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Community Response to Acute Kidney Injury Due to Children's Syrup Preparations

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ABSTRACT

The mortality rate for children with a diagnosis of acute kidney injury after consuming syrup preparations in Indonesia is very high. The number of syrup preparations in Indonesia found to be contaminated with Ethylene glycol (EG) or Diethylene glycol (DEG) reached 116 syrup products. There are three issues that will be investigated as a result of the contaminated syrup: (1) the public response to the policies and responsibilities of regulators (the Indonesian Ministry of Health and the Food and Drug Monitoring Agency (BPOM), (2) the public response to pharmacies in delivering safe medicines to patients, and (3) the public response to pharmacists who are responsible for the practice of pharmaceutical services in pharmacies. This research method is a qualitative descriptive study using a Google form questionnaire which is analyzed using the Guttman scale. The questionnaire meets the qualifications in testing the validity, reliability and normality of research data. The results showed that the level of public trust in the government (Ministry of Health and BPOM) was low, while the level of trust in pharmaceutical facilities at pharmacies and pharmacists was still quite above average.

Keywords:

Acute Kidney, Injury Due, Children's Syrup, Preparations

1. INTRODUCTION

In October 2022, there was a sharp increase in deaths and hospitalizations in The Gambia with a diagnosis of acute kidney injury due to syrup consumption. This incident not only caused panic for the people of both countries, but also the international community who use the same medicinal raw materials [1]. WHO conducted a search and investigation of 66 cases of child deaths in Gambia with a diagnosis of acute kidney injury and later found that the cause was syrup preparations contaminated with diethylenglycol (DEG) and ethylenglycol (EG) contaminants exceeding the allowable threshold [2]. WHO immediately took anticipatory steps to prevent this case from spreading to other countries through the distribution of medicinal materials and illegal redistribution of these contaminated syrup products by issuing a statement on the discovery of 5 syrup preparations that did not meet quality requirements. The five syrups were Promethazine Oral Solution, Kofexmalin Baby Cough Syrup, Makoff Baby Cough Syrup, and Magrip N Cold Syrup, all of which had Maiden Pharmaceuticals Limited, Haryana, India, listed as their manufacturer. WHO issued the statement because according to information from the drug manufacturer's website it has sold its products to several other countries including Laos, Vietnam, Thailand, Cambodia, the Philippines, Malaysia, and Indonesia. It also has footprints in South American countries such as Ecuador, Chile, Venezuela, Suriname, and Paraguay. It is also present in Russia, Poland, and Belarus [3].

The purpose of medicine according to WHO is to improve human health and improve the quality of life of patients. All parties related to medicine, both public and private, institutions and individuals, implementing and supervising institutions, are bound by legal obligations to comply with applicable rules in drug manufacturing set by each country's regulator. Good Manufacturing Practice (GMP) is a collection of guidelines or guidance documents or directions issued and elaborated by international organizations and institutions, in collaboration with the

Pharmaceutical Industry and several national regulatory authorities in various regions and countries, to ensure the highest standards of efficacy, quality and safety in every health product manufacturing process. GMPs are guidelines that govern the production, distribution and supply of medicines. Some of the areas regulated in GMP are pharmaceutical quality systems including quality control and quality assurance, personnel, premises and equipment, documentation, production, contract manufacturing and analysis or outsourced activities, complaints and product recalls, self-inspection, basic requirements for active substances used as raw materials (4).

Based on the data of child deaths reaching 70 children until October 15, 2022 with a history of using syrup drugs produced by Maiden Pharmaceuticals Limited, WHO conducted an investigation through the Indian regulator, the Drug Controller General of India, to examine documentation and assess the GMP implementation process in the drug industry. Based on data from India's Food and Drug Administration there were 12 violations and the drug industry had to be stopped. Some of the supporting data found on Maiden Pharmaceutical Limited included 6 drugs that did not meet standards from tests conducted in the provinces of Gujarat and Kerala, the State of Vietnam and the province of Bihar have blacklisted the drug industry since 2014 [5]. Dietilenglikol (DEG) is a very infamous and dangerous chemical used for mostly preparing pharmaceutical products and consumer products. DEG and EG makes it an excellent counterfeit for pharmaceutical-grade glycerine or propylene glycol, it has a sweetish taste which makes DEG suitable for pharmaceutical preparations. Despite so many tragic incidents and deaths in multiple countries, there is still a lack of regulation for using DEG for pharmaceutical preparations [6]. Manufacturers illegally replace glycerol and propylene glycol with toxic DEG/EG or cheaper grades of the nontoxic solvents, which are tainted with DEG/EG, thereby leading to poisoning [1].

The Gambian government, in this case the Gambian National Regulator (Medicines Control Agency) managed to recall 83% of medicinal products from Maiden Pharmaceutical Limited in a short time so that cases of acute kidney injury in children due to syrup use were quickly controlled. Indonesia, on the other hand, experienced greater difficulty in dealing with the surge in cases of acute kidney injury in children due to syrup use. As of November 15, 2022, more than 324 cases with 199 deaths have been reported that are suspected to be related to the use of 8 types of syrup drugs. Toxicological tests of these cases showed that 7 out of 11 children tested detected traces of diethylenglycol (DEG) or ethylenglycol (EG) and were positive for calcium oxalate, the alcohol dehydrogenase metabolite of DEG or EG, in kidney biopsies [1]. Seeing the very high number of cases of acute kidney injury in children, the Indonesian Ministry of Health took quick steps by stopping the distribution and sale of all types of syrup preparations on October 18, 2022 through government circular letter number SR.01.05/III/3461/2022 and widely reported to the public through the press and social media [7]. Investigations and investigations were carried out by the Food and Drug Monitoring Agency (BPOM) on all syrup preparations with the priority of syrup preparations consumed by pediatric patients who had been diagnosed with acute kidney injury. The Indonesian Ministry of Health and BPOM are considered to be less active in collecting data on monitoring of drug side effects (MESO) so that so far cases of acute kidney failure in children due to the use of syrup are not well documented. In addition, quality control of drug raw materials used by the pharmaceutical industry is only carried out on raw materials for active drug compounds and not on additional ingredients in the manufacturing process [8].

If in Gambila only 5 syrup products containing DEG or EG were found, then in Indonesia as many as 116 syrup products were found until December 22, 2022. The 6 pharmaceutical industries found to be involved in the production of drugs that do not meet GMP standards are PT Rama Emerald Multi Sukses (PT REMS), PT Afi Farma Pharmaceutical Industry, PT Universal Pharmaceutical Industries, PT Ciubros Farma, PT Samco Farma, and PT Yarindo Farmatama [9]. Ethics and professionalism are needed in the drug marketing business to prevent marketing practices that are not in accordance with standards which can later lead to unhealthy competition and can be detrimental to consumers. Indonesian pharmaceutical companies are still considered negligent in business ethics, prioritizing to sell low prices by reducing production costs, namely reducing the quality of medicinal raw materials [10]. Pharmaceutical companies that are found to have deliberately taken actions during the production process that can endanger patients or consumers can be charged and convicted under Health Law number 36 of 2009 [11].

Health facilities that serve the public directly, especially pharmacies, still face many obstacles when serving pediatric patients. The public only knows that syrup can cause kidney failure based on social media reports from primary sources (Indonesian Ministry of Health) or from secondary or tertiary sources (newspapers and other social media). Some people became afraid and no longer trusted syrup preparations produced by the pharmaceutical industry, no longer trusted pharmaceutical institutions because they were considered incompetent in ensuring the safety of drug preparations, and considered that all drugs were not produced properly. On the other hand, some other people consider the incident of acute kidney failure in children due to syrup preparations to be a fabrication of the government, considering it an exaggerated incident and a public manipulation.

There are three issues that will be investigated as a result of the contaminated syrup found containing ethylenglycol (EG) or diethylenglycol (DEG) resulting in acute kidney injury in children: (1) the public response to the policies and responsibilities of regulators (the Indonesian Ministry of Health and the Food and Drug Monitoring Agency (BPOM), (2) the public response to pharmacies in delivering safe medicines to patients, and (3) the public response to pharmacists who are responsible for the practice of pharmaceutical services in pharmacies. The originality and novelty of research for the topic of acute kidney injury cases that have never been studied before are the public's response to the government, in this case the Ministry of Health and BPOM, to pharmaceutical service

facilities, and to pharmaceutical workers. Limited references due to research that has not been done much is a new challenge in preliminary research. The purpose of this study is to find the best solution in educating the public about medicine and to evaluate the government's policy when conducting press conferences on cases of acute renal failure in children. The usefulness of this research is as an evaluation material from the Indonesian Ministry of Health, from the pharmaceutical industry, and from Indonesian pharmacists, to increase the level of public confidence in the quality of drugs in Indonesia.

2. METHOD

This research design is descriptive research, which is a problem-solving procedure investigated by describing or describing the object of research at the present time based on the facts that appear or how they are [12]. This research is also included in qualitative research, which is a type of research whose findings are not obtained through statistical procedures or other forms of calculation, but focuses on understanding and interpreting the meaning of an event in a particular situation according to a subjective perspective, so the nature of this research is descriptive and tends to use analysis of several indicator responses. The process and meaning of the subject's perspective are more emphasized in qualitative research [13]. Response is a response, either positive or negative to a particular event, subject, and object. This response was collected using a questionnaire in the form of a google form.

The population of this study is the people of Yogyakarta city with inclusion criteria of productive age and married and have children under 12 years old. While the exclusion criteria applied were having children, but not living with children. Sampling was conducted randomly in several pharmacies located in the city of Yogyakarta. The sampling technique was that every time a patient left the pharmacy, a leaflet was given containing an invitation to fill out a questionnaire. If the respondent who filled out the questionnaire did not fall within one of the inclusion criteria, or fell within the exclusion criteria, the questionnaire would immediately go to the end. Meanwhile, respondents who were able to complete the questionnaire were then given informed consent online so that if the respondent agreed, they would immediately enter the questions.

Table 1. Sample criteria

Criteria	Inclusion	Exclusion
Get the right medicine	Patient buying medicine at the pharmacy	Patients who buy drugs other than in pharmacies
Marriage	Have children	Do not have children
Have children	Have children aged 12 and under	Have children but aged 12 years and over
Divorce	Single parent (the children live together with him/her)	divorced and the children do not live together

The questionnaire was distributed via google form in the form of a closed questionnaire and analyzed using a Guttman scale and the scores obtained were 0 and 1. The data used is dichotomous data because the questionnaire uses a Guttman scale which only has 2 categories [14]. The questionnaire was divided into 3 groups, namely responses to the Indonesian Ministry of Health and the Food and Drug Administration (BPOM), responses to pharmacies, and responses to pharmacists. Each group was given 3 closed-ended statements with the answer options agree and disagree. The types of statements in this questionnaire are randomized, meaning that some statements are positive statements where agreeing answers are scored 1 and disagreeing is scored 0. Meanwhile, negative statements are scored 1 if the answer disagrees and score 0 if the answer agrees. This type of positive and negative statements aims to reduce the risk of answer bias due to respondents filling in answers carelessly without reading and understanding the statements given.

Table 2. Questionnaire outline and categories

Response to the Ministry of Health and BPOM	Response to the pharmacy	Response to pharmacist
1. The Ministry of Health and BPOM have carried out their responsibilities well in cases of syrup contamination	1. Pharmacies already know which syrups are safe and which are contaminated	1. The existence of this syrup that was contaminated with EG/DEG made me distrust the pharmacist
2. The Ministry of Health stopping the sale of all syrup preparations before they are declared safe by BPOM is the most appropriate step	2. Pharmacies should only sell safe syrup medicines, but in reality there are contaminated syrup medicines (ex. Uni Baby Cough).	2. The ability of Indonesian pharmacists is currently not in line with expectations, as evidenced by the contamination of medicinal syrup preparations
3. It is understandable that BPOM does not know if drug manufacturers use syrup additives that do not meet standards because this is beyond BPOM's responsibility	3. It is the responsibility of the pharmacy to supervise all medicines that are harmful to patients, including cases of death due to syrup contamination	3. I was assisted directly by the pharmacist to get an alternative drug to replace syrup preparations for my child

The convergent validity test with a significance level of 0.05. The questionnaire is considered valid if the convergent validity test loading factor value is equal to or more than 0.7 and the AVE value is greater than 0.5. The reliability test uses two methods, namely Cronbach's alpha and composite reliability. Cronbach's alpha measures the lower limit of the reliability value of a construct while composite reliability measures the true value of the reliability of a construct. However, composite reliability is considered better in estimating the internal consistency of a construct. The rule of thumb used for the Composite Reliability value is greater than 0.7 and the Cronbach's alpha value is greater than 0.7.

The data obtained is analyzed to observe whether the data is normally distributed or not. The normal distribution testing method uses the D'Agostino-Pearson Test. The selection of this normal distribution test method is based on the characteristics of the research data, where in this study the minimum score is 0 and the maximum score is 9 from a total of 9 statements in the questionnaire, so it will be very possible to duplicate the results which are not small. The most appropriate type of test method for this type of data that has a lot of duplication is the D'Agostino-Pearson Test. [14], [15], [16].

3. RESULTS AND DISCUSSION

Convergent validity relates to the principle that the measures (manifest variables) of a construct should be highly correlated. Convergent validity is assessed based on a loading factor value equal to or greater than 0.7 and an AVE value greater than 0.5. While reliability is assessed based on the Composite Reliability (CR) value greater than 0.7 and the Cronbach's alpha value greater than 0.7. The results of table 3 show that all questions used meet the validity and reliability requirements [15], [16].

Table 3. Validity and reliability result

Questionnaire	Load Factor	Composite Reliability	Cronbach's Alpha	AVE
Response to the Ministry of Health and BPOM		0.836	0.912	0.733
1. The Ministry of Health and BPOM have carried out their responsibilities well in cases of syrup contamination	0.812			
2. The Ministry of Health stopping the sale of all syrup preparations before they are declared safe by BPOM is the most appropriate step	0.944			
3. It is understandable that BPOM does not know if drug manufacturers use syrup additives that do not meet standards because this is beyond BPOM's responsibility	0.825			
Response to the pharmacy		0.815	0.909	0.708
1. Pharmacies already know which syrups are safe and which are contaminated	0.865			
2. Pharmacies should only sell safe syrup medicines, but in reality there are contaminated syrup medicines (ex. Uni Baby Cough).	0.910			
3. It is the responsibility of the pharmacy to supervise all medicines that are harmful to patients, including cases of death due to syrup contamination	0.936			
Response to the pharmacist		0.866	0.933	0.781
4. The existence of this syrup that was contaminated with EG/DEG made me distrust the pharmacist	0.799			
5. The ability of Indonesian pharmacists is currently not in line with expectations, as evidenced by the contamination of medicinal syrup preparations	0.941			
6. I was assisted directly by the pharmacist to get an alternative drug to replace syrup preparations for my child	0.957			

The normality test aims to find out whether the research variables have a normal distribution or not. This study uses the D'Agostino-Pearson Test with $\alpha = 5\%$. Table 4 shows the test value of $p = 0.945$ so that it meets the requirements in the data normality test [17].

Table 4. D'Agostino-Pearson Normality test

Parameter	Value
p-value	0.3352
x^2	2.186
Sample size (n)	119
Average	6.6891
Median	7

Sample standard deviation (s)	1.3388
Sum of squares	211.4958
Skewness	-0.058
Skewness shape	Potentially Symmetrical (pval=0.794) 
Excess kurtosis	-0.5266
Kurtosis shape	Potentially Mesokurtic, normal like tails (pval=0.231) 

The number of samples in this study amounted to 119 which were obtained during non-January and February 2023. The distribution of samples based on the characteristics of age, gender, number of children, and education can be seen in Table 5.

Table 5. Sample characteristic distribution

Characteristic	Distribution
Gender	Male = 24%
	Female = 76%
Age	Aged 25 years and under = 9%
	Aged 26-30 years old = 50%
	Aged 31-35 years old = 28%
	Aged 36 years and over = 13%
Number of children	Have 1-2 children = 87%
	have 3 or more children = 13%
Education status	No formal education = 0%
	Primary education = 1%
	Junior secondary education = 1%
	Senior secondary education = 41%
	Diploma degree = 36%
	Bachelor degree = 21%
	Master degree = 1%
	Doctoral degree = 0%

3.1. Response to the Ministry of Health and BPOM

Respondents provided responses to the policies of the Ministry of Health and BPOM on the case of syrup contamination containing EG or DEG as shown in Table 6.

Table 6. Response to the Ministry of Health and BPOM

Questionnaire	Type of statement	Average scoring value (minimum 0, maximum 1)
1. The Ministry of Health and BPOM have carried out their responsibilities well in cases of syrup contamination	Positive statement	0.0698
2. The Ministry of Health stopping the sale of all syrup preparations before they are declared safe by BPOM is the most appropriate step	Positive statement	0.7931
3. It is understandable that BPOM does not know if drug manufacturers use syrup additives that do not meet standards because this is beyond BPOM's responsibility	Negative statement	0.0416

Public trust in the government is reflected in three statements in the questionnaire. The first statement aims to assess the public's response to the attitude of the government, in this case the Ministry of Health and BPOM, in taking responsibility for the case of syrup contamination containing EG or DEG that caused the outbreak of Indonesian children who were hospitalized and died from acute kidney injury. The public response can be said to be very dissatisfied because from a scale of 0 to 1, a value score of 0.0698 was obtained. The high morbidity and mortality rate due to acute kidney injury in children in Indonesia is a trigger for public dissatisfaction with the government. When compared to the 70 deaths that occurred in The Gambia up to October 15, 2022 [5], while in Indonesia there were 199 deaths up to November 15, 2022 [1], almost 3 times the deaths that occurred in The Gambia. The data on the number of deaths can already show that the government does not have a drug safety monitoring system that the public can rely on, so public trust in the government is very low.

The second statement is to assess the public's response to the government's stance to stop the circulation of all syrup preparations in all health facilities in Indonesia through the circular letter of the Indonesian Ministry of Health number SR.01.05/III/3461/2022 dated October 18, 2022 [7]. In this statement, most of the public agrees and has seen the policy as appropriate to prevent the outbreak of acute kidney injury cases due to syrup preparations that have not been guaranteed safety. The policy of stopping the circulation of all syrup preparations must have caused a pro and con response, because many parents are accustomed to using certain syrup preparations for their children,

and have provided stocks of these drugs at home as first aid when their children are sick. This research data shows a score of 0.7931, which means that most respondents consider this policy to be appropriate, although there are still cons because they consider it excessive for this policy to stop the circulation of syrup preparation drugs.

The third statement aims to observe the public response to the implementation of BPOM's duties and responsibilities in ensuring safe medicines. Reporting on the BPOM website, it is stated that the vision of BPOM is safe, quality, and competitive drugs and food to realize an advanced Indonesia that is sovereign, independent, and has a personality based on mutual cooperation. While related to the criteria of safety and quality, BPOM elaborates it in the third mission, namely increasing the effectiveness of drug and food supervision and prosecution of drug and food crimes through the synergy of central and regional governments within the framework of a unitary state in order to protect the entire nation and provide a sense of security to all citizens [18]. The findings of syrup containing EG or DEG contamination endangers patients because these compounds (EG or DEG) are toxic compounds that cause acute kidney injury in children and have even obtained data on the high number of deaths. The safety and quality of drugs are within the responsibility and authority of BPOM, therefore the public response with a lower score of 0.0416 shows that the public hopes that BPOM will supervise better so that it can prevent the distribution of dangerous drugs in the community.

3.2. Response to the Pharmacy

Respondents gave responses to pharmacies that directly face and serve buyers or consumers with the case of syrup contamination containing EG or DEG as shown in Table 7.

Table 7. Response to the Pharmacy

Questionnaire	Type of statement	Average scoring value (minimum 0, maximum 1)
4. Pharmacies already know which syrups are safe and which are contaminated	Positive statement	0.7982
5. Pharmacies should only sell safe syrup medicines, but in reality there are contaminated syrup medicines (ex. Uni Baby Cough).	Negative statement	0.8074
6. It is the responsibility of the pharmacy to supervise all medicines that are harmful to patients, including cases of death due to syrup contamination	Negative statement	0.3895

The Indonesian Ministry of Health through Regulation of the Minister of Health number 35 in 2014 establishes pharmaceutical service standards in pharmacies. The regulation states that a pharmacy is a pharmaceutical service facility where pharmaceutical practices are carried out by pharmacists, while pharmaceutical services are a direct and responsible service to patients related to pharmaceutical preparations with the intention of achieving definite results to improve the quality of life of patients [19]. The mandate of pharmacies to carry out direct and responsible services to patients with the intention of achieving definite results to improve the quality of life of patients. implies that all drug delivery is carried out responsibly, guaranteed quality and safety, to improve the quality of life of patients.

The first statement aims to find out the public's response to information updates and the procedures carried out by pharmacies after the discovery of cases of drug contamination of syrup preparations containing EG or DEG. The findings from BPOM released by the Indonesian Ministry of Health on December 22, 2022, stated that there were 116 syrup preparations found to be contaminated with EG or DEG [9]. Pharmacies are responsible for always updating information to provide safety assurance to patients when handing over syrup preparations. The public response in this study shows good results, namely with a score of 0.7982, where the public assesses that the pharmacy has updated information so that they can find out which syrups are safe and do not contain EG or DEG contamination so that they can be handed over to patients. The public will be more confident that when looking for drugs at pharmacies, they will definitely be more secure than buying drugs from places other than pharmacies, such as food stalls, markets, online stores, and so on.

The second statement aims to reconfirm the first statement, namely to ascertain the public's response to their belief that pharmacies only sell syrup preparations that are declared safe and no longer sell syrup that is declared contaminated with EG or DEG. The response results obtained from the first and second statements can be said to be no different, because there is very little difference, namely 0.8074 for the second statement and 0.7982 for the first statement. The second statement is a negative statement type while the first statement is a positive statement. Based on the data analysis of the two statements, it can be said that the respondents did not just fill in, but really read and looked at the statements so that they gave results that were not much different between the two statements.

The third statement aimed to determine the extent of public knowledge of the division of authority and responsibility between health facilities, in this case pharmacies, and drug regulators, in this case BPOM. The statement raised the issue that drug supervision is the responsibility of pharmacies that directly distribute drugs to patients. The division of tasks and authority between the regulator (BPOM) and pharmaceutical service facilities (pharmacies) has not been fully recognized by the public, where the score obtained is 0.3895. This fact is a

challenge for pharmacists practicing in pharmacies, and this is also felt by pharmacist colleagues in pharmacies. Patients who come to the pharmacy tend to blame the pharmacy for why there is a case of contamination of syrup preparation drugs, but the pharmacy has never conveyed it to the public until finally the issuance of a circular of the Indonesian Ministry of Health which stopped the circulation of all syrup preparation drugs.

3.1. Response to the Pharmacist

Pharmacists are responsible for the practice of pharmaceutical services in pharmacies, which are required to be able to provide information and education related to medicines. Respondents responded to the pharmacist's role in the case of syrup contamination containing EG/DEG with the results as shown in Table 8.

Table 8. Response to the Pharmacist

Questionnaire	Type of statement	Average scoring value (minimum 0, maximum 1)
7. The existence of this syrup that was contaminated with EG/DEG made me distrust the pharmacist	Negative statement	0.6658
8. The ability of Indonesian pharmacists is currently not in line with expectations, as evidenced by the contamination of medicinal syrup preparations	Negative statement	0.7292
9. I was assisted directly by the pharmacist to get an alternative drug to replace syrup preparations for my child	Positive statement	0.6540

Apoteker memiliki kewenangan dan tanggung jawab untuk menjalankan praktik kefarmasian secara profesional dan bertanggung jawab. Salah satu bentuk tanggung jawab apoteker adalah menyerahkan obat yang aman dan berkualitas kepada pasien. Pernyataan pertama dalam bagian kuesioner ini bertujuan untuk mengetahui respon publik terhadap apoteker terkait ditemukannya kasus cemaran sirup. Sebagian publik menganggap apoteker ikut bertanggung jawab atas kasus cemaran sirup tersebut, sikap ini sebenarnya tidak bisa disalahkan seluruhnya. Pada pedoman good manufacturing product (GMP) yang diimplementasikan dalam Pedoman Cara Pembuatan Obat yang Baik (CPOB) disebutkan bahwa tanggung jawab atas pembelian bahan baku, produksi, dan kontrol kualitas adalah oleh apoteker di industri obat tersebut. Oleh sebab itu apoteker di industri obatlah yang harus bertanggung jawab atas adanya cemaran EG atau DEG pada produksi sediaan sirupnya. Respon publik terhadap kepercayaan apoteker didapatkan hasil 0.6658 berarti masih lebih banyak yang menaruh kepercayaan terhadap apoteker meskipun perbandingannya sangat tipis yaitu sekitar 3:2.

Pernyataan kedua bertujuan untuk mengetahui harapan publik terhadap apoteker Indonesia dalam kehidupan bermasyarakat khususnya pada penanganan kasus cemaran sirup yang mengandung EG atau DEG ini. Sebagian besar responden menganggap apoteker yang berada pada fasilitas pelayanan kesehatan di apotek tidak berkaitan dengan apoteker yang berpraktik di industri obat. Respon masyarakat terhadap apoteker masih baik, yaitu dengan skor 0.7292 dengan ini menunjukkan sebagian besar publik masih menilai apoteker Indonesia sesuai dengan ekspektasinya dalam menjalankan praktik kefarmasian di apotek.

Pernyataan ketiga bertujuan untuk mengetahui apakah pelayanan kefarmasian di apotek dilakukan langsung oleh apoteker atau bukan apoteker, dimana pasien mendapatkan bantuan untuk obat pengganti dari sediaan sirup. Pada penelitian ini didapatkan skor 0.6540 yang berarti lebih dari setengah pasien dilayani langsung oleh apoteker dan mendapatkan bantuan dari apoteker untuk dicarikan obat alternatif dari sediaan sirup yang aman. Selain itu juga ditemukan bahwa masih ada apotek yang apotekernya tidak melakukan pelayanan langsung kepada pasien dalam memberikan informasi obat dan mencarikan solusi untuk menyediakan obat sirup yang aman dan tidak mengandung cemaran EG atau DEG.

4. CONCLUSION

The discovery of cases of acute kidney injury in children that cause death as a result of syrup preparations tainted with ethylene (EG) or dietilenglikol (DEG) has an impact on changing public trust in various parties related to the pharmaceutical sector. The public response to the regulator (in this case the Indonesian Ministry of Health and the Food and Drug Supervisory Agency BPOM) showed a very low level of public trust (0.0698) although most approved of the policy of cessation of syrup circulation (0.7931), and tended to inflict this error on BPOM which did not properly supervise drug production (0.0416). The public response to pharmacies serving direct delivery of drugs to patients shows a high level of trust from the public that pharmacies are unlikely to hand over dangerous drugs to patients (0.7982 and 0.8074) nevertheless pharmacies are required to take responsibility for the distribution of previously tainted drugs (0.3895). The public response to pharmacists shows that the level of public trust in pharmacists is slightly good despite the small comparison (0.6658) and there are still pharmacists not doing direct service to patients to educate safe syrup drugs (0.6540) to be an evaluation for pharmacists, although the public still strongly believes in the ability of pharmacists to solve drug problems (0.7292).

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