Relationship Between Pharmaceutical Technical Personnel Characteristics And Knowledge Level About COVID-19 Prevention In Balikpapan City

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Abstract

Coronavirus is a disease caused by a new type of corona virus, namely COVID-19. This virus can spread quickly through direct contact with humans. COVID-19 has an impact on pharmaceutical services, especially Pharmaceutical Technical Personnel (PTP). The aim of the research is to describe the level of knowledge of pharmaceutical technical personnel regarding the prevention of COVID-19 in Balikpapan City. The research uses quantitative methods, the type of research is descriptive (non-experimental) observational with a cross sectional approach. Research data was obtained from subjects, namely pharmacy technicians who worked in Balikpapan City through questionnaires. The data analysis method used is bivariate and univariate analysis to see the frequency of PTP knowledge levels in Balikpapan City regarding the prevention of COVID-19. The research results show a relationship between the characteristics of workplace PTP, education and age and the level of knowledge about preventing COVID-19. The results of PTP characteristics on gender and type of work have nothing to do with the level of knowledge of COVID-19 prevention in Balikpapan City. The level of PTP knowledge on preventing COVID-19 in Balikpapan City was obtained at 6.50% in the good category, 24.80% in the sufficient category, and 68.70% in the poor category.

Keywords: pharmaceutical technical personnel, COVID-19, knowledge level, questionnaire.

1. INTRODUCTION

The first COVID-19 case in Indonesia was reported in March 2020, and since then, the virus has spread to nearly all regions of the country. According to data from the Indonesian Ministry of Health in 2021, the number of confirmed COVID-19 cases in Indonesia reached 4.07 million, with a death toll of 132,000 (Kemenkes RI, 2021a). Common signs and symptoms of COVID-19 infection include symptoms of acute respiratory problems such as fever, cough and shortness of breath. The incubation period typically lasts between 5 to 6 days, with a maximum duration of up to 14 days (WHO, 2021).

Pharmaceutical technical personnel support pharmacists in performing pharmaceutical tasks, which include ensuring the safe use of medications, preventing drug misuse, maintaining drug availability, and educating patients on proper medication usage. Pharmaceutical Service Facilities are facilities used to organize pharmaceutical services, namely pharmacies, hospital pharmaceutical installations, health centers, clinics, drug stores, or joint practices (Kemenkes RI, 2021b).

Research related to describing PTP knowledge regarding preventing COVID-19 has been carried out previously. Hanik (2021) stated that the description of the knowledge of pharmaceutical technical personnel in efforts to prevent the transmission of COVID-19 in the

Karanganyar Regency Pharmacy is that 60 people have good knowledge with a percentage of 70.59% and 25 people have poor knowledge at 29.41%. . This research is also in line with research by Wijayanto, et al (2021) who conducted research on the level of PTP knowledge in preventing COVID-19 in Samarinda City with the results obtained in the very good category. A total of 102 respondents (49.29%) demonstrated a very high level of knowledge, while 105 respondents (50.72%) exhibited a good level of knowledge. The level of PTP knowledge in preventing COVID-19 in other areas was also carried out in West Kutai City with the total value of the level of knowledge, attitudes and actions of PTP towards preventing COVID-19 in West Kutai City declared in the good category with an average value of 3.22 (72.92%) (Exelsa, et al., 2021). This research will add information regarding the level of PTP knowledge about preventing COVID-19 in different cities, namely in Balikpapan City.

A survey has been conducted at PAFI Balikpapan City branch of PTP who work in health facilities and who are registered as PAFI members totaling 453 people. Considering the importance of knowledge related to the prevention of COVID-19, this study aims to determine the description of the level of knowledge of pharmacy technical personnel on the prevention of COVID-19 in Balikpapan City.

2. METHOD

This study is a non-experimental research utilizing descriptive quantitative data analysis to assess the knowledge level of Pharmaceutical Technicians in preventing COVID-19 in Balikpapan City through the distribution of questionnaires.

Tools and Materials

The tool is a digital questionnaire in the form of google form. Research materials are answers to questionnaires obtained from Pharmaceutical Technical Personnel working in Balikpapan City.

Validation Test

The validity test is used to determine whether a questionnaire is valid. A questionnaire is considered valid if its questions effectively measure the intended construct. In this study, the validity test was conducted with 30 respondents. According to Arikunto (2011), validity calculation uses Pearson Product Moment technique.

Reliability Test

The reliability test is a method used to assess a questionnaire as an indicator of a variable. A questionnaire is considered reliable if a respondent's answers remain consistent or stable when measured repeatedly (Purnomo and Syamsul, 2017).

Data Collection

Collecting data by distributing digital questionnaires in the form of google form. The data collection stage is divided into two stages, namely data collection to test the validity and reliability of the questionnaire. As well as the second stage after the questionnaire is declared valid and reliable by sharing a digital questionnaire link in the form of a google form to respondents who meet the inclusion criteria. The results of filling out the digital questionnaire by respondents will automatically enter the Google Form. Data collected in the form of answers to 12 questionnaire questions as well as patient characteristics data including age, gender, place of work, type of work and education.

Scoring

The results of respondents' answers that have been given weights are summed

up and compared with the highest score multiplied by 100%. Scoring is giving scores to items that need to be scored with the formula:

$$N = \frac{Sp}{Sm} \times 100\%$$

Description:

N : Results expressed percentage

Sp: The score obtained by the respondent

Sm: The highest expected score (Arikunto, 2011)

Then the results of the percentage calculation are entered into the assessment criteria and tabulated.

1) Good: When the results are 76%-100%,
2) Fair: When the result is 56%-75%,
3) Less: If the result is <56%.

Data analysis

Research data was analyzed with SPSS (Statistical Packages for the Social Sciences) 21.0 using bivariate analysis, which is an analysis used on two variables that are thought to be related and unrelated (Notoatmodjo, 2019). Data analysis was carried out using the Dependent t-test if the first variable was categorical (nominal) and the second variable and the data ratio were normally distributed. If the data is not normally distributed, parametric statistics cannot be performed and instead the Wilcoxon test is used. This test was carried out to determine the characteristics of respondents using a correlation test.

Univariate analysis is used to describe the characteristics of each research variable. The type of univariate analysis depends on the nature of each variable and typically results in a distribution or percentage for each variable. For numerical data, the mean or average value, median, and standard deviation are used (Notoatmodjo, 2019).

3. RESULTS AND DISCUSSION

Validity Test Results

In this study, the validity test was carried out using a significant level of 5% using SPSS version 23 statistics on 30 respondents with 12 questions which were divided into 2 groups, namely 20 respondents from the Pharmaceutical Technical Personel (PTP) of Samarinda City and 10 respondents from Lecturers of the Samarinda Health Sciences College so that the distribution of values would be close to a normal curve. The requirement for the validity of an item is if r count> r table at a significant level (α = 0.05) then the instrument is considered valid and if r count $\leq$ r table then the instrument is considered invalid. The test results show that if 12 question items have a value> r table = 0.239 so that all question items are declared valid and suitable for use in the questionnaire.

Reliability Test Results

The reliability test indicates the consistency of measurement results, even when the test is administered multiple times. (Trihendradi, 2013). Following table Reliability below.

Tabel.1 Reliability Test Results

Question	R Count	R Tabel	Results
1	0,684	0,239	Valid
2	0,698	0,239	Valid
3	0,669	0,239	Valid
4	0,682	0,239	Valid
5	0,675	0,239	Valid
6	0,631	0,239	Valid
7	0,701	0,239	Valid
8	0,677	0,239	Valid
9	0,691	0,239	Valid
10	0,669	0,239	Valid
11	0,665	0,239	Valid
12	0,665	0,239	Valid

Based on the Reliability test, the Cronbach's alpha value is 0.695. This value is greater

than 0.60 so that the questionnaire in this study is said to be reliable.

Results of PTP Characteristic Overview

The total number of PTP in this study is 246 Pharmaceutical Technical Workers working in Balikpapan City. The characteristics of PTP are divided into five namely age, gender, place of work, type of job, and education. Below is the description of PTP characteristics based on table 2.

Tabel 2. Overview of PTP Characteristics in Balikpapan City

Classification of Characteristics	Variable	Number of Respondents	Percentage Number of Respondents (%)
Age	21-27 Years old	183	74,39
	28-34 Years old	53	21,54
	35-48 Years old	10	4,07
Gender	Male	62	25,20
	Women	184	74,80
Workplace	Hospital	32	13,00
	Clinic	42	17,07
	Pharmacy	121	49,18
	Health Center	33	13,41
	Drug Store	18	7,34
Type of Work	Civil Servants (PNS/ASN/Other)	28	11,38
	Private / Contract Workers / Honorer	218	88,62
Education	DIII	142	57,72
	S1	104	42,28

Data on PTP characteristics based on age was mostly 183 people aged 21-27 years (74.39%). In age, there is a relationship between PTP characteristics and age also influences a person's attention span and thinking patterns. Increasing a person's age causes the development of their attention span and thought patterns so that the knowledge gained increases (Budiman & Riyanto, 2013). Productive age is an adult who is active in activities that support learning and remembering the information obtained, but at a certain age or approaching old age the ability to receive or remember knowledge will decrease (Mujiburrahman, et al., 2020). Characteristics based on gender were mostly female with a total of 184 PTP (74.80%). There is no relationship between gender and PTP characteristics. The female gender is the most common because female students are more interested in pharmaceutical education so that when they work most of them are women. The largest PTP characteristics based on workplace are pharmacies with a total of 121 PTP (49.18%). In the place of work, there is a relationship between PTP characteristics. Pharmacy technicians are more likely to work in pharmacies than in community health centers and hospitals for several main reasons, such as greater job opportunities. The number of pharmacies

spread across Balikpapan City is greater than other health facilities, causing PTP to work more in pharmacies. PTP characteristics based on type of work are mostly honorary, the number of PTP is 218 (88.62%). The type of work does not have a relationship with PTP characteristics. Based on data, the type of work that is most often done is private/contract workers/honorary workers. There are significant differences between types of work in terms of level of knowledge with the average being very good, the majority of jobs in Balikpapan City are private/honorary. This is related to the dominant PTP age, namely 21-27 years or just completing pharmacy education and just starting to look for work. The highest number of PTP characteristics based on education was Diploma III in Pharmacy with 142 (57.72%). In Law Number 36 of 2014 concerning Health Personnel article 1 paragraph 2 it is stated as follows: Assistant Health Personnel is every person who dedicates himself to the health sector and has knowledge and/or skills in the health sector below Diploma III level in the health sector. Pharmacy. Law Number 17 of 2023 states that Bachelor of Pharmacy graduates cannot apply for STR, and are advised to continue their profession as pharmacists or administrative staff not in the pharmaceutical services sector.

Results of Distribution of PTP Knowledge Level on Covid-19 Prevention in Balikpapan City

The research questionnaire consists of 12 questions regarding knowledge. Knowledge levels in this study are categorized into three groups: good, sufficient, and insufficient. The questionnaire includes two types of questions: positive and negative. Questions with positive scoring are assigned a score of 1 for correct answers, -1 for incorrect answers, and 0 for answers indicating uncertainty. The results of distribution of PTP knowledge level on COVID-19 prevention in Balikpapan City are presented in table 3.

Table 3. Frequency Distribution of Knowledge Level of PTP on COVID-19 Prevention in Balikpapan City

No	Question	True	False	Don't Know
1	The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and body aches	241(97,9%)	3(1,21%)	2(0,81%)
2	The common cold, nasal congestion, runny nose and sneezing are less common in people infected with the COVID-19 virus.	126(51,2%)	102(41,4%)	18(7,31%)
3	There is currently no effective treatment for COVID-19, but supportive treatment and early symptomatic treatment can help most patients recover.	189(76,8%)	37(15,0%)	20(8,13%)
4	The covid-19 virus spreads through the respiratory droplets of people infected with COVID-19 disease	168(68,2%)	59(23,9%)	19(7,72%)
5	Transmission of the COVID-19 virus occurs through droplets or contact with contaminated objects.	180(73,1%)	44(17,8%)	22(8,94%)
6	People who have direct contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place in general, the isolation period is 14 days	180 (73,1%)	38 (15,4%)	28(11,3%)
7	Self-isolation and caring for people infected with the COVID-19 virus are effective measures to prevent the spread of the virus	184 (74,7%)	38 (15,4%)	24(9,75%)
8	To prevent the transmission of COVID-19, it is recommended that people avoid going to crowded places and using public transportation	191 (77,6%)	38 (15,4%)	17(6,91%)
9	New normal means returning to the original habits before the emergence of the COVID-19 outbreak	165(67,0%)	58(23,5%)	23(9,34%)
10	Children and adolescents do not need to take precautions against the spread of the COVID-19 virus	98(39,8%)	115(46,7%)	33(13,4%)
11	Ordinary citizens can wear face masks to prevent infection by the COVID-19 virus	187(76,0%)	36(14,6%)	23(9,34%)
12	People with COVID-19 disease cannot transmit the virus to others if they have no history of the disease.	118(47,9%)	95(38,6%)	33(13,4%)

Table 3 shows that, among the 12 knowledge questions, question number 10 has the lowest score. Question number 10 is children and adolescents do not need to take precautions against the spread of the COVID-19 virus. This is a negatively phrased question, meaning that a correct answer from the PTP is considered incorrect. Table 3 also indicates that the highest score for correct answers was achieved for question number 1, which asks about the main clinical symptoms of COVID-19, including fever, fatigue, dry cough, and body aches. Based on this, 214 PTP's answered correctly with a score of 97.9%, 3 who answered incorrectly with a score of 1.21% and 2 who answered don't know with a score of 0.81%. The three most typical signs of COVID-19 are fever, exhaustion, and dry cough, according to WHO (2023). Aches and pains, runny nose, sore throat, nasal congestion, and diarrhea are possible side effects for certain patients.

Results of Knowledge Category of Technical Staff on COVID-19 Prevention in Balikpapan City

The results of the Pharmaceutical Technical Staff Knowledge category score on COVID-19 prevention in Balikpapan City are divided into 4 categories which can be seen in Table 4 below.

Table 4. Knowledge Category of Pharmaceutical Technical Staff on COVID-19 Prevention in Balikpapan City

Category	Score	Percentage (%)
Good	16	6,50
Fair	61	24,80
Less	169	68,70
Total	246	100

Table 4 shows that there are 16 PTP who have a good knowledge level of 6.50%, 61 PTP have a sufficient knowledge level of 24.80% and 169 PTP who have a poor knowledge level of 68.70%. Based on the data taken, the high level of knowledge based on age is age 21-27, female gender, place of work in pharmacy, type of honorary job and Diploma III Pharmacy education.

Results of Relationship between PTP Characteristics and Knowledge Level on COVID-19 Prevention in Balikpapan City

The statistical analysis employs Pearson correlation to assess the strength and direction of the linear relationship between two variables. Two variables are considered correlated if a change in one variable is associated with a change in the other variable, either in the same direction or in the opposite direction.

Table 5. Results of research on the relationship between PTP characteristics and the level of knowledge of COVID-19 prevention in Balikpapan City

Characteristics	Correlation Analysis	*Asymp sig. (2-tailed)*	Sign	*P Value*
Age	*Kruskal Wallis Test*	0,049	<	0,05
Gender		0,228	>	
Place of work		0,007	<	
Job Type		0,520	>	
Education		0,000	<	

In table 5, age characteristics have a significance value of 0.049 (>0.05) (statistical research error is 5%). This means that there is a significant relationship

between age characteristics and the level of PTP knowledge. As one gets older, one's way of thinking and working will become more mature. However, there are several factors that hinder a person's learning process, especially in adults, namely hearing or vision impairment which can reduce the thinking process and the knowledge gained will also be reduced (Maulana, 2007).

Table 5 shows a significance value of 0.228 (>0.05) for gender characteristics. This indicates that there is no significant relationship between PTP characteristics and their level of knowledge. Gender differences can lead to varying perceptions, which may influence attitudes and knowledge differently between men and women. The extent to which men and women differ in their ethical and cognitive decision-making processes is a subject of debate. Man and women evaluate ethical dilemmas differently. Based on this approach, men are more likely to engage in less ethical behavior because they will focus on competitive success and tend to ignore the rules for the sake of success. This is not directly proportional to one's cognitive abilities. Meanwhile, women are more task-oriented and less competitive. There is no literature indicating that men and women differ in terms of knowledge levels or cognitive abilities. While it is true that women may be perceived as more diligent and thorough when completing tasks, this does not necessarily imply that they possess a higher level of knowledge or cognitive ability (Carter, 2011).

Workplace characteristics in table 4 obtained a significance value of 0.007 (<0.05). This means that there is a significant relationship between place of work and level of knowledge. Or in other words, PTP working in hospitals, clinics, pharmacies, health centers, drug stores affect the level of knowledge on the prevention of COVID-19 in Balikpapan City. The result of this study is in line with Wijayanto, et al. (2021) which resulted in a significance value of 0.00 (<0.05). This means that there is a relationship between the place of work and the level of knowledge of pharmaceutical technical personnel in preventing COVID-19 in Samarinda City.

The knowledge gained from each work environment varies from one to another. Respondents who work in health facilities are predicted to have a higher level of knowledge than respondents who work in places other than health services, because in health services such as hospitals, pharmaceutical service activities carried out are relatively high so that the knowledge gained is more complete (Anggraini, et al., 2021).

The characteristics of the type of work in table 5 obtained a significance value of 0.520 (> 0.05). This means that there is no relationship between the type of work and the level of knowledge of pharmaceutical technical personnel in preventing COVID-19.

According to Exelsa, et al (2021), if job does not affect one's knowledge, it is because there are fewer civil servants compared to private employees working in Balikpapan city. Another supporting explanation is that the brain or cognitive ability of private employees who are mostly aged (21-27) years old have just finished their education and have a high curiosity about an issue so that they have an equal capacity to catch up with civil servants, this is in accordance with the explanation of Pangestu (2012) that a person at productive age will play an active role and have good cognitive abilities. So that this is the reason

for the absence of a relationship between type of work and level of knowledge.

Table 5 shows a significance value of 0.00 (<0.05) for educational characteristics. This indicates a significant relationship between education and the level of knowledge of pharmacy technicians regarding COVID-19 prevention in Balikpapan City.

Education influences the learning process; individuals with higher education levels are generally more receptive to information. Those with higher education are more likely to acquire information from various sources, including other people and mass media. Consequently, greater exposure to information leads to increased knowledge about health (Notoatmodjo, 2007).

4. CONCLUSION

There is a relationship between the characteristics of PTP at workplace, education, and age with the level of knowledge on prevention of COVID-19. Whereas the characteristic of the PTP on gender and type of job has no relation with the knowledge level on preventive of Covid-19 in Balikpapan City. The PTP's level of knowledge on COVID-19 prevention in Balikpapan City obtained the result of a good category of 6.50%, a sufficient category of 24.80%, a less category of 68.70%.

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