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Evaluation the Knowledge, Perception, and Attitude of Pharmacist Service Towards Pharmacovigilance

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ABSTRACT
Pharmacists play an important role in detection, assessment, understanding, and prevention of adverse drug reactions (ADRs) or any other drug related problems. The purpose of this study was to determine the relationship between knowledge, perceptions, and attitudes of pharmacists in the field of service in the city of Padang-Mentawai regarding pharmacovigilance. This research is an analytical descriptive study with a cross-sectional approach carried out from March to June 2021. Data collection was carried out by filling out online questionnaires using google Forms. The results showed that one hundred percent of respondents had high knowledge, a positive perception of 97.5%, and a good attitude of 94.9%. There is a significant difference in average knowledge based on pharmacists' experience participating in scientific activities on pharmacovigilance; there is a significant difference in the average perception based on the characteristics of age and place of practice of pharmacists. Based on the correlation test, there is a significant relationship between knowledge and perception of pharmacists and pharmacists' knowledge and attitudes. In conclusion, there is a significant relationship between knowledge and perceptions and attitudes of pharmacists in the field of service in the city of Padang-Mentawai towards pharmacovigilance

Keywords: *Knowledge, Perception, Attitude, Pharmacovigilance, Adverse Drug Reactions (ADR), Pharmacist*

1. INTRODUCTION

The World Health Organization (WHO) defines pharmacovigilance as the science and activities related to detecting, assessing, understanding, and preventing adverse drug reactions or other drug-related problems [1]. The purpose of pharmacovigilance is to detect unknown drug safety problems, detect an increasing frequency of adverse events, identify risk factors, quantify risks, communicate drug safety information, and prevent drug safety risks [2]. Pharmacovigilance is expected to improve the safety and health of the public against risks due to drug use [3].

Adverse Drug Reactions (ADR) are adverse drug reactions that are a common cause of morbidity and mortality in hospitals and communities. Pharmacists have an important role in reporting ADR and other pharmacovigilance activities [4]. Pharmacists must have skills in preventing, identifying, and solving drug-related problems and counseling patient therapy [4]. Pharmacists have responsibilities in medicine for preparing drugs and providing counseling on effective and safe medication for patients. Pharmacists' role in managing patient medication records can enhance contributions to pharmacovigilance and ADR reporting. Because drug-related problems are a potential threat to patient safety, a lack of knowledge about the ADR reporting process negatively impacts pharmacovigilance [5].

According to Wangge (2016): A study of 118 respondents in Indonesia showed only 28 (25.7%) respondents revealed good knowledge of pharmacovigilance; 18 (20%) respondents had a good attitude; 4 respondents (3.7%) were categorized as actors of good pharmacovigilance [6]. On the other hand, a study conducted in Jordan by Suyagh (2015) showed that most pharmacists had poor knowledge and low awareness of pharmacovigilance and ADR reporting systems. Of all respondents, only 25% defined pharmacovigilance correctly, and 69.7% could define ADR properly. In addition, the results also show that of all the respondents, only 19.5% of pharmacists whoever reported incidence of ADR [7].

The pharmacist knowledge, perceptions, and attitudes can affect the implementation of good pharmacovigilance practices. There is a need for further research to evaluate the relationship of knowledge to the perceptions and attitudes of pharmacists in the field of service in the city of Padang-Mentawai related to pharmacovigilance as a pharmacist or drug expert who has entered the workforce. Based on the description of the background above, the researcher is interested in researching knowledge, perceptions, and attitudes related to pharmacovigilance at pharmacists' service in Padang-Mentawai City. The researcher chose Padang-Mentawai City to conduct research because the research focuses more on one area only, and the data entry is spread out well.

2. METHODS

This research is a descriptive-analytic study with a *cross-sectional approach* conducted from March 2021 to June 2021 in Padang City. The study was carried out by distributing *online* questionnaires to pharmacists in Padang-Mentawai through social media. The questionnaire has 26 questions divided into three categories, namely questions about knowledge, perceptions, and attitudes of pharmacists in Padang-Mentawai City towards pharmacovigilance. The questionnaire used as research measuring instrument was tested for validity and reliability first to 30 respondents.

The population selected in this study were pharmacists in Padang-Mentawai who worked in the pharmaceutical service sector, consisting of 223 people. The determination of the minimum number of samples/respondents in the study was carried out using statistical calculations, namely by using the Slovin formula. Based on the calculations with the Slovin formula and 10% to minimize data shortages, a minimum of 157 respondents is needed in this study. Therefore, the inclusion criteria in this study were pharmacists in the field of service in the city of Padang-Mentawai who worked in pharmacies, hospitals, health centers, and clinics and were willing to fill out questionnaires.

Data analysis was performed using SPSS version 26. Bivariate analysis was conducted to determine the relationship between knowledge, perception, and attitude of Padang-Mentawai pharmacists on pharmacovigilance. *Mann-Whitney* or *Kruskal Wallis* non-parametric test was used to see differences in knowledge, perceptions, and attitudes of pharmacists based on the characteristics of the sociodemographic data because the research data were not normally distributed. In addition, the Spearman correlation test will be carried out to see the relationship of knowledge to perceptions and attitudes.

Based on analysis results, conclusions will be obtained about the relationship of knowledge to perceptions and attitudes related to pharmacovigilance in the pharmacist profession in the field of Padang-Mentawai City services. The level of pharmacist knowledge is assessed from 10 questionnaire questions if the "True" answer is given a score of one (1), while the "False" answer is given a score of zero (0) which will be interpreted as follows: score 1-4 (low knowledge) and score 5-10 (high knowledge). Perceptions and attitudes of pharmacists were calculated using a Likert scale (strongly agree = 5, agree = 4, neutral = 3, disagree = 2, strongly disagree = 1). The pharmacist's perception consists of 10 questions that will be interpreted as score 10-30 (negative perception) and score 31-50 (positive perception). The attitude of the pharmacist consists of 6 questions that will be interpreted as score 6-24 (not good) and score 25-30 (good attitude).

3. RESULTS AND DISCUSSION

Respondent characteristics that can be seen in **Table 1,** includes age, gender, year of graduation from the pharmacist, additional education, experience in attending seminars/ *workshops* about pharmacovigilance, and pharmacist's practice. In this study, there was a difference in knowledge about pharmacovigilance between pharmacists who had and had never attended seminars/ *workshops* (P value < 0.05). This study shows similar results to the research conducted by Ulfa (2017) in Yogyakarta. This result showed that the pharmacovigilance education/training variable differs from pharmacists' knowledge of pharmacovigilance and differs from the MESO reporting system [8]. According to a study conducted by Khan (2013) in Saudi Arabia that education and training for pharmacists can be an ideal way to increase pharmacists' knowledge regarding the system for reporting Undesirable Drug Reactions [9].

The perceptions based on sociodemographic characteristics from the bivariate test of differences found differences in perceptions based on age (P < 0.05). The formation of a person's perception can be influenced by the experiences he has experienced, which cannot be separated from the state of the surrounding environment. In addition, it was also found that there were differences in pharmacist perceptions based on the pharmacist's practice. Many overseas studies that conducted research on pharmacovigilance found that the knowledge and perception of hospital pharmacists were better than that of pharmacists working in other sectors [10]. However, based on the sociodemographic characteristics, it was found that pharmacist attitudes related to pharmacovigilance did not have a significant difference based on sociodemographic characteristics.

Table 2 provides information on the level of knowledge of Padang-Mentawai pharmacists on pharmacovigilance is categorized as having high knowledge. The results show that for all respondents, 157 people (100%) can answer knowledge questions with a score range of 5 to 10. So that the level of knowledge of Padang-Mentawai city pharmacists can be interpreted as having a very good understanding of pharmacovigilance. This result is in line with research conducted in Qatar in 2013, which showed that the majority of pharmacists had a high level of knowledge of 90% [11]. Furthermore, a study conducted by Kudri in 2018 also found that 93% of pharmacists had good knowledge of pharmacovigilance and ADR reporting [12].

Most of the city of Padang-Mentawai pharmacists have a positive perception of pharmacovigilance, whereas many as 97,5% of pharmacists have a positive perception. Previous research conducted by Joubert (2016) in South

Africa also got the result that the majority of respondents, as many as 79, 4% of pharmacists, had positive perceptions of job prospects in the case of pharmacovigilance [10]. A total of 94,9% of pharmacists has a good attitude towards pharmacovigilance. A similar study conducted by Syed *et al.* in 2018 in Pakistan found that the majority of respondents had good attitudes towards pharmacovigilance and reporting of ADR [13]. Therefore, pharmacists who have a very good attitude towards pharmacovigilance will also positively impact reporting ADR and the health system [14].

Table 1. Demographic data of respondents

No	Characteristics	n	%	Bivariate Test	Significance		
					Knowledge	Perseption	Attitude
1	Age - 20-29 - 30-39 - 40-49 - > 50	 59 61 22 15	 37,6 38,9 14,0 9,6	Kruskal-Wallis	0,622	0,005	0,177
2	Gender - Man - Woman	 16 141	 10,2 89,8	Mann-Whitney	0,667	0,434	0,650
3	Pharmacist graduation year - 1980-1989 - 1990-1999 - 2000-2009 - 2010-2019 - > 2020	 5 13 33 87 19	 3,2 8,3 21,0 55,4 12,1	Kruskal-Wallis	0,978	0,390	0,320
4	Additional education - S2 - S3 - Bachelor of Management - None	 12 2 1 142	 7,6 1,3 0,6 90,4	Kruskal-Wallis	0,107	0,902	0,331
5	Work experince - 1-3 year - > 3 year	 46 111	 29,3 70,7	Mann-Whitney	0,367	0,075	0,783
6	Experience attending seminars/ *workshops* pharmacovigilance - Ever - Never	 80 77	 51,0 49,0	Mann-Whitney	0,000	0,070	0,367
7	Pharmacy practice - Apotek - Hospital - Puskesmas - Clinic	 98 30 16 13	 62,4 19,1 10,2 8,3	Kruskal-Wallis	0,111	0,005	0,642

Table 2. Percentage of knowledge, perceptions, and attitudes of respondents

Category	Percentage	Information
Knowledge	100	High
Perseption	97,5	Positive
	2,5	Negative
Attitude	94,9	Good
	5,1	Not Good

Table 3 describes the percentage of knowledge about pharmacovigilance with 10 questions. **Table 4** showed the percentage of perception about pharmacovigilance with 10 questions. Then, **table 5** showed the percentage of attitude about pharmacovigilance with 6 questions.

Table 3. Percentage of knowledge questions about pharmacovigilance

No	Question	Yes (%)	No (%)
1	Do you know the definition of pharmacovigilance?	82,8	17,2
2	The functions of Pharmacovigilance are detection and study of Adverse Drug Reactions (ADRs), Measurement of risk and effectiveness of drug use, and Dissemination of Adverse Drug Reactions (ADRs) information and education.	93	7
3	Pharmacovigilance includes: Drug related problem, Herbal products, Medical-devices and vaccines.	91,1	8,9
4	National pharmacovigilance programme in Indonesia is governed by Badan Pengawas Obat dan Makanan (BPOM)	100	0
5	The International centre of Adverse Drug Reaction (ADR) monitoring is located in Sweden	80,9	19,1
6	The health care professionals responsible for Adverse Drug Reactions (ADR) reporting in a hospital is/are Doctor, Pharmacist, and Nurses.	98,1	1,9
7	The ADR reporting system in Indonesia use “yellow form”	94,3	5,7
8	Hypersensitivity reactions are related to Adverse Drug Reactions (ADR)	94,9	5,1
9	Do you know the difference between Adverse Drug Reactions (ADR) and the Adverse Event (AE)	81,5	18,5
10	Do you know the different classifications of Adverse Drug Reactions (ADR)?	72,6	27,4

Table 4. Percentage of perception questions about pharmacovigilance

No	Question	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
1	Pharmacists should be required to report Adverse Drug Reactions (ADR)	35,7	51,6	12,7	0	0
2	Information on how to report ADRs should be taught to students	28	46,5	24,2	1,3	0
3	With my present knowledge, I am very well prepared to report any ADRs noticeable in my future practice	12,7	65	19,1	3,2	0
4	Pharmacists is one of the most important professions to report adverse drug reaction	45,2	32,5	21,0	1,3	0
5	Serious and unexpected reactions that are not fatal or life threatening during clinical trials must not be reported	27,4	52,9	16,6	3,2	0
6	The purpose of Adverse Drug Reactions (ADR) spontaneous reporting system is to measure the incidence of Adverse Drug Reactions (ADR)	31,8	64,3	3,8	0	0
7	Any Adverse Drug Reactions (ADR) (serious or non-serious) should be reported spontaneously	16,6	64,3	16,6	2,5	0
8	Reason for not reporting a suspected Adverse Drug Reactions (ADR) is due to the uncertainty of its association with drugs	19,1	61,8	15,3	3,2	0,6
9	Patients should be counselled about Adverse Drug Reactions (ADR) every time their medications are dispensed	27,4	66,9	5,1	0,6	0
10	Female patients should be asked if she is pregnant when dispensing medications to them	49,7	50,3	0	0	0

Table 5. Percentage of attitude questions about pharmacovigilance

No	Question	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
1	Adverse Drug Reactions (ADRs) should be reported to BPOM	60,5	39,5	0	0	0
2	Regulatory agency needs to give feedback of Adverse Drug Reactions (ADRs) reports	49	49,7	1,3	0	0
3	Causality of Adverse Drug Reactions (ADRs) need to be determined before the report can be submitted	25,5	61,8	8,9	3,8	0
4	Any Health Care Professionals (HCPs) who report Adverse Drug Reactions (ADRs) should determine the causality	19,7	57,3	18,5	4,5	0
5	Not only pharmaceutical industry needs to report Adverse Drug Reactions (ADRs)	33,8	63,7	1,3	0,6	0,6
6	The pharmaceutical industry may contact the doctor for more information in the light of Adverse Drug Reactions (ADRs) reporting	31,8	61,8	5,7	0,6	0

Table 6. The correlation test of pharmacist' knowledge on perceptions and attitudes related to pharmacovigilance

Category	Significance	Correlation coefficient
Knowledge-Perseption	0,018	0,189
Knowledge-Attitude	0,006	0,219

From the results of the correlation test of knowledge on perceptions and attitudes of pharmacists regarding pharmacovigilance, it can be seen in **Table 6** that the significance value of knowledge on perception is 0,018 with a correlation coefficient of 0,189. The significance value or probability is 0,018 <0,05, which means Ho is rejected. Therefore, there is a significant relationship between the knowledge and perceptions of pharmacists in the Padang-Mentawai city service sector regarding pharmacovigilance (15). In addition to the value of the correlation coefficient 0,189 correlation declare force very low or very weak between knowledge and perceptions related to pharmacovigilance pharmacists, and the direction of the positive correlation, which means increasing understanding of the perception will further increase or better [16]. Similar results were also found in a previous study by Magableh (2019). The study evaluated the aspect of broad knowledge about pharmacovigilance and reporting of Adverse Drug Reactions were represented where respondents responded positively that reporting of known Adverse Drug Reactions could make a significant contribution to the reporting system. [17]. The provision of education and training programs on pharmacovigilance for pharmacist practice can increase pharmacist knowledge and foster good perceptions of pharmacovigilance and reporting of ADR [18].

The correlation test results between the knowledge and attitudes of pharmacists regarding pharmacovigilance obtained a significance value of 0,006 and a correlation coefficient value of 0,219. The significance value is 0,006 < 0,05, which means Ho is rejected, and there is a significant relationship between knowledge of pharmacists' attitudes regarding pharmacovigilance [15]. Correlation coefficient 0,219 states strength correlation between knowledge and attitudes that low or weak, as well as the direction of the positive correlation, which means the better understanding of the attitudes associated with pharmacovigilance pharmacists will be better [16]. This result is in accordance with previous research conducted by Febrinasari *et al.* (2018) that there is a relationship between the level of knowledge and attitudes related to pharmacovigilance in pharmacist profession students in Semarang [19]. According to research conducted by Abdel-latif *et al.* (2015), pharmacists who know pharmacovigilance and ADR terminology show a more positive attitude towards reporting ADR [17]. Educational programs can significantly modify attitudes regarding ADR reporting and positively influence ADR reporting behavior [7].

4. CONCLUSION

a. Overall, pharmacists' knowledge in the field of Padang-Mentawai city services related to pharmacovigilance is categorized as having high knowledge.
b. Pharmacists field Padang-Mentawai city services that have a positive perception of pharmacovigilance is about 97,5%

c. Pharmacists field Padang-Mentawai city services that have a good attitude towards pharmacovigilance is as much as 94,9%.
d. There is a relationship between knowledge and perception of pharmacists in the field of Padang-Mentawai city services related to pharmacovigilance with a p-value < 0,05. A positive correlation value means the better the understanding the better the pharmacist's perception will be.

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