

ORIGINAL ARTICLE

ADVERSE DRUG REACTIONS REPORTING: KNOWLEDGE, ATTITUDE AND PRACTICE AMONG HEALTHCARE PROVIDERS AT A TERTIARY HOSPITAL IN NORTHERN REGION OF MALAYSIA.

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Abstract

Background: Adverse drug reaction (ADRs) underreporting is an excellent challenge to pharmacovigilance worldwide. Spontaneous and voluntary was the utilized system of ADRs reporting in Malaysia.

Objective: This study aimed to identify the healthcare provider's knowledge, attitude, practice, and factors associated with Malaysia's ADR reporting system.

Methods: A cross-sectional study was conducted using self-administered questionnaires among healthcare providers in Hospital Sultan Abdul Halim, Kedah. Descriptive statistics are utilized for selected variables.

Results: A total of 332 study questionnaires were distributed, and 269 participants were duly filled, giving a response rate of 81.0%. There were 40.9% (n=110) pharmacists, 39.0% (n=105) doctors and 20.1% (n=54) nurses. Almost half of the participants knew how to define pharmacovigilance (n=137, 50.9%) and ADR (n=131, 48.7%). The majority of participants are aware of ADR reporting procedures (n=174, 64.7%) and ADR reporting center in Malaysia (n=207, 77.0%). Most of the participants agreed that reporting ADR is necessary (n=260, 96.6%), should be mandatory (n=252, 93.7%), and reporting ADR will increase patient safety (n=264, 98.1%). Among the participants who had reported an ADR, only 39.1% (n=45) reported all types of ADR. The most important factor that encouraged participants to report ADR was the seriousness of ADR (n=155, 57.6%). In contrast, a lack of knowledge on reporting ADR might discourage them from reporting ADRs (n=136, 50.6%).

Conclusion: This study reveals that most participants have good knowledge, a positive attitude, and good practice towards ADR reporting in Malaysia. The continuous education and updates regarding ADRs, including the reporting procedures, were essential for improving ADR reporting and monitoring in enhancing medication safety.

Keywords: Knowledge, Attitude, Practice, Adverse Drug Reactions Reporting, Healthcare Providers

Introduction

Under-reporting of adverse drug reactions (ADRs) is an excellent pharmacovigilance challenge. There are various definitions of adverse drug reaction (ADR). According to the World Health Organization (WHO), an ADR is "a response to a medicine which is noxious and unintended, and which occurs at doses normally used in man for the prophylaxis, diagnosis or therapy of disease, or the modification of physiological function" [1]. Another commonly used definition for an ADR was put forward by Edwards and Aronson (2000), who defines an ADR as "an appreciably harmful or unpleasant reaction, resulting from an intervention related to the use of a medicinal product, which predicts hazard from future administration and warrants prevention or specific treatment, or alteration of the dosage regimen or withdrawal of the product" [2]. Without the ability to recognize ADR, it becomes meaningless to define ADR. Sometimes ADR may act through the same physiological and pathological pathways as the disease being treated as there is no exact cutting point to recognize ADR.

In Malaysia, the Malaysian Adverse Drug Reactions Advisory Committee (MADRAC) under National Pharmaceutical Regulatory Agency (NPR) performs the function of monitoring safety profiles of registered drugs for use in Malaysia which was established under the Drug Control Authority (DCA). The role of MADRAC is to screen all the received ADR reports before it is proposed to the World Health Organization's Collaborating Centre for Drug Safety Program in Uppsala, Sweden, for inclusion in its ADR database. Then, MADRAC also provides information and advice to the DCA, so that regulatory action can be taken based on the ADRs received in Malaysia. Besides, MADRAC also plays a vital characteristic in promoting ADR reporting in Malaysia. Internationally, MADRAC renders information to doctors, pharmacists, nurses, and other healthcare providers on ADRs.

However, this reporting system is spontaneous and voluntary and is frequently plagued by low reporting rates [3]. The latest info from NPR website shows that between 1990 to 2019 got 135,513 (0.6%) ADRs were reviewed and entered into both Malaysian and WHO international databases (22 million ADRs reported worldwide from 1967 to 2019).

It is now clear that low reporting rates in Malaysia cause signals not to be produced and are often late, even if generated. Therefore, from Malaysia, limited information has been quoted. Usually, Malaysian data are scanty, and studies of pharmacovigilance are mostly underpowered to be cited. It should be remembered that, since 1990, Malaysia has been a member of the WHO Program for International Drug Monitoring. Malaysia's contribution to the program, however, could at best be graded as moderate. While there are currently 118 member countries contributing to the program, it is generally accepted that most of the program's contributions come from a few countries, mainly the United States, Europe, and Japan. Instead, we rely on US and European alerts and precautionary statements, which is a flaw that needs to be looked into further and not ignored. Medicines sold in Malaysia, our community, our culture, and most importantly, our prescribers are incredibly different from the US and Europe. A disadvantage that is sadly difficult to overcome is the reliance on signals from countries with many differences. The alerts may not impact Malaysia as the drug may not even be sold here or react differently to an Asian community. The contrary is even more worrisome. ADR occurs typically here but is not detected because no US or European signals are produced.

A study in 2018 found that the seriousness of ADR, uncommonness of response, new drug involvement, and confidence in evaluating ADR are the key factors that prevent respondents from reporting an ADR. In contrast, lack of information about where and how to report ADR, lack of access to ADR reporting form, the

managing patient is more important than reporting ADR legal liability concerns were the significant factors that discourage respondents from reporting ADR ^[4]. Besides, a study was conducted in Wuhan, China, showed that only 2.7 percent of healthcare professionals having a correct understanding of the concept of ADR, but 89.2% of them had encountered ADRs, whereas 94% of them were aware of the need to report these to the ADR monitoring center ^[5].

Malaysia's reporting of ADR to MADRAC gradually increased for the past ten years, from 7,079 reports in 2010 to 29,983 reports in 2019 as described in Figure 1 ^[6]. In 2015, the MADRAC Newsletter statistics showed that a majority of total ADRs reported by the Ministry of Health (MOH) staff (n=10,544, 83.8%). In contrast, MOH Pharmacist contributes the majority of ADR reports (n=6914, 65.5%), followed by MOH doctors (n=2409, 22.8%) and MOH nurses (n=16, 11.6%), while 13.7% (n=1729) of total ADR reports received from product registration holders, 1.4% (n=182) from private sector hospitals and general practitioners as well as another 1.1% (n=148) from others ^[7].

Previously, in 2009, a survey on the knowledge and perception of ADR reporting and its system among the general population of Penang, Malaysia, found that the majority of respondents (65.6%, n = 219) reported unawareness of the presence of the ADR center set up by the Ministry of Health and that the respondents ^[8] expressed insufficient knowledge of ADR reporting. Additionally, a study depicted that many respondents acknowledged that ADR reporting is necessary and would motivate others to report ADRs, but many had never reported an ADR ^[9]. The other study also inquired about the involvement of healthcare providers in the ADR reporting system in Malaysia ^[10]. Besides that, the immediate reporting of adverse drug reactions is a crucial method to improve the effectiveness and safety of medications, and healthcare providers are essential elements. In direct response to these

survey discrepancies, this study evaluates the healthcare provider's knowledge, attitude and practice, and factors associated with the ADR reporting systems in Malaysia.

Methodology

Study design and settings

A cross-sectional study was undertaken using self-administered questionnaires among doctors, pharmacists, and nurses. This study was conducted for four months between 1 December 2019 and 31 March 2020 in Hospital Sultan Abdul Halim (HSAH), Kedah, Malaysia. Kedah is the eighth largest state by land area in Malaysia, and Kuala Muda District holds the most significant population in Kedah. The HSAH is the only public hospital in Kuala Muda District. Meanwhile, due to the ADRs report through Madrac Bulletin 2015 & 2016, Kedah was the lowest states who sent ADR reports to NPRA in Malaysia ^[7,11].

Study participants and Sampling

Sample size estimation was calculated using the population proportion formula ^[12] by assuming the population size of 850 and an expected study prevalence of 50%. With an additional 20% dropout rate, the sample size of 332 was calculated for this study. All participants were surveyed individually using a non-probability convenience sampling technique based on the proportion derived from the population of the healthcare providers in HSAH. Participants were approached to join this study by a verbal invitation directly or through phone communications without compulsion. The participants chosen fulfilled the inclusion criteria, i.e., pharmacists, doctors, and nurses who were able to read and write in English and well enough to comprehend and complete the questionnaire and be willing to provide written informed consent to participate in this study.

Study Instrument

Data were collected using a questionnaire which was adapted from previous survey that has been validated and piloted among healthcare professionals in secondary and tertiary public hospitals in Pakistan ^[4] as it is the latest and most suitable with this study setting and then was compared with the study done among the general public in Cheras, Malaysia for the current situation in Malaysia ^[9]. Permission for using or adopting the questionnaires in this study was obtained from the corresponding authors appropriately. Respondents were assessed for their knowledge, attitude, and practice relevant to Malaysia's ADR monitoring system. The questionnaire comprised five sections. The first section has five questions, where it is about participants' demographic data. The second section has twelve questions that were used to evaluate the expertise of ADR, reporting-related healthcare providers. The third section consisted of four questions that were analysed with the aid of participants' attitudes towards ADR documentation. The fourth section contained nine questions used to assess ADR reporting practice for public hospital healthcare providers. Finally, the fifth section was limited to two questions by variables that motivated and prevented pharmacists, doctors, and nurses from disclosing ADR.

Data collection

The study investigators conducted this study in English as most of the participants were fluent in the English language. The investigators gave hard copies or email or used phone communications by distributing the Google sheet questionnaire, informed consent form, and participant information sheet to the participants, depending on their preferred technique. Participants need to complete the questionnaire, which takes about fifteen to twenty minutes, together with signing an informed consent form after agreeing to participate in this study and understand the participant information sheet. The participants have three days to consider their participation in

this study by completing all documents provided either by hard copy or email, or phone communications and submit to the investigators.

Data analysis

Data analysis was done by using the Statistical Package for Social Sciences Program (SPSS) version 23.0. Descriptive statistics were utilized for selected variables. Pearson's Chi-square test for Independence was used to study the association between categorical data and categorical data, while Fisher's exact test was used if assumptions of Pearson's Chi-square test for Independence were not met. All probability values were two-sided, and a level of significance of less than 0.05 ($p < 0.05$) was considered as statistically significant ^[13].

Participants' knowledge scoring was analysed using twelve questions that involved ten questions with a score of one or zero (correct response had a score of one and wrong response had a score of zero). One question depends on the number of choices correctly chosen. Multiple responses were allowed. Each correctly chosen choice had a score of one, and each wrongly chosen had a score of zero. However, the score for another one more question was graded on a 4-point Likert scale, an agreement score ranging from one for strongly agree, two for agree, three for disagree, and four for strongly disagree.

Participants' attitude scoring was analysed using four questions that were graded on a 4-point Likert scale. The values for the options start with "strongly disagree" at one point, "disagree" at two points, "agree" at three points, and "strongly agree" at four points. Reverse scoring was done for the negatively phrased question.

Meanwhile, the participants' practice scoring was analysed using nine questions with a score of one or zero (correct response had a score of one and wrong or did not know response had a score of zero).

Then, the percentage of knowledge, attitude, and practice score was calculated for each participant and were categorized using previous study cut-off point, as good or positive if the score was 50% to 100% and poor or negative if the score was less than 50% [4].

Ethical approval

Ethical approval was obtained from the Medical Research & Ethical Committee (MREC) of the Ministry of Health Malaysia (reference: NMRR-19-2911-51232).

Results

Demographic characteristics

Out of 332 study questionnaires were distributed among doctors, pharmacists, and nurses in the hospital, 269 participants were duly filled, giving a response rate of 81.0%. 74.7% (n=201) of the participants were female and 25.3% (n=68) were male. The median age of the participants was 30.00 (IQR 13.00). Most of the participants were Malay (n=174, 64.7%), followed by Indian (n=57, 21.2%) and Chinese (n=38, 14.1%). Among the healthcare providers who were surveyed, 40.9% (n=110) were pharmacists, 39.0% (n=105) were doctors and 20.1% (n=54) were nurses. This study was involved in most areas available in the hospital, as shown in Figure 2.

Healthcare provider's knowledge of ADR reporting

Table 1 represents the knowledge of the participants regarding ADR reporting. Almost half of the participants knew how to define pharmacovigilance (n=137, 50.9%) and ADR (n=131, 48.7%). This study identified that more than half of the participants were unaware of any formal reporting system available in other countries (n=248, 92.2%) and any drug banned in the world due to ADR (n=158, 58.7%). However, the majority of the participants were aware of ADR reporting procedures (n=174, 64.7%) and ADR reporting center in Malaysia (n=207, 77.0%) as well as said that all ADRs, including adverse

events to old and new medications, should be reported (n=262, 97.4%). Nevertheless, only a minority of the participants agreed that the drugs marketed are safe (n=232, 86.2%).

Healthcare provider's attitude towards ADR reporting

Interestingly, most of the participants agreed that reporting ADR is necessary (n=260, 96.6%), should be mandatory (n=252, 93.7%), and reporting ADR will increase patient safety (n=264, 98.1%). However, more than half of these study participants agreed that reporting ADR is time-consuming (n=177, 65.8%). A Chi-square test for independence indicated that healthcare providers' agreement regarding time-consuming in reporting ADR was significantly different, p=0.020. Therefore, there is a significant association between this attitude and the healthcare providers' categories, as summarised in Table 2.

Healthcare provider's practice towards ADR reporting

Moreover, this study has shown that 81.8% (n=220) of the participants know about the ADR reporting system available in their workplaces and 74.7% (n=201) mentioned that they have free access to ADR reporting forms. Most participants stated that their workplaces encourage them to practice/report ADR (n=234, 87.0%) and provide useful information regarding ADR reporting (n=217, 80.7%). More than half of the participants agreed that they received training regarding ADR reporting (n=154, 57.2%). However, this study showed that only 115 (42.8%) participants had reported an ADR, whereas another 154 (57.2%) did not experience it. Among the participants who had reported an ADR, only 39.1% (n=45) reported all types of ADR, whereas 53.0% (n=61) reported only moderate ADR, and 7.8% (n=9) reported only when attended or received severe ADR. As shown in Table 3, a Chi-square test for independence indicated that the prevalence of participants who had reported an ADR between

the pharmacists, doctors, and nurses was significantly different, $p < 0.001$.

Knowledge, attitude, and practice scoring regarding ADR

Interestingly, this study showed that the majority of the participants have good knowledge ($n=194$, 72.1%), positive attitude ($n=267$, 99.3%), and good practice ($n=176$, 65.4%) regarding ADR reporting, as shown in Figure 3.

There is a comparison of demographic characteristics between participants with good knowledge and poor knowledge, between participants with a positive attitude and negative attitude, and between participants with good practice and poor practice in Table 4. Participants with good knowledge were highest among the participants in age between 21 and 30 ($n=109$, 56.2%, $p=0.036$), female ($n=144$, 74.2%, $p=0.764$), Malay ($n=119$, 61.3%, $p=0.167$), and Pharmacists ($n=101$, 52.1%, $p < 0.001$).

Figure 4 shows the association of participants' knowledge, attitude, and practice (KAP) scoring between the participants who have been reported ADR and those who have not experienced it. Participants who experienced reporting ADR in their workplaces were significantly higher among participants who had good knowledge ($n=98$, 50.5%, $p < 0.001$) and good practice ($n=105$, 59.7%, $p < 0.001$) but oppositely amongst the participants who had a positive attitude ($n=114$, 42.7%, $p=0.673$).

Factors encouraging and discouraging participants from reporting ADR

As can be seen from the figure 5, seriousness of the ADR was most important while deciding to report an ADR ($n=155$, 57.6%, $p < 0.001$) neither among pharmacists ($n=67$, 60.9%), doctors ($n=63$, 60.0%) nor nurses ($n=25$, 46.3%).

Meanwhile, the most popular factor that discouraged the pharmacists ($n=33$, 30.0%), doctors ($n=67$, 63.8%) or nurses ($n=36$, 66.7%) to

report an ADR was due to lacking in the knowledge on how to report ADR ($n=136$, 50.6%, $p < 0.001$). Other factors that are related to discouraging ADR in this study are summarised in Table 5.

Participants also mentioned some factors that contribute to the practice of ADR reporting, including "lacking knowledge about ADRs or adverse event or side effects of the medications, tedious and time-consuming, not in direct contact with patients, as well as the incompetence of the available ADR reporting system".

Discussion

This study was done among pharmacists, doctors, and nurses with similar percentages in their contribution to the ADR reporting system in Malaysia [3,7]. Although there have been studies on ADR reporting in Malaysia [8-10,14,15], this is the first study involving healthcare providers in the public hospital in Northern Malaysia.

This study has found that most of the participants had good knowledge about ADR reporting, which is similar to a study among private healthcare providers in Malaysia [14] but in contrast to the results of another study done among the general public in Northern Malaysia [8,10]. This result showed the success of awareness regarding ADR reporting systems in Malaysia to the healthcare providers. However, the message still needs to expand to the general public to understand the importance of reporting ADRs. This study showed that most pharmacists and doctors among the study participants significantly knew about the meaning of ADR compared to nurses. Many of the study participants are aware of the ADR procedure and ADR center available in Malaysia but opposite regarding the formal reporting system available in other countries and about the drug that has been banned. A study revealed that most of the fatal ADRs in Malaysia were associated with medication rather than vaccination, and 32 (0.28%) fatal ADRs were

reported during their study period, which is lower than the benchmark of developed countries [3].

Interestingly, despite the participants' right attitude, most of them still significantly think that reporting ADR is time-consuming. The other studies were found in Asian or Western countries [10,16–18]. So, this factor might affect the motivation of healthcare providers to do ADR reporting. However, this finding contrasted the previous study's predictor of under-reporting of ADRs in Malaysia [9] and Japan [19].

ADR reporting in Malaysia was successful among public healthcare providers compared to the private sector, as reported in a nationwide study in Malaysia [3]. Meanwhile, this study proved more about the success of the ADR reporting system in Malaysia, especially among pharmacists compared to doctors and nurses. Occasionally, this might be due to the Malaysian Pharmaceutical Services Programme's initiative regarding incorporating ADR reporting in the pharmacist training modules that is compulsory to be fulfilled to complete their one-year provisional pharmacist before becoming and practicing as a full registered pharmacist in Malaysia. Besides that, ADR reporting is currently one of the leading key performance indicators in the public pharmaceutical services to promote ADR reporting in Malaysia [3].

Therefore, these might be related to the study finding a significant difference between the participants' knowledge of ADR reporting and job designation or participant's age. The job designation also had a significant relationship with the practice of ADRs among the participants. The study participants' aware of ADR reporting center and the reporting procedure in Malaysia and noted that all adverse drug reactions, including adverse events to old and new medications should be reported, they still thinking that lacking in knowledge on how to report ADR was the significant factor that discourages healthcare providers from reporting an ADR

which are also have been reported in other Asia Pacific region [19–21]. Moreover, the seriousness of ADR was the principal and significant factor which encouraged most of the pharmacists, doctors, and nurses in this study to report ADRs.

Study limitations

Even if the small sample size from one hospital setting might make it hard to extrapolate conclusions from this study, different healthcare professionals' inclusion does make it valuable. As the study used self-administered questionnaires, recall, and personal bias could have affected the data obtained.

Conclusion

This study reveals that many pharmacists, doctors, and nurses have not ever experienced reporting an ADR, which should not be underestimated. However, most participants have good knowledge, a positive attitude, and good practice towards the ADR reporting system in Malaysia. The continuous education and updates regarding ADRs, including the reporting procedures, were essential for improving ADR reporting and monitoring in enhancing medication safety.

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Author declaration

As the sole author for this study, I hereby declare that the submitted manuscript is original and assume responsibility for the accuracy and integrity of the data.

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Conflicts of interest

The author has no conflict of interest.

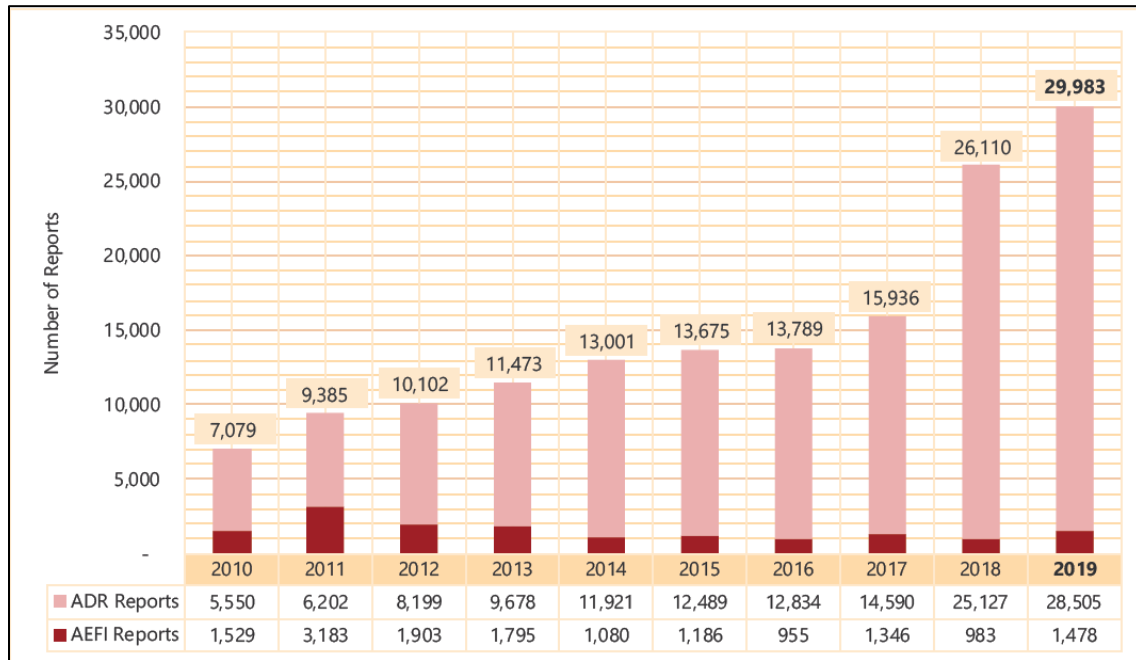


Figure 1: The total reports received by NPRA for 2010 - 2019

Source: <https://www.npra.gov.my/index.php/en/health-professionals/newsletter-madrac-bulletin.html>

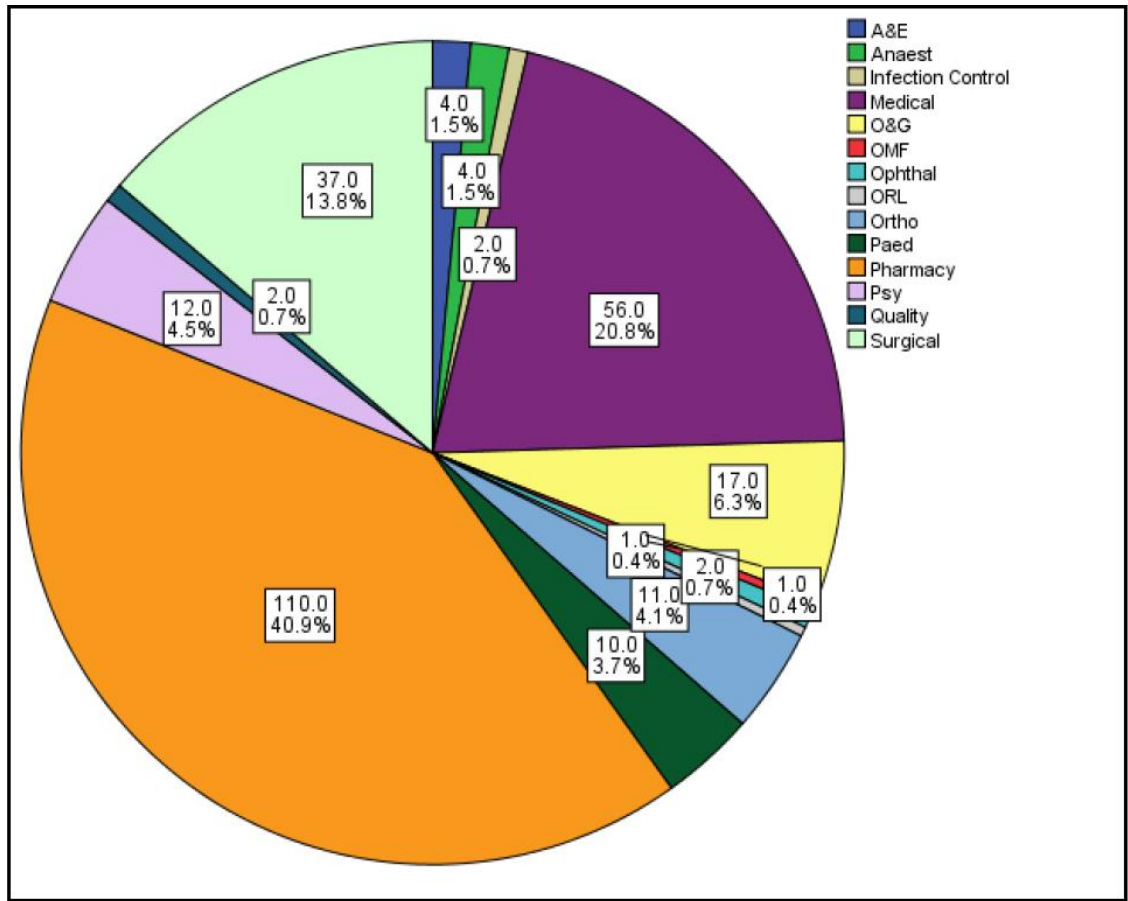


Figure 2: Participant’s working area

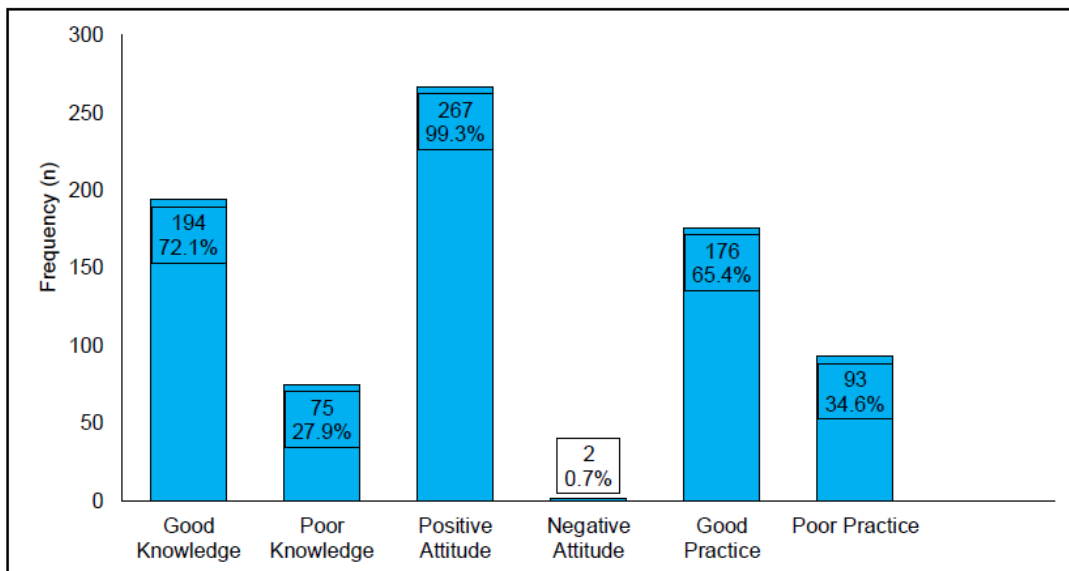


Figure 3: Knowledge, attitude and practice scoring among healthcare providers

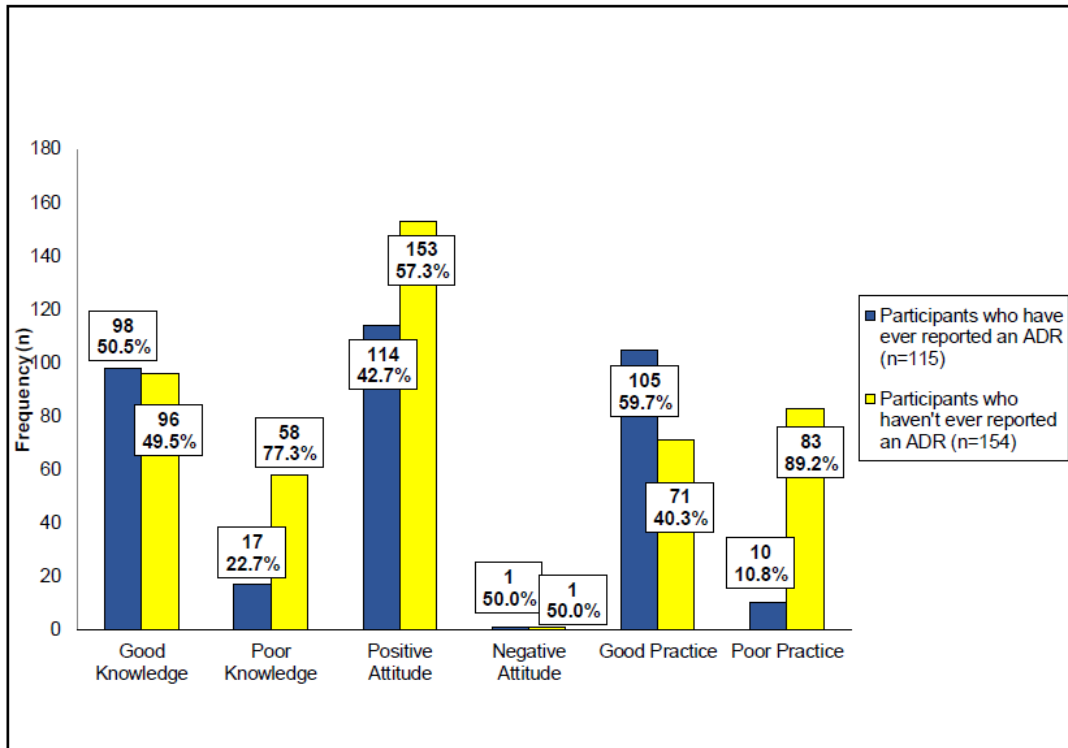


Figure 4: KAP scoring among participants who have ever reported an ADR

Table 1. Participants' knowledge regarding ADR

Knowledge of healthcare providers related to ADR Reporting	Frequency, n (%)
1. Define pharmacovigilance?	
(a) The science of monitoring ADR's happening in a hospital	19 (7.1)
(b) The process of improving the safety of drugs	30 (11.2)
(c) The detection, assessment, understanding and prevention of adverse effects	137 (50.9)
(d) The science detecting the type and incidence of ADR after the drug is marketed	66 (24.5)
(e) Don't know	17 (6.3)
2. Define ADR?	
(a) Noxious and unintended response to drug and occurs at doses normally used in man or animal for prophylaxis, diagnosis or therapy of disease	71 (26.4)
(b) Noxious and unintended response to drug and occurs at doses normally used in man for prophylaxis, diagnosis and therapy of disease	131 (48.7)
(c) Any untoward medical occurrence that may present during treatment with a medicine but which does not necessarily have a causal relationship with this treatment	35 (13.0)
(d) Any adverse reaction identified in regulatory documents such as investigators brochures or product monograph occurring within the expected frequency	22 (8.2)
(e) Don't know	10 (3.7)
3. Are you aware of any drug that has been banned in the world due to ADR?	
(a) Yes	111 (41.3)
(b) No	158 (58.7)
4. Are you aware of any formal reporting system available in other countries?	
(a) Yes	21 (7.8)
(b) No	248 (92.2)
5. Are you aware of ADR reporting centre in Malaysia?	
(a) Yes	207 (77.0)
(b) No	62 (23.0)
6. In case an ADR is observed in this hospital is observed where it should be reported?	
(a) Malaysian Medical Association	2 (0.7)
(b) Malaysian Pharmaceutical Society	13 (4.8)
(c) National Pharmaceutical Registration Agency (NPRA), Ministry of Health Malaysia	232 (86.2)
(d) No center for reporting	3 (1.1)
(e) Don't know	19 (7.1)
7. Are you aware of ADR reporting procedures in Malaysia?	
(a) Yes	174 (64.7)
(b) No	95 (35.3)
8. Have you ever shared information about ADRs with anyone?	
(a) Yes	70 (26.0)
(b) No	199 (74.0)
9. Do you think all the drugs marketed are safe?	
(a) Yes	37 (13.8)
(b) No	232 (86.2)

Note: *Some participants reported using more than one type of source of information about ADRs; thus, total percentage may not be 100%.

Table 2. Association between the agreement regarding time consuming in reporting ADR and categories of healthcare providers

Variable	n (%)	Pharmacist, n (%)	Doctor, n (%)	Nurse, n (%)	X ² statistic (df)	p-value ^a
Reporting ADR is time consuming?					14.95 (6)	0.020
Strongly agree	26 (9.7)	10 (9.1)	9 (8.6)	7 (13.0)		
Agree	151 (56.1)	51 (46.4)	61 (58.1)	39 (72.2)		
Disagree	75 (27.9)	41 (37.3)	28 (26.7)	6 (11.1)		
Strongly disagree	7 (6.3)	8 (7.1)	7 (6.7)	2 (3.7)		

Note: ^aChi-square test for independence
df = Degrees of Freedom

Table 3. Association between the participant who had reported an ADR and categories of healthcare providers

Variable	n (%)	Pharmacist, n (%)	Doctor, n (%)	Nurse, n (%)	X ² statistic (df)	p-value ^a
Have you ever reported an ADR?					59.22 (2)	<0.001
Yes	115 (42.8)	77 (70.0)	30 (28.6)	8 (14.8)		
No	154 (57.2)	33 (30.0)	75 (71.4)	46 (85.2)		

Note: ^aChi-square test for independence
df = Degrees of Freedom

Table 4. Comparison of demographic characteristics between participants' KAP scoring

Demographic	Good knowledge, n (%)	p-value	Positive attitude, n (%)	p-value	Good practice, n (%)	p-value
Age		0.036^a		0.254 ^b		0.092 ^a
21 - 30	109 (56.2)		147 (55.1)		95 (54.0)	
31 - 40	50 (25.8)		66 (24.7)		51 (29.0)	
41 - 50	24 (12.4)		42 (15.7)		24 (13.6)	
51 - 60	11 (5.7)		12 (4.5)		6 (3.4)	
Gender		0.764 ^a		1.000 ^b		0.238 ^a
Male	50 (25.8)		68 (25.5)		40 (22.7)	
Female	144 (74.2)		199 (74.5)		136 (77.3)	
Race		0.167 ^a		1.000 ^b		0.183 ^a
Malay	119 (61.3)		172 (64.4)		116 (65.9)	
Chinese	29 (14.9)		38 (14.2)		20 (11.4)	
Indian	46 (23.7)		57 (21.3)		40 (22.7)	
Job designation		<0.001^a		0.191 ^b		<0.001^a
Doctor	61 (31.4)		103 (38.6)		45 (25.6)	
Pharmacist	101 (52.1)		110 (41.2)		105 (59.7)	
Nurse	32 (16.5)		54 (20.2)		26 (14.8)	

Note: ^aChi-square test for independence

^bFisher's exact test

There is significant association if p-value <0.05

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