dr Shazia Jamshed, International Islamic University Malaysia, Malaysia

Dr Abby Kahaleh, Roosevelt University, USA

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 Hana Morrissey, University of WolverhamptonUK

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

Dr James Scott, Western University of Health Sciences, USA

Prof M Chandra Sekar, University of Findlay, USA

Dr Rajani Shakya, Kathmandu University, Nepal

Dr Lixin Shu, Naval Medical University, China

Dr Judylynn Solidum, University of the Philippines, Philippines

Dr Kyle Wilby, University of Otago, New Zealand

Dr Sarah Willis, The University of Manchester, UK

Prof Shigeo Yamamura, Josai International University, Japan

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

Prof Abeer AlGhananeem, Sullivan University College of Pharmacy &Health Sciences

Home / Archives / Vol. 22 No 1 (2022)

Vol. 22 No. 1 (2022)

Published: 01-01-2022

Research Article

Simulation of training solution for the prevention of medication errors in the emergency ward

Sorour Khari, Marzieh Pazokian (Author)

p.492-497



Development, validation and evaluation of learning activities to support the reporting of adverse drug reactions during the COVID-19 pandemic

Elisa Curtolo, Janis Vella Szijj, Liberato Camilleri, Anthony Serracino Inglozz, Lilian M. Azzopardi (Author)

p.515-522



Postering critical thinking in pharmaceutical chemistry:A cross-sectional study

Chee-Yan Choo, Long Chiau Ming, Ching Siang Tan (Author)

p.866-871



Implementing online team-based learning in an interuniversity setting:A case study of a traditional medicine course

Agustina A.MB, Hastuti, Eka Noviana, Soni Siswanto, PuguhIndrasetiawan, DwiEndarti, Susi Ari Kristina, Triana Hertiani (Author)

p.5585-68



Supplemental instruction in pharmacy education: Lessons learned from collected perceptions

Sarah P. Collier, Kayce D. Gill, Stephen D. Phipps, Susan L. Mercer (Author)

p.620-628



Open Journal Systems

PKP Publishing Services

Part of the
PKP Publishing Services Network

Prevalence and roles of vice-chairs in schools and colleges of pharmacy

Joycelyn Yamzon, David Q Pham, Karl Hess (Author)


p.100-107

 PDF

Virtual vstraditional seminar course evaluation among two groups of pharmacy students: An observational study

Shmeylan A. Al harbi, Mohammad Shawaqfeh, Amenah Qotineh, Mariam Abdalla, Mohammed Abujamal, Yousif Alakeel, Abdulmalik A. Al Katheri, Abdulkareem M. Al Bekairy (Author)

p.409-415

 PDF

Agreement of medicine and pharmacy students on quality of drug information

SeebaZachariah, Dixon Thomas, Farhanah Mohamed, Muhsina Chiraparambil, Aadith Soorya, Affana Parveen, Baljinder Singh, Aji Gopakumar, Daniel Baker (Author)


p. 771-777

 PDF

Impact of medicinal chemistry integration in Pharm.D. programmes on first-time NAPLEX pass rates

Karrie Murphy, Ron Carico, Ashim Malhotra, M.O. Faruk Khan (Author)

p.788-794

 PDF

RESEARCH ARTICLE: Comprehensive assessment of reliability and validity for the clinical cases in simulated community pharmacy

Palanisamy Amirthalingam (Author)

p. 183-190

 PDF

Academic experience satisfaction of pharmacy and dentistry students

Julia Lucio Bueno, Lucas Arrais de Campos, Timo Peltomäki, João Marôco, Juliana Alvares Duarte Bonini Campos (Author)

p.503-514

 PDF

Efficacy of an education session by pharmacists for patients with asthma: A randomised controlled trial

Elida Zakrina, Gesnita Nugraheni, Gusni NV Achmad, Arie Sulistyarini, Yunita Nita, Shah Faisal, Arief Bakhtiar, Muhammad Amin (Author)

p.980-988

 PDF

RESEARCH ARTICLE

Efficacy of an education session by pharmacists for patients with asthma: A randomised controlled trial

Elida Zairina^{1,2,3} , Gesnita Nugraheni^{1,2} , Gusti NV Achmad^{1,2} , Arie Sulistyarini^{1,2} , Yunita Nita^{1,2} , Shah Faisal⁴ , Arief Bakhtiar^{5,6,7} , Muhammad Amin^{5,6,7} 

¹ Department of Pharmacy Practice, Faculty of Pharmacy, Universitas Airlangga, Surabaya, Indonesia

² Innovative Pharmacy Practice and Integrated Outcome Research (INACORE) Group Universitas Airlangga, Surabaya, Indonesia

³ Center for Patient Safety Research, Universitas Airlangga, Surabaya, Indonesia

⁴ Doctoral Program of Pharmaceutical Sciences, Faculty of Pharmacy, Universitas Airlangga, Surabaya, Indonesia

⁵ Department of Pulmonology and Respiratory Medicine, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia

⁶ Department of Pulmonology, Dr Soetomo Hospital, Surabaya, Indonesia

⁷ Department of Pulmonology, Universitas Airlangga Hospital, Surabaya, Indonesia

Keywords

Asthma
Education
Pharmacist

Correspondence

Elida Zairina
Department of Pharmacy Practice
Faculty of Pharmacy
Universitas Airlangga
Surabaya
Indonesia
elida-z@ff.unair.ac.id

Abstract

Background: Asthma education interventions are provided by pharmacists in many developed countries, although it is still a matter of concern in developing countries. This study aimed to evaluate the effectiveness of pharmacist education sessions on asthma patients. **Methods:** A three-month single-blinded randomised control trial was conducted to evaluate the impact of pharmacist education sessions on asthma patients. The 60-minute pharmacist sessions provided education to patients about asthma management. The primary outcome of the study was to measure the change in the score of the asthma control questionnaire (ACQ). **Results:** The 82 participants who completed the study were grouped into two groups. A clinically significant improvement of $p > 0.5$ in the ACQ score was found in the symptoms and environment domains in the intervention group. A significant difference in the ACQ score was also found between the two groups ($p < 0.05$) after 1 and 2 months of intervention. The proportion of patients with controlled asthma increased from 26 (63.4%) to 31 (75.6%) after the second follow-up in the intervention group. Furthermore, a significant increase ($p = 0.043$) in the AQLQ score was noticed from 4.834 at baseline to 5.433 after the intervention. **Conclusion:** This study concluded that short-time pharmacist education sessions could improve patients asthma status and quality of life.

Introduction

Asthma cases are a growing concern worldwide and have become a substantial burden for healthcare systems (World Health Organization, 2008). Asthma is an inflammatory condition of the airways that results in difficulty breathing, chest tightness, wheezing, production of sputum, and dry cough (Lemière et al., 2004). In asthma patients, response to the stimulus is increased and barricades the airways that can be treated with appropriate therapy or can be reversed spontaneously (Masoli et al., 2004). Many factors are

known to increase the risk of developing asthma. Among these, the most dominants are a family history of asthma, allergic conditions, exposure to stimulating antigens that can trigger asthma-like house dust mites, and the smoke of tobacco or chemicals (National Heart Lung and Blood Institute, 2011). Guidelines are available to treat this condition with the appropriate therapy of asthma drugs and proper asthma. Factors that can affect asthma therapy include the routes of drug administration, using the devices for inhalers, and patient compliance with treatment (Bryant et al., 2013).

The concept of self-management is the key to countering chronic conditions. One of the main issues in chronic disease self-management is the patient's responsibility and understanding of how to counteract and monitor their condition. For chronic conditions such as asthma, knowledge of associated inflammation, the onset of symptoms, risk factors for triggering the disease, and appropriate use of medications can help improve self-management and adherence to treatment. However, understanding asthma may not directly affect disease management but may compel the individual to adapt to the chronic disease (De Vries & Petermann, 2008). Many studies have shown that asthma knowledge was associated with better control, adherence, and quality of life (Huang, 2007; Hermosa *et al.*, 2010; Mancuso, Sayles & Allegrante, 2010). Therefore, improving knowledge about the disease is a pivotal step to perceiving better results in the long term. Proper education, patient counselling, fundamentals of asthma care programmes, and asthma management guidelines are developed to deepen patient understanding and improve asthma and health-related outcomes (Myers, 2008).

Asthma prevalence is increasing worldwide in developed and developing countries despite proper medications for asthma management being available everywhere. Respiratory disease conditions are responsible for 17.4% of deaths around the globe. In 2020, the World Health Organisation reported that more than 339 million people had asthma. Most asthma-related deaths are in low- and middle-income countries, with the WHO reporting 417,918 deaths due to asthma at the global level. Proper therapy and effective management of the disease could save many lives (World Health Organization, 2020a, 2020b).

This study is the first literature-based survey in Indonesia that uncovers the implication of pharmacists' educational intervention on self-management and its effect on asthma patients, their behaviours, understanding of asthma, asthma control, and treatment adherence. Studies showed that treatment compliance and the proper use of asthma medications play a significant role in chronic illness management. Hence, the pharmacist specialist plays a vital role in medication therapy management. Asthma can be controlled by the active involvement of the patient in self-management, which includes assessing the function of the lungs, monitoring the symptoms, following therapy plans, and consulting doctors regularly about their conditions (Gibson *et al.*, 2003). Therefore, this randomised controlled study aimed to assess the effectiveness of pharmacist educational sessions on asthma patients in Indonesia. It was thus hypothesised that patients in the intervention group had better asthma control as measured by decreased

Asthma Control Questionnaire (ACQ) scores after three months of follow-up.

Methods

Study setting

The study participants were recruited from the outpatient department of pulmonology at Universitas Airlangga teaching hospital.

Ethical approval

Ethical approval was obtained from the human research ethics committee of Universitas Airlangga teaching hospital. Apart from that, written informed consent was provided by all the participants at the time of recruitment.

Study design

The current study is a retrospective, single-blinded, randomised controlled trial (Thai Clinical Trials Registry # TCTR20171219001). The protocol of the study has been published elsewhere (Zairina *et al.*, 2018). The total duration of the study was three months. A sample of 82 patients were recruited, and 41 participants were allocated to each group. Both the intervention and the control group were followed up for three months, and outcomes were compared with baseline after the 1, 2, and 3 months.

Inclusion and exclusion criteria

This study included asthma patients aged 18 or older who had used asthma medication in the past 12 months and could communicate in Indonesian. Those unable to explain the lung's activity through a spirometer were excluded from the study.

Participants recruitment and sample size

Asthma patients were identified by doctors upon visiting the outpatient department of pulmonology at Universitas Airlangga teaching hospital. The research assistants approached the participants and screened them based on the study inclusion and exclusion criteria. Those who met the inclusion criteria and showed interest in participating were selected; they provided a written informed consent form to the hospital. The contact numbers were obtained from participants for further communication. The total number of participants recruited was 82. The participants were distributed on a 1:1 basis, and 41 participants were allocated to each of the intervention and control groups.

Group allocation

The allocation was done using the sealed opaque envelope technique, where random numbers were generated using a random allocation software programme (Kim & Shin, 2014) by an external researcher not involved in the study. Only the external researcher knew the numbers allocated, and the numbers were allocated by the researcher to the intervention and control group.

Control: Usual care group

Participants in the control group received the usual care provided by the health professionals in the department of pulmonology of Universitas Airlangga teaching hospital, which included monthly visits depending on the condition of the patients.

Intervention: Education group

Before delivering the interventions or educational sessions, the pharmacist included in the study received training to become a certified asthma educator (EZ). The intervention included a one-on-one education session delivered by the pharmacist to the patient regarding the following matters: (1) asthma medication that has been used; (2) how to use asthma medication devices correctly; (3) asthma symptoms and how to prevent exacerbation of asthma; and (4) how to manage asthma triggers and environmental control measures.

A video was shown to the patients regarding the proper use of medications. A booklet was also provided to the intervention group about the use of asthma medications and how to avoid asthma triggers.

Consistent with the Global Initiative for Asthma guidelines action plan, a written asthma action plan was translated into the Indonesian language and used in asthma patients based on the information at baseline. The education session provided information about the correct use and time of medication information, recognising the worsened condition of asthma and what to do, and information regarding the plans for acute asthmatic attacks.

Outcome measures

In the current study, the primary outcome was the change in asthma conditions measured with Juniper's Asthma Controlled Questionnaire (ACQ) (Juniper *et al.*, 1999b). The secondary outcomes of the study were the changes in Juniper's Asthma Quality of Life Questionnaire (Juniper *et al.*, 1999a) and Adherence to Refills and Medications Scales (ARMS) scores.

Data collection and follow-up

ACQ, AQLQ, and ARMS scores were collected at baseline and at one, two, and three months to compare between baseline and follow-ups. The same form was used for data collection in both the control and intervention groups. The data measured at each follow-up were recorded for specific groups of patients.

Data analysis

The results of the current study were analysed using SPSS version 25. Descriptive statistics were used to calculate the frequencies of participant characteristics in each group. The baseline characteristics of both groups were compared using the Mann U Whitney, independent sample t-test, chi-square, and Fisher exact test where applicable. Descriptive statistics were used to calculate the mean ACQ score in different domains and the increase or decrease in the number of patients with controlled asthma in both groups at baseline and follow-up. The mean ACQ score of the respondents in both groups at baseline and follow-up was analysed using a one-way ANOVA. A pairwise comparison of ACQ scores for both groups was also performed. The Wilcoxon test was used to find out a significant difference in the means score of AQLQ in both groups after the intervention compared with the mean score at baseline.

Results

A total of 82 participants participated in the study and were divided into two groups of 41 participants each. Of the total sample, 23 were male and 59 female. The mean age was $51.29 \pm \text{SD } 12.38$ in the intervention group and 51.93 ± 12.586 in the control group. Most participants ($n=80$; 97.56%) were from Surabaya. The majority of participants in both groups were housewives, 19(46.3%) and 21(51.12%), respectively. The intervention group included 38(92.7%) smoker participants compared to 35(85.4%) in the control group. Table I displays the baseline characteristics of the participants.

Table II illustrates the score of all ACQ domains. An improvement of $p>0.5$ in the ACQ score was found in the symptoms and environment domains in the intervention group after follow-up. There was also a progressive improvement in other domains of ACQ in the intervention group.

Table I: Baseline characteristics of the respondents by interventions and control group (n=82)

Patient characteristics	Intervention group	Control group	p-value
Gender			
Male	10 (24.4%)	13 (31.7%)	0.461
Female	31 (75.5%)	28 (68.3%)	
Age - mean SD	51.29 (12.238)	51.93 (12.586)	0.818
City			
Surabaya	41 (100%)	39 (95.1%)	0.494
Other	0	2 (4.9%)	
Occupation			
PNS – Government employees	1 (2.4%)	2 (4.9%)	0.917
Private	15 (36.6%)	11 (26.8%)	
Self-employed	4 (9.8%)	5 (12.2%)	
Houseworkers	19 (46.3%)	21 (51.2%)	
Others	2 (4.9%)	2 (4.9%)	
Education			
Incomplete elementary	2 (4.9%)	1 (2.4%)	0.348
Elementary	4 (9.8%)	9 (22%)	
Junior high school	4 (9.8%)	6 (14.6%)	
Education senior high school	16 (39%)	11 (26.8%)	
Diploma	5 (12.2%)	1 (2.4%)	
Bachelor's degree	9 (22%)	11 (26.8%)	
Master's degree	1 (2.4%)	2 (4.9%)	
Smoking			
Yes	38 (92.7%)	35 (85.4%)	0.482
No	3 (7.3%)	6 (14.6%)	
BPJS – National Health Insurance			
Yes	40 (97.6%)	41 (100%)	> 0.05
No	1 (2.4%)	0 (0%)	
Change asthma med in last week			
Yes	35 (85.4%)	40 (97.6%)	0.109
No	6 (14.6%)	1 (2.4%)	
Last visit at health care facilities			
A week ago	11 (27.5%)	7 (17.1%)	0.111
2 weeks ago	0 (0%)	3 (7.3%)	
3 weeks ago	0 (0%)	2 (4.9%)	
A month ago	29 (72.5%)	29 (70.7%)	
Monthly income (IDR)			
3.000.000	28 (68.3%)	29 (76.3%)	0.157
3.000.000 – 6.000.000	13 (31.7%)	7 (18.4%)	
6.000.000 – 12.000.000	0 (0%)	2 (5.3%)	

The ACQ scores in the intervention and control group at baseline were (1.476 ± 1.08) and (1.798 ± 1.34) , respectively. The scores after the first follow-up decreased to 1.267 ± 1.04 in the intervention group, which was lower compared to the control group (1.817 ± 1.36) . Significant differences in ACQ scores were found between the groups after the first and the

second follow-up ($p = 0.044$) and ($p = 0.027$), respectively. After the last follow-up, the ACQ score in the intervention group was lower than in the control group, but no significant difference was found ($p = 1.171$). The comparison of ACQ scores between both groups can be seen in Table III.

Table II: ACQ score of all domains in both groups from baseline to follow-up

ACQ	Groups	Baseline, Mean \pm SD	Follow-up 1, Mean \pm SD	Follow-up 2, Mean \pm SD	Follow-up 3, Mean \pm SD
Symptoms	Intervention group	2.00 \pm 1.949	1.85 \pm 1.797	1.39 \pm 1.656	1.27 \pm 1.533 ^a
	Control group	1.56 \pm 2.001	2.00 \pm 2.110	1.61 \pm 2.072	1.78 \pm 2.139
Emotions	Intervention group	1.15 \pm 1.315	1.54 \pm 1.325	1.07 \pm 1.034	1.10 \pm 1.319
	Control group	1.68 \pm 1.781	1.90 \pm 1.729	1.71 \pm 1.750	1.71 \pm 1.927
Activities	Intervention group	1.20 \pm 1.487	1.12 \pm 1.520	0.98 \pm 1.193	1.05 \pm 1.465
	Control group	1.41 \pm 1.549	1.63 \pm 1.593	1.49 \pm 1.551	1.51 \pm 1.690
Environment	Intervention group	2.17 \pm 1.395	1.83 \pm 1.283	1.61 \pm 1.339	1.59 \pm 1.303 ^a
	Control group	1.73 \pm 1.467	2.17 \pm 1.611	1.95 \pm 1.717	1.95 \pm 1.802
Generic health status					
Physical	Intervention group	1.17 \pm 1.358	1.34 \pm 1.442	1.29 \pm 1.250	1.10 \pm 1.497
	Control group	1.54 \pm 1.776	2.05 \pm 2.024	1.83 \pm 2.084	1.68 \pm 2.138
Mental	Intervention group	1.10 \pm 0.917	1.20 \pm 1.167	0.88 \pm 0.822	0.83 \pm 0.874
	Control group	1.15 \pm 1.108	1.27 \pm 1.073	1.10 \pm 1.091	1.15 \pm 1.315
Other Symptoms	Intervention group	2.51 \pm 2.111	1.93 \pm 2.054	2.12 \pm 1.900	2.40 \pm 2.171
	Control group	2.93 \pm 2.317	2.78 \pm 2.351	2.99 \pm 2.359	2.88 \pm 2.400

^a Improvement in ACQ score (>0.5) after follow-up; ACQ = Asthma controlled questionnaire

Table III: Comparison of ACQ between the intervention and the control group

	ACQ score (mean \pm SD) Intervention group	ACQ score (mean \pm SD) Control group	Mean difference (95% CI)	p-value
Baseline	1.476 \pm 1.08	1.798 \pm 1.34	-0.322 (-0.859 - 0.216)	0.238
Follow up 1	1.267 \pm 1.04	1.817 \pm 1.36	-0.550 (-1.084 - 0.016)	0.044
Follow up 2	1.240 \pm 0.96	1.825 \pm 1.35	-0.585 (-1.101 - -0.069)	0.027
Follow up 3	1.391 \pm 1.17	1.776 \pm 1.34	-0.385 (-0.940 - 0.17)	0.171

ACQ = Asthma controlled questionnaire; SD = standard deviation; CI = confidence interval

Table IV shows that the number of patients with well-controlled asthma increased in the intervention group compared to the control group. Asthma control was significantly different ($p < 0.05$) in both groups after the first and second follow-ups. The proportion of patients with controlled asthma increased from 26 (63.4%) to 31

(75.6%) after the second follow-up in the intervention group, while the numbers deviated slightly in the usual care group. However, after the third follow-up, no significant difference was noticed in the number of patients regarding asthma control in the intervention group compared with the numbers at baseline.

Table IV: Proportion of patients with well-controlled and not well-controlled asthma based on ACQ

	Well-controlled Asthma (ACQ score \geq 1.5)	Not well controlled asthma (ACQ score $<$ 1.5)	p-value
Baseline			
Intervention group	26 (63.4%)	15 (36.6%)	0.120
Control group	19 (46.3%)	22 (53.7%)	
Follow up 1			
Intervention group	29 (70.7%)	12 (29.3%)	0.043
Control group	20 (48.8%)	21 (51.2%)	
Follow up 2			
Intervention group	31 (75.6%)	10 (24.4%)	0.022
Control group	21 (51.2%)	20 (48.8%)	
Follow up 3			
Intervention group	27 (65.9%)	14 (34.1%)	0.260
Control group	22 (53.7%)	19 (46.3%)	

ACQ = Asthma controlled questionnaire

Table V explains the results of the secondary outcome, i.e., the change in AQLQ scores. The results showed a significant increase in the AQLQ score from baseline to follow-up in intervention groups, while no significant difference was found in the usual care group.

Table V: Difference in AQLQ scores between baseline and follow-up

	Mean \pm SD	p-value
Intervention group		
AQLQ score baseline	4.834 \pm 1.209	0.005
AQLQ score after intervention	5.433 \pm 1.474	
Control group		
AQLQ score baseline	4.955 \pm 1.178	0.230
AQLQ score after intervention	5.086 \pm 1.339	

AQLQ = Asthma quality of life questionnaire; SD = standard deviation

The other secondary outcome was a change in ARMS score, lung function, asthma-related health visits, days off from work due to asthma, and oral corticosteroid use. No significant or progressive change was found in the ARMS score in both the intervention or control groups. There was a slight but not significant improvement in the lung functions of the patients in the intervention group compared to the control group. Other secondary outcomes, such as asthma-related health visits, days off from work due to asthma, and the use of corticosteroids in both groups, had no significant change or improvement, and hence the results are not presented in the study.

Discussion

This study has demonstrated that pharmacist interventions can lead to controlled asthma. As asthma is managed, the patient quality of life is also improved. This study is the first in Indonesia to provide insights into the role of pharmacists in improving patient asthma and increasing quality of life. The results showed a significant improvement in asthma patients in intervention groups after the follow-up as compared to the control group. These results are consistent with previous findings indicating that a pharmacist with basic training in asthma care can deliver a simple educational programme resulting in improvements in asthma (Dolovich et al., 2007; Berry et al., 2011).

The results show that the pharmacist intervention in three months improved asthma control in patients allocated in the intervention group compared to those receiving the usual care. The overall results of our study are consistent with some previous findings stating that pharmacist interventions increase the asthma-controlled number in intervention groups. The ACQ

score of patients was decreased in follow-ups compared to the baseline in the intervention group. A decrease of 0.5 on the scale in domains of symptoms and environment of the ACQ score indicated clinical improvement of asthma (Juniper et al., 2005), while the score of other domains also showed a slight deviation from the baseline in the intervention group consistent with the prior research (García-Cárdenas et al., 2013).

An improvement in the mean score of ACQ was also found in the intervention group, in line with previous studies (Smith et al., 2007; Mehuys et al., 2008; Armour et al., 2013; García-Cárdenas et al., 2013; Lim et al., 2014). Another study also showed that after the intervention, the ACQ scores of all participants were significantly improved ($p < 0.05$) (Zanghelini & Carvalho, 2013). The current study also recorded that the number of patients having well-controlled asthma increased in the intervention group compared to a slight improvement in the usual care group. These results are in agreement with previous findings, where the number of asthma patients significantly increased by 30.1% after six months of intervention (García-Cárdenas et al., 2013). One study assessed asthma control through a symptom/activity tool and the ACQ. It recorded an increase in patients classified as having well-controlled asthma and a mean decrease in the ACQ scores, similar to our results (Armour et al., 2013). A systematic review of clinical trials on asthma patients concluded that the ACQ score was improved after interventions (Bateman et al., 2015). Other randomised controlled studies also showed an increase in the overall percentage of asthma-controlled patients after the interventions (Mehuys et al., 2008; García-Cárdenas et al., 2013; McDonald et al., 2020; Freitas et al., 2021).

The secondary outcome of our study was a change in Juniper's Asthma Quality of Life Questionnaire score. A significant increase in the AQLQ score was found after the intervention, consistent with previous findings (Turner et al., 2011; Rondinel et al., 2015; Özbey et al., 2020). A study in New Zealand also showed a notable improvement in patient quality of life after pharmacist interventions (Kheir, Emmerton & Shaw, 2001). Other secondary outcomes important for asthma management were also improved, such as medication adherence and lung function, in the intervention group compared to usual care (Närhi et al., 2000; Barbanel, Eldridge & Griffiths, 2003; Emmerton, Shaw & Kheir, 2003; Bunting & Cranor, 2006).

Generally, asthma patients accept the symptoms related to their disease and are ready to acquire every challenge to control asthma (Umoh et al., 2013). However, it is the responsibility of healthcare providers to help patients manage asthma and live a productive life (Alpaydin et al., 2012). Patients with poorly controlled asthma should be

targeted for medication compliance and medication-taking techniques, especially the use of inhalers (Westerik *et al.*, 2016).

In this study, the pharmacist's educational intervention could significantly improve ACQ scores, increase the number of patients with controlled asthma, and improve patient quality of life. The role of the pharmacist in asthma management is growing with time (Benavides, Rodriguez & Maniscalco-Feichtl, 2009). The visits of asthma patients to healthcare providers are also necessary to keep the disease under control and show adherence to therapy (Ngahane *et al.*, 2016), which can be improved through shared decision-making strategies between patients and pharmacists in chronic conditions (Wilson *et al.*, 2010).

Limitations

This study has some limitations. Firstly, only patients using asthma medication for the past 12 months and patients from a single health setting were included in the study; therefore, the sample may not be generalised to the entire asthma population. Secondly, significant differences in ACQ scores were observed after the first and the second follow-up; thus, a future investigation on a large number of patients with a prolonged period of interventions is suggested. The current study did not find any significant improvement in the secondary outcomes, such as adherence, lung functions, asthma-related visits, and day-off from work due to asthma, so future RCT studies evaluating these outcomes are recommended. Finally, as the patient outcomes were obtained after a 3-month intervention, the feasibility of the current results on prolonged interventions cannot be poised.

Conclusion

In conclusion, asthma portrays a global problem, and public health initiatives are essential to encourage asthma education for patients and healthcare professionals. The study focused on the leading outcomes of asthma management and revealed that the designed short-term intervention could help the patients improve their disease, increase the number of controlled asthma patients, and have a better quality of life. Apart from the intervention, additional approaches would be required to identify the principal asthma-related issues for future implementation in healthcare settings.

Conflict of Interest

The authors declare no conflict of interest.

Source of Funding

This study was supported by the Indonesian Ministry of Education and Culture (DRPM-PTUPT 2017-2018)

References

- Alpaydin, A. O., Bora, M., Yorgancioglu, A., Coskun, A. S., & Celik, P. (2012). Asthma control test and asthma quality of life questionnaire association in adults. *Iranian journal of allergy, asthma, and immunology*, **11**(4), 301–307
- Armour, C. L., Reddel, H. K., LeMay, K. S., Saini, B., Smith, L. D., Bosnic-Anticevich, S. Z., Song, Y. J., Alles, M. C., Burton, D. L., Emmerton, L., Stewart, K., & Krass, I. (2013). Feasibility and effectiveness of an evidence-based asthma service in Australian community pharmacies: a pragmatic cluster randomized trial. *The Journal of asthma*, **50**(3), 302–309. <https://doi.org/10.3109/02770903.2012.754463>
- Barbanel, D., Eldridge, S., & Griffiths, C. (2003). Can a self-management programme delivered by a community pharmacist improve asthma control? A randomised trial. *Thorax*, **58**(10), 851–854. <https://doi.org/10.1136/thorax.58.10.851>
- Bateman, E. D., Esser, D., Chirila, C., Fernandez, M., Fowler, A., Moroni-Zentgraf, P., & FitzGerald, J. M. (2015). Magnitude of effect of asthma treatments on Asthma Quality of Life Questionnaire and Asthma Control Questionnaire scores: Systematic review and network meta-analysis. *The Journal of allergy and clinical immunology*, **136**(4), 914–922. <https://doi.org/10.1016/j.jaci.2015.03.023>
- Benavides, S., Rodriguez, J. C., & Maniscalco-Feichtl, M. (2009). Pharmacist involvement in improving asthma outcomes in various healthcare settings: 1997 to present. *The Annals of pharmacotherapy*, **43**(1), 85–97. <https://doi.org/10.1345/aph.1K612>
- Berry, T. M., Prosser, T. R., Wilson, K., & Castro, M. (2011). Asthma friendly pharmacies: a model to improve communication and collaboration among pharmacists, patients, and healthcare providers. *Journal of urban health*, **88** Suppl 1(Suppl 1), 113–125. <https://doi.org/10.1007/s11524-010-9514-9>
- Bryant, J., McDonald, V. M., Boyes, A., Sanson-Fisher, R., Paul, C., & Melville, J. (2013). Improving medication adherence in chronic obstructive pulmonary disease: a systematic review. *Respiratory research*, **14**(1), 109. <https://doi.org/10.1186/1465-9921-14-109>
- Bunting, B. A., & Cranor, C. W. (2006). The Asheville Project: long-term clinical, humanistic, and economic outcomes of a community-based medication therapy management program for asthma. *Journal of the American Pharmacists*

- Association, **46**(2), 133–147.
<https://doi.org/10.1331/154434506776180658>
- De Vries, U., & Petermann, F. (2008). Asthma management: what impact does knowing about asthma have on the ability of patients to self-manage the disease? *Deutsche medizinische Wochenschrift*, **133**(4), 139–143
- Dolovich, L., Sabharwal, M., Agro, K., Foster, G., Lee, A., McCarthy, L., & Willan, A. R. (2007). The effect of pharmacist education on asthma treatment plans for simulated patients. *Pharmacy world & science*, **29**(3), 228–239. <https://doi.org/10.1007/s11096-006-9080-0>
- Emmerton, L., Shaw, J., & Kheir, N. (2003). Asthma management by New Zealand pharmacists: a pharmaceutical care demonstration project. *Journal of clinical pharmacy and therapeutics*, **28**(5), 395–402. <https://doi.org/10.1046/j.0269-4727.2003.00507.x>
- Freitas, P. D., Passos, N. F. P., Carvalho-Pinto, R. M., Martins, M. A., Cavalheri, V., Hill, K., Stelmach, R., & Carvalho, C. R. F. (2021). A Behavior Change Intervention Aimed at Increasing Physical Activity Improves Clinical Control in Adults With Asthma: A Randomized Controlled Trial. *Chest*, **159**(1), 46–57. <https://doi.org/10.1016/j.chest.2020.08.2113>
- García-Cárdenas, V., Sabater-Hernández, D., Kenny, P., Martínez-Martínez, F., Faus, M. J., & Benrimoj, S. I. (2013). Effect of a pharmacist intervention on asthma control. A cluster randomised trial. *Respiratory medicine*, **107**(9), 1346–1355. <https://doi.org/10.1016/j.rmed.2013.05.014>
- Gibson, P. G., Powell, H., Coughlan, J., Wilson, A. J., Abramson, M., Haywood, P., Bauman, A., Hensley, M. J., & Walters, E. H. (2003). Self-management education and regular practitioner review for adults with asthma. *The Cochrane database of systematic reviews*, (1), CD001117. <https://doi.org/10.1002/14651858.CD001117>
- Hermosa, J. L., Sánchez, C. B., Rubio, M. C., Mínguez, M. M., & Walther, J. L. (2010). Factors associated with the control of severe asthma. *The Journal of asthma*, **47**(2), 124–130. <https://doi.org/10.3109/02770900903518835>
- Huang T. T. (2007). Self-care behavior of adult asthma patients. *The Journal of asthma*, **44**(8), 613–619. <https://doi.org/10.1080/02770900701540200>
- Juniper, E. F., Guyatt, G. H., Cox, F. M., Ferrie, P. J., & King, D. R. (1999a). Development and validation of the Mini Asthma Quality of Life Questionnaire. *The European respiratory journal*, **14**(1), 32–38. <https://doi.org/10.1034/j.1399-3003.1999.14a08.x>
- Juniper, E. F., O'Byrne, P. M., Guyatt, G. H., Ferrie, P. J., & King, D. R. (1999b). Development and validation of a questionnaire to measure asthma control. *The European respiratory journal*, **14**(4), 902–907. <https://doi.org/10.1034/j.1399-3003.1999.14d29.x>
- Juniper, E. F., Svensson, K., Mörk, A. C., & Ståhl, E. (2005). Measurement properties and interpretation of three shortened versions of the asthma control questionnaire. *Respiratory medicine*, **99**(5), 553–558. <https://doi.org/10.1016/j.rmed.2004.10.008>
- Kheir, N., Emmerton, L., & Shaw, J. (2001). Can pharmacists influence the health-related quality of life of patients with asthma?: The New Zealand Pharmaceutical Care experience. *Journal for scientific research. Medical sciences*, **3**(2), 69–75
- Kim, J., & Shin, W. (2014). How to do random allocation (randomization). *Clinics in orthopedic surgery*, **6**(1), 103–109. <https://doi.org/10.4055/cios.2014.6.1.103>
- Lemière, C., Bai, T., Balter, M., Bayliff, C., Becker, A., Boulet, L. P., Bowie, D., Cartier, A., Cave, A., Chapman, K., Cowie, R., Coyle, S., Cockcroft, D., Ducharme, F. M., Ernst, P., Finlayson, S., FitzGerald, J. M., Hargreave, F. E., Hogg, D., Kaplan, A., Kim, H., Kelm, C., O'Byrne, P., Sears, M., Markham, A.W.; Canadian Adult Consensus Group of the Canadian Thoracic Society (2004). Adult Asthma Consensus Guidelines update 2003. *Canadian respiratory journal*, **11 Suppl A**, 9A–18A. <https://doi.org/10.1155/2004/271362>
- Lim, A. S., Stewart, K., Abramson, M. J., Walker, S. P., Smith, C. L., & George, J. (2014). Multidisciplinary Approach to Management of Maternal Asthma (MAMMA): a randomized controlled trial. *Chest*, **145**(5), 1046–1054. <https://doi.org/10.1378/chest.13-2276>
- Mancuso, C. A., Sayles, W., & Allegrante, J. P. (2010). Knowledge, attitude, and self-efficacy in asthma self-management and quality of life. *The Journal of asthma*, **47**(8), 883–888. <https://doi.org/10.3109/02770903.2010.492540>
- Masoli, M., Fabian, D., Holt, S., Beasley, R., & Global Initiative for Asthma (GINA) Program (2004). The global burden of asthma: executive summary of the GINA Dissemination Committee report. *Allergy*, **59**(5), 469–478. <https://doi.org/10.1111/j.1398-9995.2004.00526.x>
- McDonald, V. M., Clark, V. L., Cordova-Rivera, L., Wark, P. A. B., Baines, K. J., & Gibson, P. G. (2020). Targeting treatable traits in severe asthma: a randomised controlled trial. *The European respiratory journal*, **55**(3), 1901509. <https://doi.org/10.1183/13993003.01509-2019>
- Mehuys, E., Van Bortel, L., De Bolle, L., Van Tongelen, I., Annemans, L., Remon, J. P., & Brusselle, G. (2008). Effectiveness of pharmacist intervention for asthma control improvement. *The European respiratory journal*, **31**(4), 790–799. <https://doi.org/10.1183/09031936.00112007>
- Myers, T. R. (2008). Guidelines for asthma management: a review and comparison of 5 current guidelines. *Respiratory care*, **53**(6), 751–769
- Närhi, U., Airaksinen, M., Tanskanen, P., & Erlund, H. (2000). Therapeutic outcomes monitoring by community pharmacists for improving clinical outcomes in asthma. *Journal of clinical pharmacy and therapeutics*, **25**(3), 177–183. <https://doi.org/10.1046/j.1365-2710.2000.00276.x>
- National Heart Lung and Blood Institute. (2011). What is asthma. <https://www.nhlbi.nih.gov/health-topics/asthma>. Accessed 08 March 2021
- Ngahane, B. H., Pefura-Yone, E. W., Mama, M., Tengang, B., Nganda, M. M., Wandji, A., Olinga, U., Nyankiyé, E., Afane Ze, E., & Kuaban, C. (2016). Evaluation of factors affecting adherence to asthma controller therapy in chest clinics in a sub-Saharan African setting: a cross-sectional study. *African health sciences*, **16**(1), 194–200. <https://doi.org/10.4314/ahs.v16i1.26>

Özbey, Ü., Balaban, S., Sözüner, Z. Ç., Uçar, A., Mungan, D., & Mısırlıgil, Z. (2020). The effects of diet-induced weight loss on asthma control and quality of life in obese adults with asthma: a randomized controlled trial. *The Journal of asthma*, **57**(6), 618–626. <https://doi.org/10.1080/02770903.2019.1590594>

Rondinel, T. Z., Corrêa, I. F., Hoscheidt, L. M., Bueno, M. H., Da Silva, L. M., Reppold, C. T., & Dal Lago, P. (2015). Incentive spirometry combined with expiratory positive airway pressure improves asthma control and quality of life in asthma: a randomised controlled trial. *The Journal of asthma*, **52**(2), 220–226. <https://doi.org/10.3109/02770903.2014.956890>

Smith, L., Bosnic-Anticevich, S. Z., Mitchell, B., Saini, B., Krass, I., & Armour, C. (2007). Treating asthma with a self-management model of illness behaviour in an Australian community pharmacy setting. *Social science & medicine* (1982), **64**(7), 1501–1511. <https://doi.org/10.1016/j.socscimed.2006.11.006>

Turner, S., Eastwood, P., Cook, A., & Jenkins, S. (2011). Improvements in symptoms and quality of life following exercise training in older adults with moderate/severe persistent asthma. *Respiration*, **81**(4), 302–310. <https://doi.org/10.1159/000315142>

Umoh, V. A., Ekott, J. U., Ekwere, M., & Ekpo, O. (2013). Asthma control among patients in Uyo South-Eastern Nigeria. *Indian Journal of Allergy, Asthma Immunology*, **27**(1), 27–32. <https://doi.org/10.4103/0972-6691.116611>

Westerik, J. A., Carter, V., Chrystyn, H., Burden, A., Thompson, S. L., Ryan, D., Gruffydd-Jones, K., Haughney, J., Roche, N., Lavorini, F., Papi, A., Infantino, A., Roman-Rodriguez, M., Bosnic-Anticevich, S., Lisspers, K., Ställberg, B., Henrichsen, S. H., van der Molen, T., Hutton, C., & Price, D. B. (2016). Characteristics of patients making serious inhaler errors with a dry powder inhaler and association with asthma-related events in a primary care setting. *The Journal of asthma*, **53**(3), 321–329. <https://doi.org/10.3109/02770903.2015.1099160>

Wilson, S. R., Strub, P., Buist, A. S., Knowles, S. B., Lavori, P. W., Lapidus, J., Vollmer, W. M., & Better Outcomes of Asthma Treatment (BOAT) Study Group (2010). Shared treatment decision making improves adherence and outcomes in poorly controlled asthma. *American journal of respiratory and critical care medicine*, **181**(6), 566–577. <https://doi.org/10.1164/rccm.200906-0907OC>

World Health Organization. (2008). Global Alliance against Chronic Respiratory Diseases Action Plan 2008-2013. J Geneva: WHO. Retrieved from <https://apps.who.int/iris/handle/10665/43984>

World Health Organization. (2020a). Asthma. 2020. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/asthma>. Accessed 08 March 2021

World Health Organization. (2020b). Chronic respiratory diseases: Asthma. 2020. Retrieved from <https://www.who.int/news-room/q-a-detail/chronic-respiratory-diseases-asthma>. Accessed 08 March 2021



Zairina, E., Nugraheni, G., Achmad, G. N., Sulistyarini, A., Nita, Y., Bakhtiar, A., & Amin, M. (2018). Efficacy of an Education Session by Pharmacists for Patients With Asthma:

Protocol and Design of a Randomized Controlled Trial. *JMIR research protocols*, **7**(12), e10210. <https://doi.org/10.2196/10210>

Zanghelini, F., & Carvalho, A. (2013). Impact of pharmaceutical care on lung function in patients with severe asthma. *Revista de Ciências Farmaceuticas Basica e Aplicada*, **34**, 379-386




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		18

PUBLICATION TYPE	ISSN	COVERAGE	INFORMATION
Journals	14772701, 15602214	1973-1978, 2002-2021	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

FIND SIMILAR JOURNALS

options

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



Pharmacy Education

← Show this widget in your own website

Q3 Pharmaceutical Science
best quartile

SJR 2021 0.16

powered by scimagojr.com

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

```
<a href="https://www.scimagojr.com" >
```

SCImago Graphica

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

Metrics based on Scopus® data as of April 2022

A **Adaobi** 3 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** 3 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 3 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** 3 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 3 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 2007-2022. Data Source: Scopus®

EST MODUS IN REBUS
Horatio (Satire 1.1.106)

[Cookie settings](#)

[Cookie policy](#)
