

# CHAPTER I

## INTRODUCTION

### 1.1 Research Background

*Severe Acute Respiratory Syndrome Corona Virus* (SARS-CoV-2) is an infectious disease caused by the corona virus which appeared in December 2019 and originated in Wuhan province, China. This virus causes a variety of disease symptoms that affect the respiratory tract, intestines, liver and nervous system, with varying degrees of severity in humans and animals<sup>1</sup>. The daily increase in the number of patients infected by the Covid-19 virus is very difficult to control and planning is needed regarding treatment and prevention so that the virus does not develop further. Since the first announcement of Covid-19 cases in Indonesia on March 2, 2020 to December 31, 2021, there have been 4.262.720 confirmed cases in Indonesia with 4.292 active cases. From the available data, the average patient exposed to the Covid-19 virus is an elderly patient with an age of > 60 years<sup>2</sup>.

Geriatrics or elderly generally have more than one disease (multidiagnoses), chronic which can cause death, and susceptible to various acute diseases that are exacerbated by a weakened immune system<sup>3</sup>. Complex medical problems in geriatric patients lead to polypharmacy prescribing<sup>4</sup>. Polypharmacy is defined as treatment with multiple drugs in one patient and one of the factors predisposing to the occurrence of drug related problems<sup>5</sup>. DRP or drug related problems are part of pharmaceutical care that describe a medication mismatch in achieving the expected therapy. DRPs include adverse drug side effects, drug interactions, inappropriate indications, dosage, inappropriate selection of therapy. The problems caused by DRP in geriatric patients can be very fatal, lead to death. In a study conducted by M. Chappel, the most common DRPs

---

<sup>1</sup> Andre M. Gaghaube, Martha M. Kaseke, and Sonny J. R. Kalangi, "Karakteristik Gambaran Histologis Paru-Paru Pasien Covid-19," *Jurnal e-Biomedik* 9, no. 1 (March 18, 2021), <https://doi.org/10.35790/ebm.v9i1.31896>.

<sup>2</sup> Silvia Ety Kasita et al., "Diagnostic and Management Overview of Covid-19 Elderly Patients at Royal Prima Hospital Medan," *Jambura Journal of Health Sciences and Research* 4, no. 1 (January 14, 2022): 461–68, <https://doi.org/10.35971/jjhsr.v4i1.12207>.

<sup>3</sup> Tri Mulyani and Fef Rukminingsih, "Evaluasi Peresepan Pada Pasien Geriatri Di Klinik Penyakit Dalam Instalasi Rawat Jalan RSUD K.R.M.T Wongsonegoro Semarang," *Jurnal Riset Kefarmasian Indonesia* 2, no. 2 (May 14, 2020): 89–96, <https://doi.org/10.33759/jrki.v2i2.82>.

<sup>4</sup> Mulyani and Rukminingsih.

<sup>5</sup> Mulyani and Rukminingsih.

found were subtherapy doses (28,8%), inappropriate administration (23,7%), inconsistency with guidelines or contraindications (23,2%), and prescribing without indication (16,9%)<sup>6</sup>. So that this therapeutic failure is an important role for pharmacists to prevent the emergence of DRP, especially in geriatric patients.

If there is a mistake in treatment then it is very possible that the treatment will not bring the expected results. These are some of the lessons that we can learn from the following hadith of the Prophet Muhammad Sallallahu'alaihi wa sallam.

حَدَّثَنَا هَارُونُ بْنُ مَعْرُوفٍ وَأَبُو الطَّاهِرِ وَأَحْمَدُ بْنُ عَيْسَى قَالُوا  
حَدَّثَنَا ابْنُ وَهْبٍ أَخْبَرَنِي عَمْرُو وَهُوَ ابْنُ الْحَارِثِ عَنْ عَبْدِ رَبِّهِ بْنِ  
سَعِيدٍ عَنْ أَبِي الزُّبَيْرِ عَنْ جَابِرٍ عَنْ رَسُولِ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ  
أَنَّهُ قَالَ لِكُلِّ دَاءٍ دَوَاءٌ فَإِذَا أُصِيبَ دَوَاءُ الدَّاءِ بَرَأَ بِإِذْنِ اللَّهِ عَزَّ وَجَلَّ

Meaning: "Narrated to us by Harun bin Ma'ruf and Abu Ath Thahir and Ahmad bin 'Isa, they said: Ibn Wahb narrated to us; 'Amru Ibn Al Harith reported from 'Abdu Rabbih bin Sa'id reported from Abu Az Zubair reported from Jabir that the Rasulullah shallallahu'alaihi wa sallam said: "Every disease has a cure. If the right medicine is found for a disease, it will be cured with the permission of Allah 'azza wajalla." (HR. Muslim)

Ibnul Qayim r.a, said, "The hadith the Prophet Muhammad sallallahu'alaihi wa sallam relates healing to the correctness of the medicine and the disease". As the hadith above explains that every disease has a cure, pharmacists are challenged to always pay attention to the treatment given to patients. In addition, the accuracy of the drug with the disease suffered by the patient, especially geriatric patients, also needs to be considered. Therefore, this study analyzed DRP in geriatric patients to prevent DRP.

## 1.2 Research Problems

The formulation of the problem in this research is:

---

<sup>6</sup> M. Chappe et al., "Impact of the Covid-19 Pandemic on Drug-Related Problems and Pharmacist Interventions in Geriatric Acute Care Units," *Annales Pharmaceutiques Françaises* 80, no. 5 (September 2022): 669–77, <https://doi.org/10.1016/j.pharma.2021.12.006>.

1. How is the treatment profile in the prescription of inpatient Covid-19 geriatric patients at Dr. Moewardi Hospital in 2021?
2. How is the analysis of Drug Related Problems (DRP) in inpatient Covid-19 geriatric patients at Dr. Moewardi Hospital in 2021?

### 1.3 Research Objectives

1. Knowing the treatment profile in the prescription of inpatient Covid-19 geriatric patients at Dr. Moewardi Hospital in 2021.
2. Knowing the analysis of Drug Related Problems (DRP) in inpatient Covid-19 geriatric patients at Dr. Moewardi Hospital in 2021.

### 1.4 Research Benefits

#### 1. Theoretical Benefits

The results of this study can be used as reference material for further research on drug use, drug administration in Covid-19.

#### 2. Practical Benefits

The results of this study are expected to add to the repertoire of science and add insight to readers, especially health workers, about the importance of giving drugs that are correct and in accordance with the diseases suffered by patients, namely Covid-19 patients.

### 1.5 Authenticity of Research

Research on Drug Related Problem (DRP) analysis has been conducted by several researchers as shown in the table below.

Table 1. Authenticity of Research

Research Title	Research Method	Variables	Results	Research Differences
Impact of the COVID-19 pandemic on drug-related problems and pharmacist interventions in geriatric acute care units <sup>7</sup>	Non-eksperimental	The variables used were pharmaceutical interventions, medical management before and during Covid-19 between January 2020 and April 2020.	A total of 355 patients were analyzed, with PIs generated for 21,7% of patients before Covid-19, and for 53,4% of patients during the first wave (p<0,001). Among 4.402 prescription pathways analyzed, 54 PIs were performed for prescriptions before Covid-19, and 177 during the first wave (p=0,002). DRPs were mostly	What distinguishes this study from previous studies is that the previous study used pharmacist intervention while this study did not use pharmacist intervention but used the

<sup>7</sup> Chappe et al.

Research Title	Research Method	Variables	Results	Research Differences
			related to anti-infective drugs during the pandemic (20,3%, p=0,038), and laxatives before the pandemic (13,0%, p=0,023). The clinical impact of PI was mostly moderate (43,7%). The acceptance rate was 59,3%. In conclusion, more DRPs were detected and more therapeutic suggestions were proposed during the first wave of Covid-19, with a focus on drugs used for Covid-19 management versus routine geriatric medication. The need for clinical pharmacists is increasing during the pandemic.	observation method.
Drug-related problems in patients admitted for SARS-CoV-2 infection during the COVID-19 pandemic <sup>8</sup>	Non-eksperimental	The variables used were patients treated for Covid-19 with exclusion criteria including age <18 years, admission to a critical care unit, and treatment received either in the emergency room, inpatient home or health center.	A total of 817 patients were included. The mean age was 62,5 years (range 18-97), and 453 (55,4%) were male. A total of 516 DRPs were detected. The average DRP per patient with identified cases was 1,9. Commonly observed DRPs were wrong dose (more or less) in 145 patients (28,2%), wrong drug combination in 131 (25,5%), prescription not in accordance with Covid-19 treatment protocol in 73 (14,1%), prescription error due to misuse of computerized physician order entry in 47 (9,2%) and wrong dose due to renal function in 36 (7%). Logistic regression analysis showed that patients who only received antibacterial prescriptions for systemic	What distinguishes this study from previous studies is the patients studied. Previous studies were not specific to geriatric patients while this study was more specific to geriatric patients.

<sup>8</sup> J. Barceló-Vidal et al., "Drug-Related Problems in Patients Admitted for SARS-CoV-2 Infection during the Covid-19 Pandemic," *Frontiers in Pharmacology* 13 (November 24, 2022): 993158, <https://doi.org/10.3389/fphar.2022.993158>.

Research Title	Research Method	Variables	Results	Research Differences
----------------	-----------------	-----------	---------	----------------------

use (J01 ATC group) faced a higher probability of DRP (OR 2,408 (1,071-5,411), p=0,033). In conclusion, the researchers in other pre pandemic studies, including longer length of stay, greater number of prescription drugs, and antimicrobial administration. The relevance of pharmacists and tools such as pharmacy alert systems can help prevent, identify and address DRPs efficiently.

