

## Corrective and Preventive Actions of Pharmacist Preceptor in Guiding Pharmacy Internship at Public Health Center during the COVID-19 Pandemic

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### ABSTRACT

During the COVID-19 pandemic, a pharmacy internship at the Public Health Centers (PHC) was carried out by complying with the implementation of health protocols. There were risks for students to be exposed to COVID-19 when a pharmacy internship was carried out directly at the PHC, and some pharmacy internship materials could not be applied easily due to the pandemic. This study aimed to identify the corrective and preventive actions of the preceptor in guiding the pharmacy internship at the PHC during the COVID-19 pandemic. This descriptive study was conducted using the in-depth interview method and examined using qualitative data analysis. The results of interviews were categorized into six issues, namely: 1) roles and abilities as preceptors; 2) pharmacy college institution support; 3) pharmacy internship mentoring methods; 4) corrective and preventive actions to overcome problems in pharmacy internships during pandemics; 5) pharmacy internship modules; and 6) barriers and factors supporting the role of preceptors. Preventive action taken by the preceptor was generally in relation to government policies during the pandemic and infection prevention and control programs in PHC. Concurrently, the corrective actions were modifying learning methods and using information technology to support pharmacy internship learning outcomes during the pandemic and post-pandemic.

### INTRODUCTION

The COVID-19 pandemic has changed various aspects of human life. The government has set several policies to deal with the pandemic. Policies in the field of education regulate the limitations of face-to-face learning (Viner et al., 2020). Further, it impacted the implementation of pharmacy internships, which was one of the important phases of education, particularly for pharmacy students (Ardiningtyas, 2017). The Public Health Center (PHC), or, in Indonesia, commonly called *Pusat Kesehatan Masyarakat (Puskesmas)*, became one of the fields for the internship to be done. Students were at risk of being exposed to COVID-

19 when pharmacy internships were done directly at the PHC. Some pharmacy internship materials become impossible to complete (Fuller et al., 2020).

There was also a decrease in the productivity of pharmacy students during the COVID-19 lockdown (Isah et al., 2020). Changing the learning process turned into a challenge for the preceptor at the PHC. It urged the eagerness to be more creative when carrying out this role. Thus, it is crucial to conduct research related to the corrective and preventive actions of the preceptors in guiding pharmacy internships at the PHC during the COVID-19 pandemic.

## METHODS

### Design

This was qualitative, descriptive research. Ethical clearance for this research was obtained from the University of Respati Yogyakarta with the number 031.3/FIKES/PL/V/2022. The in-depth interview method used a guide that has been validated by Professional Judgment. Respondents were selected by purposive sampling of the preceptors at the PHC, with criteria of both work experience and experience as a preceptor for more than 5 years. The research site was located in the Special Region of Yogyakarta, particularly in Sleman Regency, Bantul Regency, and Yogyakarta City. Interviews were held in June 2022 via WhatsApp video call and voice call. The duration of each interview was around 30–60 minutes.

### Assessment

The results of the interviews were noted in verbatim transcription, word-for-word transcription, according to the data obtained. Subsequently, the data were analyzed qualitatively with thematic analysis techniques to attain the research objectives.

## RESULTS AND DISCUSSION

Respondents who participated in this study were three pharmacists at the PHC of female gender, ranging in age from 40 to 47 years. The working period of the respondent ranged from 11–17 years. While their experience as preceptors ranged from 9 to 11 years.

As afore mentioned, the results of qualitative data analysis are categorized into six themes, namely: 1) roles and abilities as preceptors; 2) pharmacy college institution support; 3) pharmacy internship mentoring methods; and 4) corrective and preventive actions to overcome problems in pharmacy internships during the pandemic. 5) Pharmacy internship modules; and 6) Barriers and factors supporting the role of preceptors. The results of the thematic analysis of the interview data are briefly presented in the Table 1.

The first issue was related to roles and abilities as preceptors. The results of the interviews proved that the respondents understood their role as preceptors. In accordance with the data, there were four (4) important roles that a preceptor should possess in guiding pharmacy internship programs. One is a teacher or mentor who provides the learning process by considering the guidelines and learning outcomes that need to be effectively achieved. As a facilitator, the preceptor allowed

and provided opportunities for students to experience hands-on learning by using the facilities at the PHC. Three, as a role model who depicted a concrete example of the roles and responsibilities of pharmacists at the PHC. Four, as an evaluator, the preceptor evaluated the learning processes and achievements that had been accomplished throughout the pharmacy internship program (Deangelis and Wolcott, 2019).

Improving the ability of preceptors during the COVID-19 pandemic could be positively done because opportunities are widely open through learning forums such as online webinars. This was significantly beneficial for the preceptors. In addition, pharmacists must also improve their ability to use media or information technology for the purpose of learning. The constraints that arose were when the preceptors had to multitask between attending the webinar and performing services as pharmacists at the PHC. This made preceptors less focused and resulted in less optimal learning results (Michael Onyema et al., 2020).

The second issue was related to pharmacy colleges support for the role of preceptors. This issue was manifested in various forms of activity. The pharmacy institution has facilitated preceptor training in collaboration with the Association of Indonesian Pharmacy Universities and the National Pharmacy Committee. This encouraged the improvement of their abilities as preceptors. Besides, other numerous supports had been provided, such as: 1) collaboration with preceptors in the form of joint research; 2) provision of grants for pharmacy internship facilities; 3) evaluation of the pharmacy internship program done by the pharmacy college together with the preceptors was taken by follow-up; and 4) the preceptors' contribution in the preparation of the curriculum for the pharmacist profession program, especially related to pharmacy internship (Montepara et al., 2021).

The third issue was about pharmacy internship mentoring methods. The guidance was conducted by various methods, including discussion, practice, observation, assignment, case study, and simulation. This was adjusted to the material that was being practiced, especially in pandemic conditions where the PHC is responsible for minimizing the exposure of COVID-19 in the internal PHC environment. Thus, the preceptors must be creative in determining the pharmacy internship learning methods in order to achieve optimal outcomes.

This became one of the major or significant corrective actions (Higbea et al., 2021).

The methods that were performed during the internship are described as follows: One is the use of applications such as Zoom, Google Meet, Google Classroom, and WhatsApp. Two: providing literature links, making presentation slides, and recording videos of real-life service as a pharmacist. Another form of corrective action was observing the pharmacist services at the PHC through Instagram Live. Several social

media sites, such as WhatsApp, TikTok, and Instagram, were used to practice health promotion. Fourth, the practice of telepharmacy was a crucial help as it assisted the public with information related to homecare practices, drug information services, and counseling materials (Unni et al., 2021). These corrective actions are significantly correlated with the use of information technology, as it is known to have an important and effective role in learning activities during the COVID-19 pandemic (Atsani, 2020).

**Table 1:** Responses of the respondents based on the interview theme

Theme	Questions	Responses
Roles and abilities as preceptors	Roles	Respondents understand well the role of the preceptor as a teacher, role model, facilitator, and evaluator.
	Efforts to increase ability	Opportunities are open for capacity building through online webinars, but when they are carried out together with services, they become less focused.
Pharmacy college institution support	Support form	Facilitation of Preceptor Training Collaboration in the form of joint research Grants for pharmacy internship facilities and infrastructure Evaluation of pharmacy internship activities Involvement of Preceptors in Curriculum Preparation
Pharmacy internship mentoring method	Method	Discussion, practice, observation, assignment, case study, and simulation
	Technical implementation	Online, offline, or a combination of both (hybrid)
Corrective and preventive actions to overcome problems in pharmacy internship mentoring during the pandemic	Form of effort	Use of applications for learning (Zoom, Gmeet, Google Classroom, Whatsapp) Providing literature links, making presentation slides, and making videos during service Observation of pharmacist service practice at PHC via Live Instagram Use of social media for health promotion practices (WA, Tiktok, IG) Telepharmacy Practice for Homecare, Drug Information Services, and Counseling Practices
Pharmacy internship modules	Module implementation	Different modules from each pharmacy college (simple to detailed) Existing modules are easy to implement, focusing on learning outcomes. Beyond existing module materials, preceptors gave knowledge to practice infection prevention and control. The module already accommodates all the roles of the preceptors.
	Module customization needs	Health Promotion Materials, Legal Aspects, Health Insurance, PHC Accreditation, and Management of Human Resources and Infrastructure
Barriers and factors supporting the role of preceptors	Barriers	At the same time as the period of the PHC pharmacy reports Extra time outside of working hours
	Supporting factor	As a moral responsibility of the pharmacy profession Participate in forming prospective pharmacist colleagues. Slack time for mentoring in pandemic conditions

The fourth issue referred to corrective and preventive actions to overcome problems in pharmacy internships during the pandemic. The most common coping mechanisms used by pharmacy students were social media and business activities. Despite potential challenges, pharmacy students were prepared to embrace virtual learning and to continue to learn (Isah et al., 2020). Gradually recovering from the COVID-19 pandemic, pharmacy educators in some countries are encouraged to consider the positive impacts we can continue to make on the learning process. A few areas that were strengthened by this pandemic are: 1) online teaching and learning; 2) research and practice collaborations for remote activities; and 3) the expansion of clinical services provided by pharmacists and students, such as telepharmacy. Furthermore, these points became part of the corrective actions taken by the preceptor (Kawaguchi-Suzuki et al., 2020).

The fifth issue was about pharmacy internship modules. One PHC site could be used for pharmacy internships at several colleges. Each pharmacy college provides a pharmacy internship module as an activity guide. There were differences in the modules, ranging from the simple to the detailed. This meant the preceptors had to adjust themselves when guiding the internships according to each module. Although there were few differences in the module, it was quite simple to implement, and its content accommodated all the roles of the preceptors. With the situation of limited or no access to physical interactions, it forced the pharmacy education institutions and all of the stakeholders to develop innovative and accommodating programs without reducing the quality standards and curricula. (Widayati et al., 2020)

Adjustments and changes to the module material are still needed; it should focus more on the material relating to 1) health promotion, 2) legal aspects, 3) health insurance, 4) PHC accreditation, and 5) management of human resources and infrastructure. Health promotion became the major issue related to pharmacists in PHC due to their ability to contribute to promotional and preventive activities and increase the success of national priority programs. Students are expected to have a broader insight into this matter (Steed et al., 2019). During the pandemic, students gained more knowledge and practiced infection prevention and control, particularly in the aspect of hand hygiene and the use of personal protective equipment (PPE) such as gowns,

gloves, masks, face shields, and nurse caps. Moreover, the policy of social distancing was also applied during the internship at PHC. Those were the preventive actions to reduce the risk of COVID-19 transmission (Lewnard and Lo, 2020; Sains et al., 2021).

The sixth issue focused on barriers and factors supporting the role of preceptors. The barriers during mentoring were mostly related to the time constraints of the preceptors. The mentoring in the pandemic situation was performed during slack time. While the supporting factor for the role of preceptor was the moral responsibility to take part in forming prospective pharmacist colleagues, (Florence et al., 2010). The slack time for mentoring in pandemic conditions is obtained from the decrease in the number of patients. Slack time for mentoring in pandemic conditions can also assist in pharmaceutical services at the PHC. The opportunity to improve knowledge was created by exchanging information between students and preceptors. Both parties worked together to keep interns or students motivated throughout their rotation. Key factors in a remote rotation were setting expectations, good communication, getting to know the preceptor, and having a distraction-free work environment. These previously mentioned factors could become corrective actions to maximize the learning objectives of the internship program (Almetwazi et al., 2020; Zhu and Brown, 2020).

The limitations of this study were 1) the number and gender of respondents, and 2) the sites that only describe conditions in the Special Region of Yogyakarta. Therefore, the data generated may be limited in depicting the corrective and preventive actions of the preceptor in guiding pharmacy internships at PHC during the COVID-19 pandemic. Other supporting data obtained from in-depth interviews has not been further explored.

## CONCLUSION

To conclude, the COVID-19 pandemic has prompted changes in the learning systems and techniques of pharmacy internships. The preventive actions taken by the preceptor were generally in relation to government policies during the pandemic, infection, and control programs in PHC. While the corrective actions were modifying learning methods and using information technology to support pharmacy internship learning outcomes during the pandemic and post-pandemic.

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**DECLARATION OF INTERESTS**

We declare no competing interests.

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