



Int J Pharm Gen Res

---

---

**International Journal of  
ADVANCED  
PHARMACEUTICAL  
GENUINE RESEARCH**

---

---

[www.ijapgr.com/archieves/](http://www.ijapgr.com/archieves/)**Research article**

# The Knowledge, perceptions and practice of pharmacovigilance among community pharmacists in Kumarapalayam, Tamil Nadu

**Amy Elizabeth Jaibu, Venkateswaramurthy.N\* , Sambathkumar.R**

J.K.K.Nataraja College of Pharmacy, Komarapalayam, Namakkal District, TamilNadu, India

Received: 29<sup>th</sup> August .2015;Accepted: 29<sup>th</sup> Sept 2015)**Abstract**

Adverse Drug Reactions (ADRs) are a major problem worldwide and are one of the leading causes of mortality and morbidity in health care facilities worldwide. The aim of our study was to assess the knowledge, perception and practice of pharmacovigilance among registered community pharmacists in Kumarapalayam, Tamil Nadu. This was a prospective cross sectional study involving registered community pharmacists to evaluate the knowledge, perception and practice of pharmacovigilance which was conducted by face to face questionnaire over a period of 6 months. Out of 50 registered community pharmacists, 30 responded and involved in the study. Out of the total participants 25(83.33%) had fair knowledge, about pharmacovigilance, 29(96.6%) had fair knowledge about ADR. 23 (66.66%) of participants were aware of National Pharmacovigilance Programme in India, 18 (60%) of participants knew when to report and how to report an ADR. 30(100%) of pharmacists believed that the ADR reporting should be mandatory for pharmacists. Among the participants 50% of pharmacists had no facility for ADR reporting. Lack of adequate number of ADR reporting centres was an important finding. Awareness programmes about the importance of ADR reporting for health care providers are adequate to minimize drug related morbidity. This study's findings help to evaluate the knowledge, perception and practice of pharmacovigilance among community pharmacists.

**Corresponding author**

<sup>1</sup>Department of Pharmacy Practice,  
J.K.K.Nataraja College of Pharmacy,  
Komarapalayam, Namakkal District,  
TamilNadu, India

[venkateswaramurthy.n@jkkn.org](mailto:venkateswaramurthy.n@jkkn.org)**Key Words**

Adverse drug reactions,  
pharmacovigilance,  
community pharmacists,  
cross- sectional study

## INTRODUCTION

In the last four decades especially after the thalidomide disaster in the year of 1961 the global interest in the monitoring of drug safety showed a remarkable increase. The thalidomide disaster opened up the issue of drug safety for the public and healthcare professionals alike and brought about an awareness of the importance of the systemic surveillance of drugs for Adverse Drug Reactions. In the year of 2005, the Berlin declaration on pharmacovigilance concluded that 'the systems for pharmacovigilance are not well organized and funded to serve patients and public optimally.<sup>1</sup> Adverse Drug Reactions (ADR) are defined as unintended consequences suspected to be related to the use of medicinal products, including herbal medicines (WHO, 1972). ADRs are a significant cause of morbidity and mortality worldwide. According to the definition providing by World Health Organization (WHO), Adverse Drug Reaction (ADR) is "any noxious, unintended and undesired effect of a drug which occurs at doses used in humans for prophylaxis, diagnosis or therapy."<sup>2</sup>

### Pharmacovigilance

According to World Health Organization (WHO) Pharmacovigilance defined as the "science and activities relating to the detection, assessment, understanding and prevention of the adverse effects (AE)", particularly long term and short term side effects of medicines or any other drug related problems.<sup>3</sup> This plays a vital role in ensuring that the doctors together with the patients are

provided with adequate safety information to make an educated decision when choosing a drug for treatment. The process of collection of such safety information about a drug normally begins in phase I of the clinical trial before approval of the drug and continues after the approval. Additionally, several post-market safety studies are conducted, with many mandatory requirements by drug regulatory agencies around the world. Out of several methods of detecting ADRs; spontaneous reporting is the one that significantly contributed to the improved levels of pharmacovigilance in many countries.<sup>4</sup>

Pharmacovigilance is particularly concerned with adverse drug reactions, or ADRs, which are officially described as: "A response to a drug which is noxious and unintended and which occurs at doses that are normally used for the prophylaxis, diagnosis or therapy of disease or for modification of physiological function".<sup>5</sup> ADRs are fourth to sixth leading cause of death among the hospitalized patients and occur in every 0.3 percent to 7 percent of hospital admissions.<sup>6</sup>

### Pharmacovigilance in India: the need

According to the 2011 census, India has the 2nd highest population in the world with over 1.21 billion people<sup>7</sup>. Some of the ADRs are avoidable. Spontaneous reporting by healthcare professionals is a crucial step for preventing or reducing ADRs.<sup>8</sup> The ADR reporting rate in India is below 1% compared to the worldwide rate of 5%. ADR management can cost

the institution or the patient as much as US \$15-150 in India.<sup>9, 10, 11</sup> Given the lower rate in India, one of the reasons might be attributed to the awareness about pharmacovigilance and ADR monitoring among the Indian healthcare providers.

In about 36% patients of varying ages, ADRs lead to hospital admissions whereas this number can go as high as 24% in elders. About 5.9-22.3% of all emergency cases can be attributed to ADRs.<sup>11-14</sup> ADRs rank among the 4-6th highest cause of mortality in the US, leading to as many as 106,000 deaths on a yearly basis.<sup>15,16</sup> In Southern India, Ramesh *et al.* found that in a small tertiary care hospital, 0.7% cases were admitted as a result of ADRs and as many as 18 among 1000 patients died because of the same.<sup>9</sup> In US, hospital admissions and mortality rates in patients with ADRs were 8.25% and 19.18% higher respectively.<sup>17</sup>

India rates below 1% in pharmacovigilance as against the world rate of 5%. In India, the Drugs Control Department within the Ministry of Health and Family Welfare initiated the establishment of a nationwide network to build a comprehensive Pharmacovigilance data system in 2004. The National Pharmacovigilance Programme (NPP) of India is sponsored by the WHO and is funded by the World Bank. NPP in India is divided in a three tier structure into 2 zonal centers, 5 regional centers and 24 peripheral centers. There are two zonal centers which collate information from all over the country and send it to the Uppsala Monitoring Centre in Sweden.<sup>18</sup> The role of the community

pharmacist: The pharmacists' contribution will remain an important element in effective pharmacovigilance.

Pharmacists have a central role in drug safety by contributing to the prevention, identification, documentation and reporting of ADRs. All healthcare providers have key roles to play in maintaining a balance between medicines' benefits and risks. National drug monitoring programs throughout the world differ in their sources of participation in the reporting of ADRs by healthcare professionals. In contrast to Canada or the US, where the majority of the reports come from pharmacists, some countries, such as France, Ireland, Malaysia, New Zealand, the Nordic countries, and in the UK, have the largest contribution of

ADR reports coming from physicians.<sup>19</sup> In many developed countries like the Netherlands, community pharmacists play a significant role in ADR reporting. Factors for underreporting: Underreporting of ADRs is a common phenomenon in spontaneous post marketing surveillance programs. Underreporting may delay signal detection and cause underestimation of the size of a problem. Correcting the underreporting scenario is difficult as the extent is unknown and variable. Involvement of community pharmacists in ADR reporting is lowest. This may be due to sub-optimal level of knowledge about the drugs, lack of confidence and inapt professional approach. Our community pharmacists restrict themselves to mere dispensing of marketed preparation.<sup>20</sup>

## **National pharmacovigilance program (NPP) of India**

The National Pharmacovigilance Program (NPP) was launched by the Ministry of Health and Family Welfare in July 2010, primarily overseen by CDSCO, New Delhi. ADR reports collected from the affiliated medical colleges will be consigned to the national coordinating center and thereby casualty assessment will be conducted and upload the reports into the pharmacovigilance software. Finally, the integrated ADR data will be transmitted through vigiflow software interface into the Uppsala Monitoring Center's ADR database where signal processing will be carried out.<sup>7,21</sup>

Thus the aim of the present study was to achieve insight into the knowledge, attitude and perception and to explore the reasons behind under-reporting of ADRs among community pharmacists. Due to lack of awareness and insufficient training about drug safety monitoring among healthcare professionals the Indian National Pharmacovigilance Programme lacks continuity. Due to under reporting of adverse drug reactions it is important to assess awareness of pharmacovigilance among the healthcare professionals.

## **METHODS**

The study was a cross-sectional questionnaire based study involving community pharmacists working in parts of Kumarapalayam. A questionnaire was prepared to inspect knowledge, attitude and practices of Indian community pharmacists about ADR reporting. Questions were framed taking into account not only the

pharmacovigilance system in place in the individual healthcare institutions where pharmacists were working at but also its relation to the working of the pharmacovigilance system at the national level. This was conducted by a face to face questionnaire administered to randomly selected, 30 registered community pharmacists during the period of June 2014 to October 2014. The questionnaire was adapted from a similar study investigating the attitudes and practice of ADR reporting. It was designed to capture the following information comprising of demographic data, questions on knowledge, perception, practice and reasons for underreporting. In practice part have yes/no question and the question to know the best ADR reference aid was also included.

## **Data analysis**

The filled questionnaires were analyzed as per the objectives of the study. The various parameters such as 'gender wise distribution', 'age wise distribution', 'professional status', 'educational qualifications', 'training status', 'pharmacy ownership' and the 'knowledge, attitude and practice scores were analyzed. The data obtained were entered in Microsoft excel spread sheet and were analyzed.

## **RESULTS AND FINDINGS**

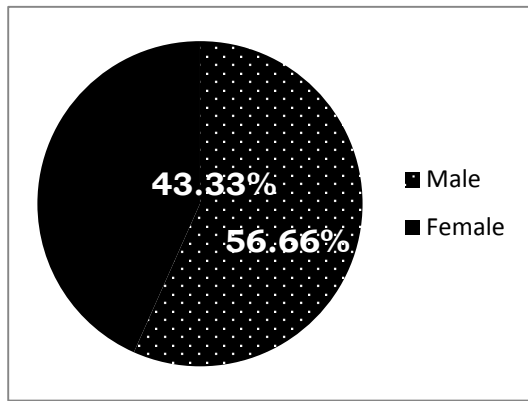
There are 50 community pharmacists were offered to participate in the study, around 30 pharmacists completely filled questionnaire and were selected for analysis. The response rate was around 60%. Most of the pharmacists completed and returned the questionnaire. However

only 50% properly filled and could be analyzed. Out of the total respondents 17(56.66%) was male and 13 (43.33%) was female (Fig 1). Out of the total participants 25(83.33%) had fair knowledge, 5(16.66%) had poor knowledge about pharmacovigilance (Tab 2). Out of the total respondents, 29(96.6%) had fair knowledge and 1(3.33%) had poor knowledge about ADR, 23 (66.66%) of participants were aware of National Pharmacovigilance Programme in India, 18 (60%) of participants knew when to report

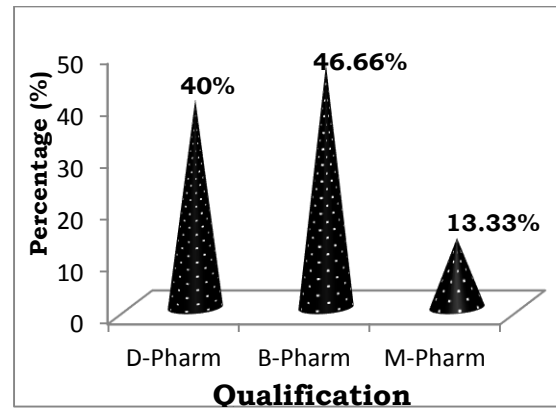
and how to report an ADR, 27(90%) of participants stated that ADR reporting is an important duty of a pharmacist, 30(100%) of pharmacists believed that the ADR reporting should be mandatory for practicing pharmacy (Tab 1& 2). Among the participants 15(50%) of pharmacists had and 50% of pharmacists had no facility for ADR reporting, 29 (96.66%) felt that ADR reporting will ultimately benefit the patient (Tab 1& 2).

**Tab 1 Demographic data**

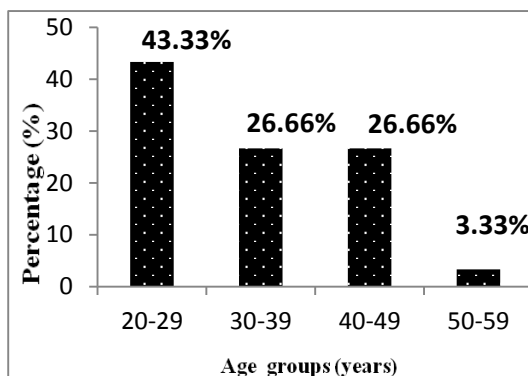
|   |             |
|---|-------------|
| Organization responsible for ADR monitoring?                              |             |
| • PCI   | 11 (36.66%) |
| • CDSCO   | 15 (50%)    |
| • Don't know  | 04 (13.33%) |
| ADR should be reported only when they are?                                |             |
| • Serious and life threatening  | 04 (13.33%) |
| • severe and cause disability   | 10 (33.33%) |
| • mild and cause less   | 04 (13.33%) |
| • all of the above  | 12 (40%)    |
| Which of the problems do you face while reporting ADR's in your workplace |             |
| • lack of information provide by patient                                  | 13 (43.33%) |
| • Pharmacist doesn't have enough time fear of facing legal problems?      | 09 (30.00%) |
| • Unaware of existence of national ADR reporting system                   | 06 (20.00%) |
| • Others  | 01 (3.33%)  |



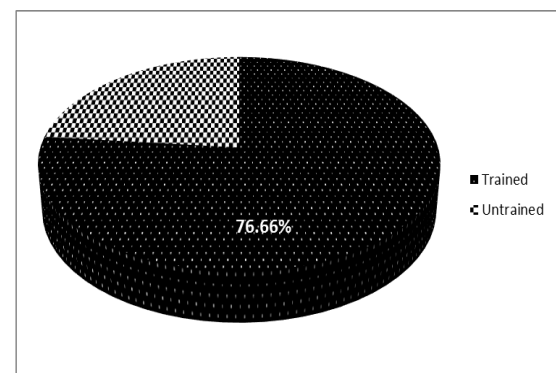
**Fig 1. Gender wise distribution of Pharmacists (n=10)**



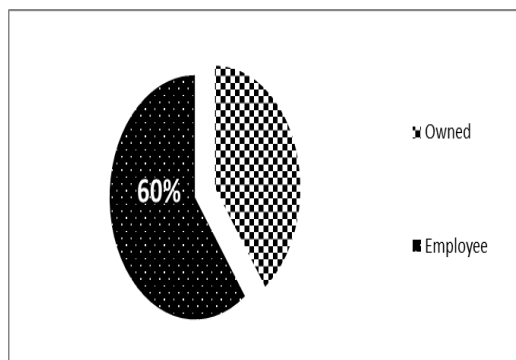
**Fig 4. Qualification of Participants (n=10)**



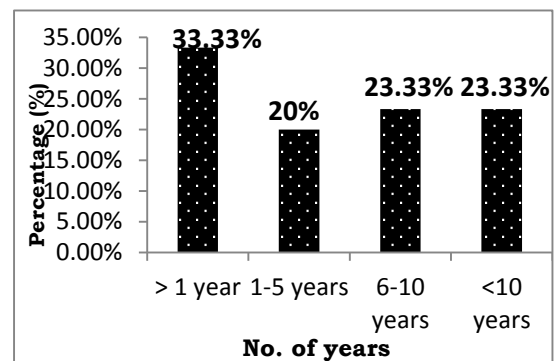
**Fig 2. Age wise distribution of Community pharmacists (n=10)**



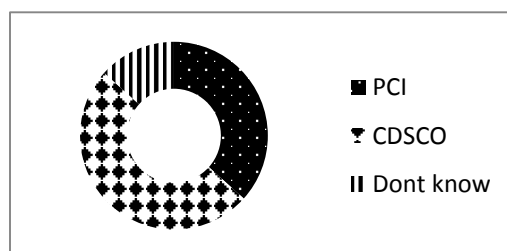
**Fig 5. Training status of Pharmacists (n=10)**



**Fig 3. Pharmacy ownership of Community pharmacists (n=30)**



**Fig 6. Experience of Pharmacists (n=10)**



**Fig 7: Organisation responsible for ADR monitoring (n=10)**

**Tab 2. Knowledge of Community Pharmacists in Pharmacovigilance**

| Sl no | Questions   | Yes        | No         |
|-------|---|------------|------------|
| 1     | Can you define the term pharmacovigilance?  | 25(83.33%) | 5(16.66%)  |
| 2     | Can you define ADR?   | 29(96.66%) | 1(3.33%)   |
| 3     | Are you aware of National Pharmacovigilance Programme in India?                     | 23(76.66%) | 7(23.33%)  |
| 4     | Do you know when to report and how to report an ADR?                                | 18(60%)    | 12(40%)    |
| 5     | Do you know where to obtain ADR form from?  | 18(60%)    | 12(40%)    |
| 6     | Did you ever report an ADR?   | 2(6.66%)   | 28(93.33%) |
| 7     | Do you know the resources to be used when needed?                                   | 19(63.33%) | 11(36.66%) |
| 8     | Do you know the reportability criteria for a valid report?                          | 16(53.33%) | 14(46.66%) |
| 9     | Do you know the nearest pharmacovigilance centre located nearest to your workplace? | 17(56.66%) | 13(43.33%) |
| 10    | Does your workplace provide information regarding the procedures of reporting ADRs? | 18(60%)    | 12(40%)    |
| 11    | Do you think reporting ADR is a pharmacist's duty?                                  | 27(90%)    | 3(10%)     |
| 12    | Do you feel that you are adequately trained in ADR reporting?                       | 21(70%)    | 9(10%)     |
| 13    | Do you believe reporting ADR will improve patient safety?                           | 29(96.66%) | 1(3.33%)   |
| 14    | Is ADR reporting form is available at your workplace?                               | 15(50%)    | 15(50%)    |
| 15    | Do you believe ADR reporting should be mandatory for practicing pharmacists?        | 30(100%)   | 0          |
| 16    | Do you believe that all drugs available are safe?                                   | 4(13.33%)  | 26(86.66%) |

## DISCUSSION

Pharmacovigilance deals with detection, assessment, understanding and prevention of adverse effects of drugs or any other drug related problems. The decisive aim of Pharmacovigilance is to assure patient safety and rational use of medicines once a new medicine is released for reported despite uncertainty about a causal relationship. Even in countries like the United Kingdom (UK), where pharmacovigilance programs are well established, a high level of under-reporting is documented.<sup>22</sup>

There are 50 community pharmacists were offered to participate in the study, around 30 pharmacists completely filled questionnaire and were selected for analysis. The response rate was around 60%. Most of the pharmacists completed and returned the questionnaire. However only 50% properly filled and could be analyzed. Out of the total respondents 17(56.66%) was male and 13 (43.33%) was female. Out of the total participants 25(83.33%) had fair knowledge, 5(16.66%) had poor knowledge about pharmacovigilance. Out of the total respondents, 29(96.6%) had fair knowledge and 1(3.33%) had poor knowledge about ADR. 23 (66.66%) of participants were aware of National Pharmacovigilance Programme in India, 18 (60%) of participants knew when to report and how to report an ADR. 27(90%) of participants stated that ADR reporting is an important duty of a pharmacist. 30(100%) of pharmacists believed that the ADR reporting should be mandatory for practicing pharmacy.

Among the participants 15(50%) of pharmacists had and 50% of pharmacists had no facility for ADR reporting. 29 (96.66%) felt that ADR reporting will ultimately benefit the patient. 26(86.66%) of participants believed that all drugs were safe.

Inman<sup>23</sup> has told some of the reasons for underreporting of ADRs. These reasons include lack of financial incentives; fear that the reporter might face legal proceedings, complacency, i.e. holding the impression that the drug was introduced in the market accompanied by disclosure of all ADRs, diffidence, i.e. holding the belief that reporting should be backed by an assurance that an ADR is associated with that particular drug, showing indifference towards reporting assuming that a single ADR is not serious enough to be reported, being ignorant about the seriousness of ADR reporting and coming up with excuses for not reporting due to lethargy and laziness. Some of these reasons have also been observed in other studies which was conducted in Ahmadabad,<sup>24</sup> Mysore,<sup>25</sup> Mumbai<sup>16</sup> and Muzaffar Nagar.<sup>24</sup>

It was found in this current study that 18 pharmacists (60%) know how to report ADRs. When similar study conducted in China<sup>26</sup> it was reported that majority of the participants were having poor knowledge on how to report ADRs. Unlike findings of other studies conducted at UK<sup>27</sup> and Australia<sup>28</sup> where the participants showed adequate knowledge on how to report ADRs. These findings advocate the need for awareness programs for the pharmacists about ADRs reporting.



The awareness program should focus on the filling method of the ADRs form and the details of the reporting procedure.

Underreporting of ADRs is a common event in spontaneous post-marketing surveillance programs. Underreporting may delay signal detection and cause underestimation of the size of a problem. To correct underreporting scenario is difficult so that the extent is unknown and variable. In various studies barriers to improve monitoring and reporting of ADRs have been analyzed and can be summarized as: fear of personal and organizational liability, lack of resources for surveillance and reporting, labor-intensive, complex, and time-consuming reporting processes, ambiguity in causal relationship between drug and adverse event, minimal feedback provided to reporters no incentives, rewards, or motivation to report, lack of knowledge and confidence to distinguish between significant ADRs and minor ones, surveillance and reporting functions without guidance.<sup>29-31</sup>

Several methods can be suggested to improve ADR reporting. These included creating awareness about ADR monitoring among health care professionals and consumers, through appropriate educational interventions [e.g. seminars, CMEs], make ADR reporting forms easily available and simplifying the process of ADR reporting. Feedback from ADR monitoring centers about the causality and severity of ADRs reported by physicians would also encourage them to continue reporting. Improvement in ADR reporting in

future, apart from reducing the incidence of ADRs in clinical practice, will also lead to a reduction in health care costs. Another way to increase the reporting of ADRs is through the promotion of patient self reporting. The benefits of this idea have been confirmed in different studies.

In this study post graduate pharmacists responded more significant than the than pharmacists with other qualification like B.Pharm and D.Pharm. Similar kind of response was found in another study conducted in Tamil nadu among pharmacists.<sup>32</sup>

## CONCLUSION

Indian pharmacists have a comparatively better attitude towards ADR reporting. However, they have a limited knowledge and practice about ADR reporting and pharmacovigilance. Even though, pharmacists felt ADR monitoring to be essential and were ready to report, they are not at all aware about the NPP. They have poor knowledge about the location of the nearest ADR reporting centers. Lack of adequate number of ADR reporting centres was also an important finding. Awareness programmes about the importance of ADR reporting for health care providers are adequate to minimize drug related morbidity. This study's findings help to evaluate the knowledge, perception and practice of pharmacovigilance among community pharmacists.

## REFERENCE

1. Berlin Declaration on Pharmacovigilance. ISDB EU workshop. International Society of

- Drug Bulletins; 31 October/1 November 2003. 2005; 5
- World Health Organization. International drug monitoring: The role of national centres. Report of a WHO meeting. World Health Organ Tech Rep Ser 1972; 498: 1-25.
  - World Health Organization. Safety of Medicines. A guide to detecting and reporting adverse drug reactions. Why health professionals need to take action. Geneva World Health Organization. 2002.
  - [www.fda.gov/consumer/updates/drugterms041108.html](http://www.fda.gov/consumer/updates/drugterms041108.html). Accessed on Dec. 2011
  - Vallano A, Cereza G, Pedròs C, Agustí A, Danés I, Aguilera C, Arnau JM. Obstacles and solutions for spontaneous reporting of adverse drug reactions in the hospital. *Br J Clin Pharmacol*. 2005; 60(6): 653-658.
  - <http://www.Pharmacovigilance.co.in>. Accessed Dec. 2011.
  - Amrita P, Kharbanda B. Knowledge, attitude and skills of nurses of Delhi towards adverse drug reaction reporting. *Indian J Pharm Pract*. 2012; 5: 45-51.
  - Ahmad A, Parimalakrishnan S, Mohanta GP, Manna PK, Manavalan R. Incidence of adverse drug reactions with commonly prescribed drugs in tertiary care teaching hospital in India. *Int J Pharm Sci*. 2011; 3: 79-83.
  - Ramesh M, Pandit J, Parthasarathi G. Adverse drug reactions in a south Indian hospital—Their severity and cost involved. *Pharmacoepidemiol Drug Saf*. 2003; 12(8): 687-92.
  - Malhotra S, Karan RS, Pandhi P, Jain S. Drug related medical emergencies in the elderly: Role of adverse drug reactions and non-compliance. *Postgrad Med J*. 2001; 77(913): 703-7.
  - Beijer HJ, de Blaey CJ. Hospitalisations caused by adverse drug reactions (ADR): A meta-analysis of observational studies. *Pharm World Sci*. 2002; 24(2): 46-54.
  - Pirmohamed M, James S, Meakin S, Green C, Scott AK, et al. Adverse drug reactions as cause of admission to hospital: Prospective analysis of 18 820 patients. *BMJ*. 2004; 329(7456): 15-9.
  - Onder G, Pedone C, Landi F, et al. Adverse drug reactions as cause of hospital admissions: Results from the Italian group of pharmacoepidemiology in the Elderly (GIFA). *J Am Geriatr Soc*. 2002; 50(12): 1962-8.
  - Nelson KM, Talbert RL. Drug-related hospital admissions. *Pharmacotherapy*. 1996; 16(4): 701-7.
  - Lazarou J, Pomeranz BH, Corey PN. Incidence of adverse drug reactions in hospitalized patients: A meta-analysis of prospective studies. *JAMA*. 1998; 279(15): 1200-5.
  - Bates DW. Drugs and adverse drug reactions: How worried should we be. *JAMA*. 1998; 279(15): 1216-7.
  - Bond CA, Raehl CL. Adverse drug reactions in United States hospitals. *Pharmacotherapy*. 2006; 26(5): 601-8.
  - Patel KJ, Kedia MS, Bajpai D, Mehta SS, Kshirsagar NA, Gogtay NJ. Evaluation of the prevalence and economic burden of adverse drug reactions presenting to the medical emergency department of a tertiary referral centre: A prospective study. *BMC Clin Pharmacol* 2007; 7: 8.
  - The Learning Centre. Continuing pharmacy education; fall 1999. Canada: University of British Columbia; 1999. Pharmacists are number one.

- 20 Bäckström M, Mjörndal T, Dahlqvist R, Nordkvist-Olsson T. Attitudes of reporting adverse drug reactions in Northern Sweden. *Eur J Clin Pharmacol.* 2000; 56(9-10): 729-732.
- 21 Amrita P, Roomi M.T, Scenario of Pharmacovigilance and ADR Reporting among Pharmacists in Delhi. *Indian J Pharm Pract.* 2011; 4(4): 29-38.
- 22 Pharmacovigilance programme of India 2010. CDSCO, Ministry of Health and Family Welfare, Government of India. 2010. <http://cdsco.nic.in/pharmacovigilance.html>. Last accessed on March 21 2012.
- 23 Belton KJ, Lewis SC, Payne S, Rawlins MD, Wood SM. Attitudinal survey of adverse drug reaction reporting by medical practitioners in the United Kingdom. *Br J Clin Pharmacol.* 1995; 39(3): 223-6.
- 24 Inman W. Attitudes to adverse drug reaction reporting. *Br J Clin Pharmacol.* 1996; 41(5): 434.
- 25 Desai CK, Iyer G, Panchal J, Shah S, Dikshit RK. An evaluation of knowledge, attitude, and practice of adverse drug reaction reporting among prescribers at a tertiary care hospital. *Perspect Clin Res.* 2011; 2(4): 129- 36.
- 26 Gupta P, Udupa A. Adverse Drug Reaction Reporting and Pharmacovigilance: Knowledge, Attitudes and Perceptions amongst Resident Doctors. *J Pharm Sci Res.* 2011; 3(2): 1064-1069.
- 27 Li Q, Zhang SM, Chen HT, Fang SP, Yu X, Liu D, Zeng FD. Awareness and attitudes of healthcare professionals in Wuhan, China to the reporting of adverse drug reactions. *Chin Med J (Engl).* 2004; 117(6): 856-861.
- 28 Evans SM, Berry JG, Smith BJ, Esterman A, Selim P, OShaughnessy J, Dewit M. Attitudes and barriers to incident reporting: a collaborative hospital study. *Qual Saf Health Care.* 2006; 15(1): 39-43.
- 29 Green CF, Mottram DR, Rowe PH, Pirmohamed M. Attitudes and knowledge of hospital pharmacists to adverse drug reaction reporting. *Br J Clin Pharmacol.* 2001; 51(1): 81-86.
- 30 Eland IA, Belton KJ, van Grootheest AC, Meiners AP, Rawlins MD, Stricker BH. Attitudinal survey of voluntary reporting of adverse drug reactions. *Br J Clin Pharmacol.* 1999; 48(4): 623-627.
- 31 Gavaza P, Brown CM, Lawson KA, Rascati KL, Wilson JP, Steinhardt M. Influence of attitudes on pharmacists' intention to report serious adverse drug events to the Food and Drug Administration. *Br J Clin Pharmacol.* 2011; 72(1): 143-152.
- 32 Akram A, Isha P, Rajesh B, Mohanta G.P, Manna P.K. An evaluation of knowledge, attitude and practice of Indian pharmacists towards adverse drug reaction reporting: A pilot study. *Perspect Clin Res.* 2013; 4(4): 204-210.

#### Cited this article as:

Amy Elizabeth Jaibu, Venkateswaramurthy N, Sambathkumar R. The Knowledge, perceptions and practice of pharmacovigilance among community pharmacists in Kumarapalayam Tamil Nadu. *Int J Adv Pharm Gen Res.* 2015; 3 (2): 1-11.