



CODEN [USA]: IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**Available online at: <http://www.iajps.com>**Research Article****COMMUNITY PHARMACISTS' KNOWLEDGE, ATTITUDES,
AND PRACTICES REGARDING MEDICATION SAFETY FOR
PREGNANT WOMEN****S.K. Godasu¹, Kyatham Hemanth², D. Varun³, Jaffer Sadik Mohammed⁴, T.Naga Aparna⁵**¹ Assistant Professor, Sri Indu Institute of Pharmacy, Department of Natural products, Sheriguda, Hyderabad^{3,4,5} Associate Professor, Sri Indu Institute of Pharmacy, Department of Pharmaceutics, Sheriguda, Hyderabad² Associate Professor, Sri Indu Institute of Pharmacy, Department of Pharmacognosy, Sheriguda, Hyderabad**Abstract:**

The aim of the study is to assess the community pharmacist's knowledge, attitude and practice towards medication safety during pregnancy. Community Pharmacy in and around Global Hospital, Hyderabad, Telangana. The study received clearance from Sree dattha institute of Pharmacy ethical committee after submitting the proposal with study title, duration, inclusion and exclusion criteria, objectives and a brief methodology about work to be carried. The KAP (Knowledge, Attitude & Practices) study was conducted among community pharmacist towards medication safety in pregnant women. A total of 260 community pharmacists agreed to participate in the study. A total of 260 community pharmacists were enrolled in the study, in which 157 male pharmacists and 103 female pharmacist. The cross sectional study concluded that more number of study subjects were male between 20-29 years with diploma in pharmacy education. The study found that community pharmacists are having a poor knowledge, positive attitude and poor practice about safe medication use in pregnant women. Poor levels of knowledge directly pay a path to poor practice among community pharmacists. This can be fulfilled by providing focused educational intervention to CPs, based on the lacunas observed in the study. As women take different medications during pregnancy, both prescription and over-the-counter drugs, including complementary and traditional medications, it is important to understand their knowledge about the use of such products in pregnancy. The absence of obligatory continuing pharmacy education for pharmacists is expected to have negatively affected the level of medication knowledge and consequently the pharmaceutical care services delivered in community and hospital pharmacies.

Keywords: Assessment, Community Pharmacist, Medication Safety, Pregnant Women

Corresponding author:**G.Suresh Kumar,**

Department of Natural products,

Sri indu institute of pharmacy Sheriguda, Ibrahimpatnam,

Ranga Reddy, 501510 Telangana,

Mail Id: suresh.niper12@gmail.com

QR code



Please cite this article in press G.Suresh Kumar *et al.*, **Community Pharmacists' Knowledge, Attitudes, And Practices Regarding Medication Safety For Pregnant Women.**, *Indo Am. J. P. Sci.*, 2019; 06(01).

INTRODUCTION:

Ethical reasons preclude inclusion of pregnant women in the vast majority of premarketing clinical trials.¹ As a consequence, most medications are placed onto the market without a directly established safety profile in human pregnancy.² So far, few medications have been shown to be major teratogens, yet the risk of minor teratogenicity or of more subtle effects on fetal development still have to be determined for most of them.³ Despite this, medication use during pregnancy is common. Mitchell *et al*⁴ found that use of medications, either prescribed or purchased over the counter (OTC), occurred in 88.8% of all pregnancies in the USA. In Europe, prevalence estimates of prescribed medication use vary considerably across countries, ranging from 26% in Serbia to 93% in France.⁵⁻¹⁰ Such intercountry variability could, at least in part, be caused by differences in study design, methodology and exposure ascertainment across studies.¹¹ Uniform collection of drug utilisation data during pregnancy between countries may overcome such drawbacks, allowing for intercountry comparability of prevalence estimates and shedding light on differences in prenatal care in the various countries.

Prior studies have addressed research priorities in this area such as presenting results on an individual drug level according to the indication of use, quantifying the extent of OTC and prescribed medication use during pregnancy, and taking into account intercountry comparability.⁴ Only a few studies have individually examined maternal factors associated with specific types of medication use during pregnancy.¹¹⁻¹⁴

Community pharmacists have an important role in selecting appropriate medicines and encouraging good health behaviors. Enhancement of pharmacists' knowledge about treatment in pregnancy is needed and will enhance pharmacists' role in improving maternal health. There is an urgent need to stress the importance of continuous pharmacy education tailored to meet the requirements of specialized areas. Pharmacist, who treat pregnant women, should be aware of medications used during pregnancy and should be familiar with risks and benefits of the medication. There was a lack evidence in relation to assessment of community pharmacist's knowledge, attitude and practice towards medication safety during pregnancy in Indian settings. The aim of the study is to assess the community pharmacist's knowledge, attitude and practice towards medication safety during pregnancy

METHODOLOGY:**Site of study**

Community Pharmacy in and around Global Hospital, Hyderabad, Telangana

Type of study

Prospective cross sectional study

Study design

1. Design questionnaire.
2. Interview the patients.
3. Collect patient data.
4. Evaluate KAP questionnaires for community pharmacist.

Study population

Total sample size was found to be 170

Study period

The study is carrying out for a period of 6 months.

Inclusion criteria

- All retail community pharmacies
- Participants of age above 20 years and below 60 years
- Participants who give consent form.
- Both gender

Exclusion criteria

- Community pharmacist with less than six months experience
- Community Pharmacist other than Pharmacy professionals
- Participants who were not willing to or unable to give consent to participate in study

Obtained consent from the ethical committee:

The study received clearance from Sree dattha institute of Pharmacy Ethical committee after submitting the proposal with study title, duration, inclusion and exclusion criteria, objectives and a brief methodology about the work. The same had been included in the ANNEXURE for the reference.

Designed data entry form:

A separate questionnaire was prepared to record patient details. The same had been included in the ANNEXURE for the reference.

Designed questionnaire form:

A separate questionnaire form for evaluating KAP towards antenatal care was designed.

The same had been included in the ANNEXURE for the reference.

Study procedure:

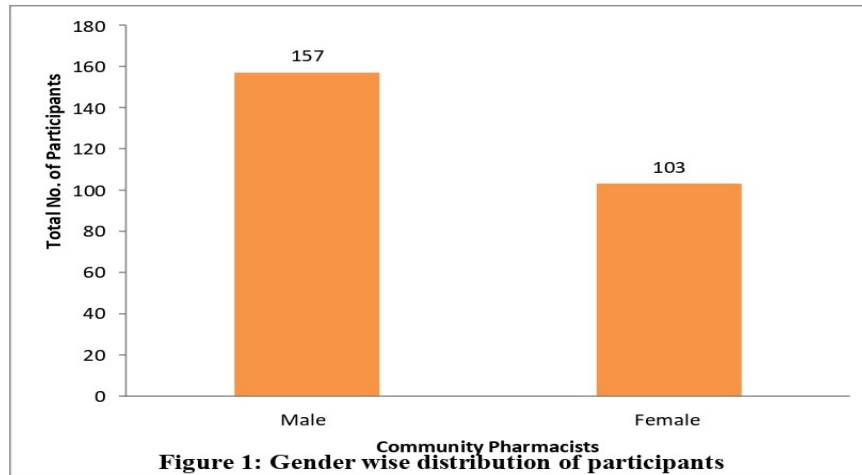
- The study received clearance from Sree dattha institute of Pharmacy ethical committee after submitting the proposal with study title, duration, inclusion and exclusion criteria, objectives and a brief methodology about work to be carried.
- The study was carried out in community pharmacies in and around Global Hospital, by using systematic random sampling technique. Based on inclusion and exclusion criteria, community pharmacist were studied for a period of 6 months.
- Rao soft online sample size calculator was used to calculate sample size. The sample size was found to be 170 and it was calculated by using estimated population 300, 95% confidence interval and 5% margin of error. A pilot study was conducted with 20 pharmacists and amendments were made wherever necessary. A total of 170 subjects were enrolled and screened in the study.
- A due permission was sought from all community pharmacy owners before initiation of the study. The questionnaire was developed with reference to relevant literature reviews and expert consultation to match the scope of the study.
- Community Pharmacists were enrolled and subjected for a face to face interview by using pre-validated questionnaire about medication safety during pregnancy. The questionnaire comprises of two parts to gather information

related to socio-demographic characteristics and KAP towards medication safety during pregnancy among community pharmacists.

- The socio-demographic characteristics included are age, gender, type of working pharmacy, location of working pharmacy, qualification and number of prescriptions dispensed per day. Data was collected using a structured questionnaire consisting of 23 questions subdivided into 10 related to knowledge and 8 for attitude and 5 for practice.
- Data regarding the knowledge about food supplements, vitamin supplements, FDA drug risk category during pregnancy and teratogen & its effects were collected. Three responsescales were used, in which the pregnant women were requested to give 'correct', 'incorrect', or 'don't know' responses to all questions. The level of knowledge was assessed on the basis of the correct response to all questions.
- The section regarding the attitude of the pregnant women toward medication safety among community pharmacists comprised 8 statements with the three-point Likert scale, with 'agree', 'neutral', or 'disagree' responses for each statement. These statements focused on the confidence during dispensing, safest drug in pregnant women etc.
- In addition, components of dispensing drug practices during pregnancy by community pharmacists were measured in this study, which included advice pregnant women, regard non prescription drugs, prescription drugs, herbal drugs and updates on safest medication during pregnancy.
- Once after all necessary data were obtained, data were checked for completeness, sorted, and categorized accordingly. The gathered data were characterized into different groups, analyzed and presented in percentage.

RESULTS:**Table 1: Gender wise distribution of participants**

Gender	Total no of participants n=260(%)
Male	157(60%)
Female	103(40%)

**Table 2: Age wise distribution of participants**

Age group in years	Total no of participants n=260(%)
20-29	115(44%)
30-39	71(27%)
40-49	44(21%)
50-59	20(8%)

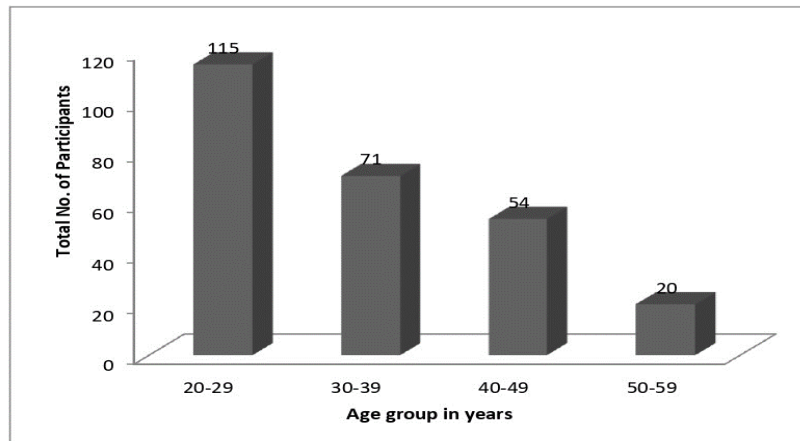
**Figure 2: Age wise distribution of participants**

Table 3: Education wise distribution

Level of Education	Total no of participants n=260(%)
Diploma in pharmacy	127(49%)
B.Pharmacy	99(38%)
M.Pharmacy	34(13%)

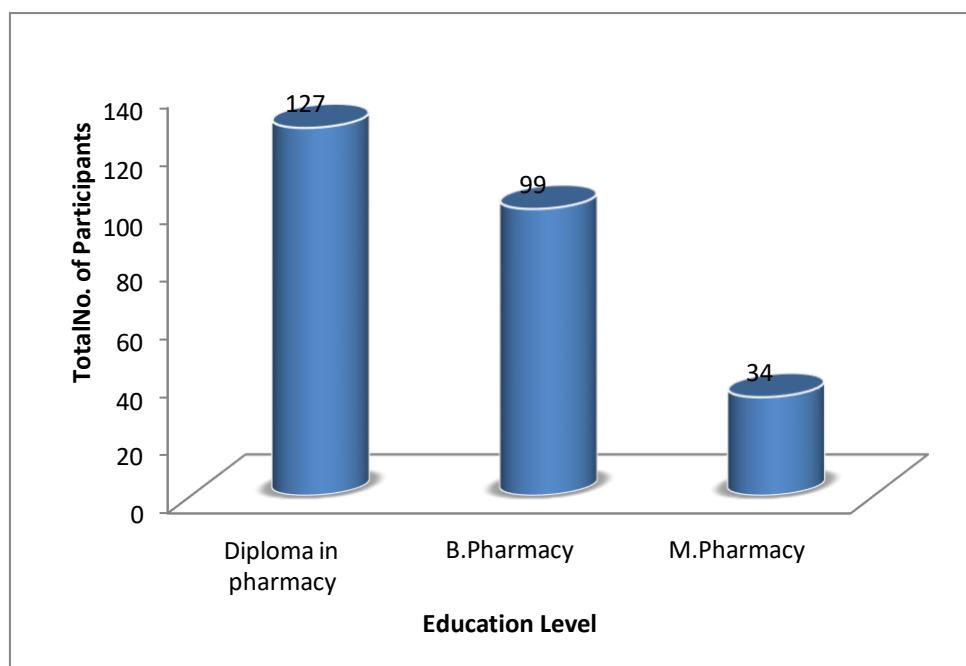
**Figure 3: Education wise distribution**

Table 4: Experience wise distribution

Years of professional experience	Total no of participants n=260(%)
<5 years	98(38%)
5-9	106(41%)
≥10 years	56(21%)

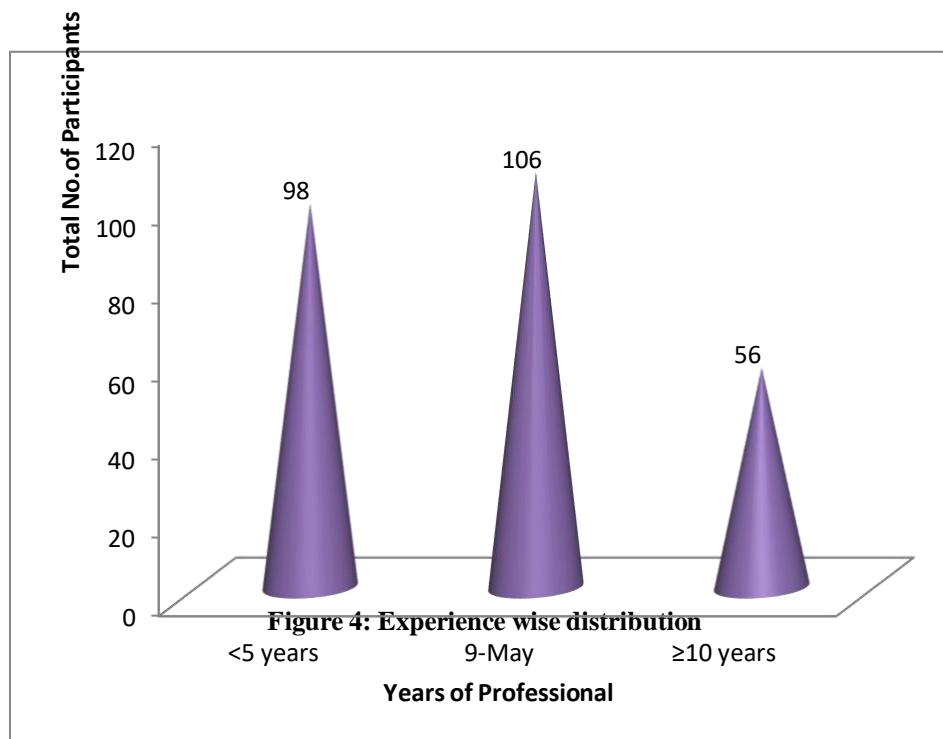


Table 5: Institution wise distribution

Graduated at	Total no of participants n=260(%)
Governmental	93(36%)
Private	167(64%)

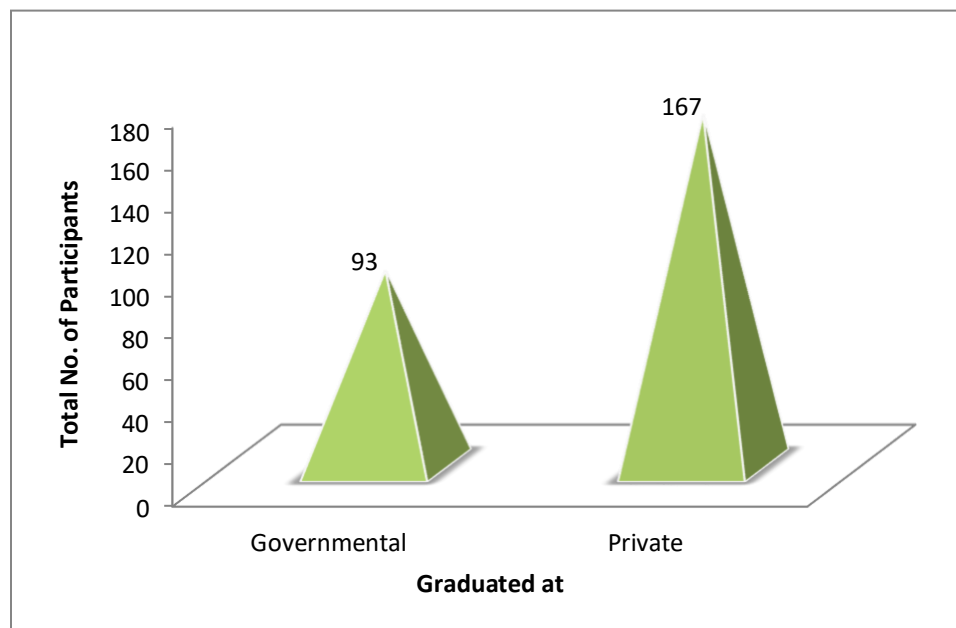
**Figure 5: Institution wise distribution**

Table 6: Prescription wise distribution

Average number of prescriptions dispensed per day	Total no of participants n=260(%)
≤ 50	135(52%)
51-100	78(30%)
≥ 101	47(18%)

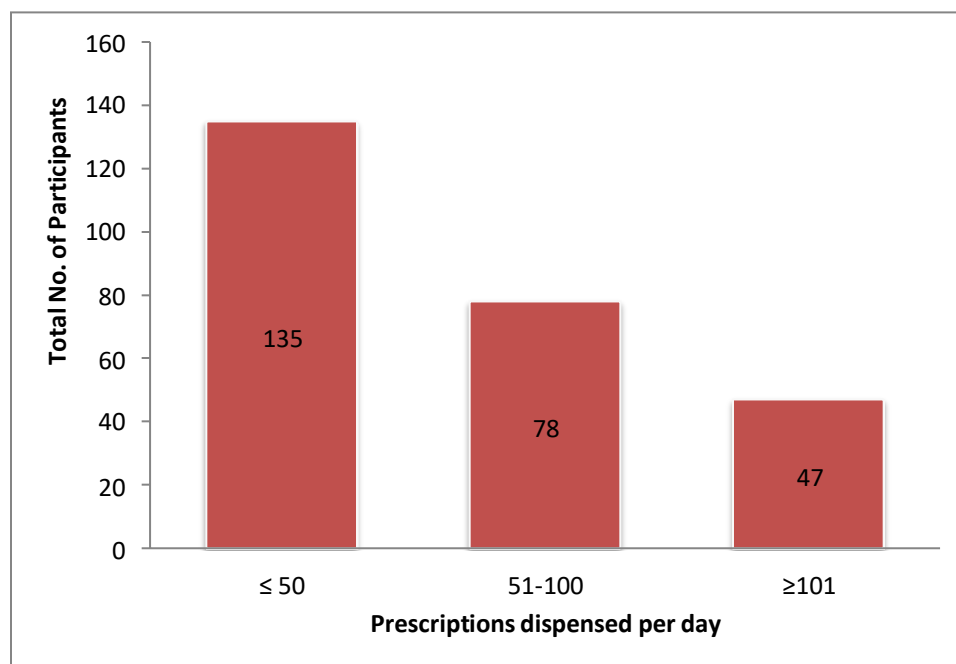
**Figure 6: Prescription wise distribution**

Table 7: Hours wise distribution

Hours per week	Total no of participantsn= 260(%)
≤40	45(17%)
41-49	129(50%)
≥50	86(33%)

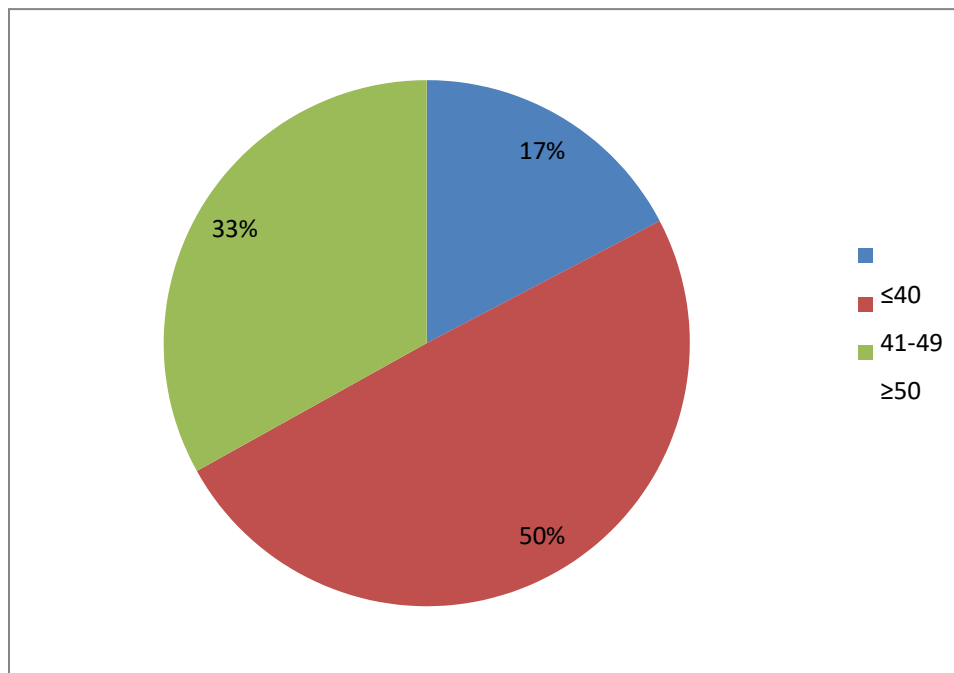
**Figure 7: Hours wise distribution**

Table 8: Major concerns expressed by pharmacists while dispensing medication to pregnant women

Concerns	Total no of participants n=260(%)
Unknown stage of pregnancy	107(41%)
Risk-benefit ratios not clear	63(20%)
Only animal studies, data not reliable	41(16%)
Lack of clinical trial data	24(9%)
Most data from observational studies	35(13%)

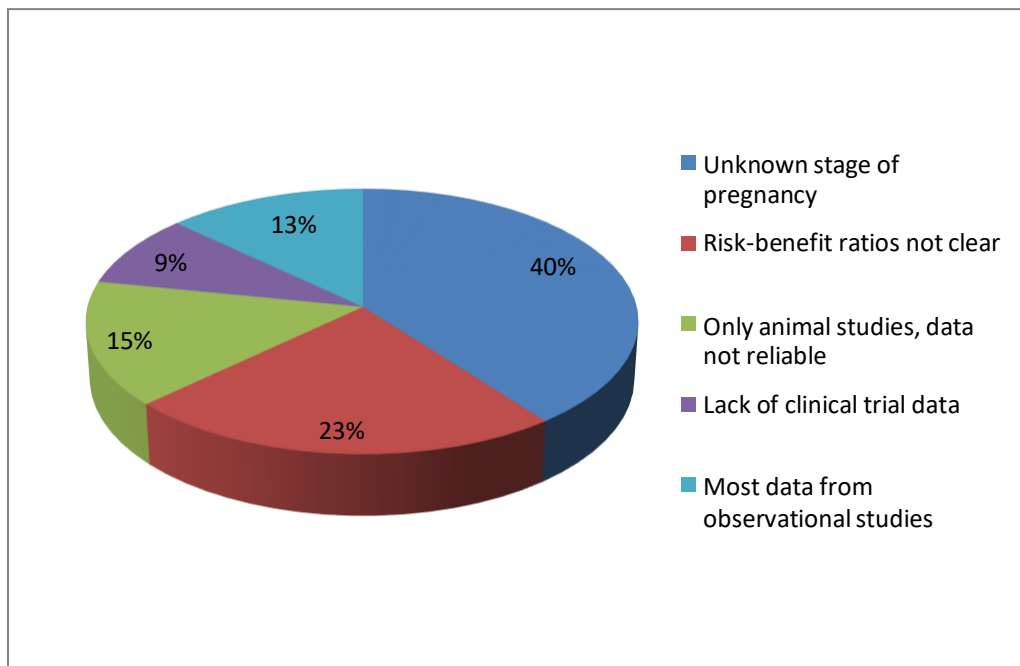
**Figure 8: Major concerns expressed by pharmacists while dispensing medication to pregnant women**

Table 9: Pharmacist's response to most commonly dispensed medication to pregnantwomen

Which of these medications do you dispense most frequently?	Total no of participants n=260(%)
Analgesics	115(44%)
Antimicrobials	60(23%)
Antacids	101(39%)
Antidepressants	4(1%)
Antidiabetics	37(14%)
Antiemetics	212(82%)
Antihypertensive	56(21%)
Antiepileptics	9(3%)
Antihistamines	12(5%)
Antipsychotics	3(1%)
vitamins	251(96%)

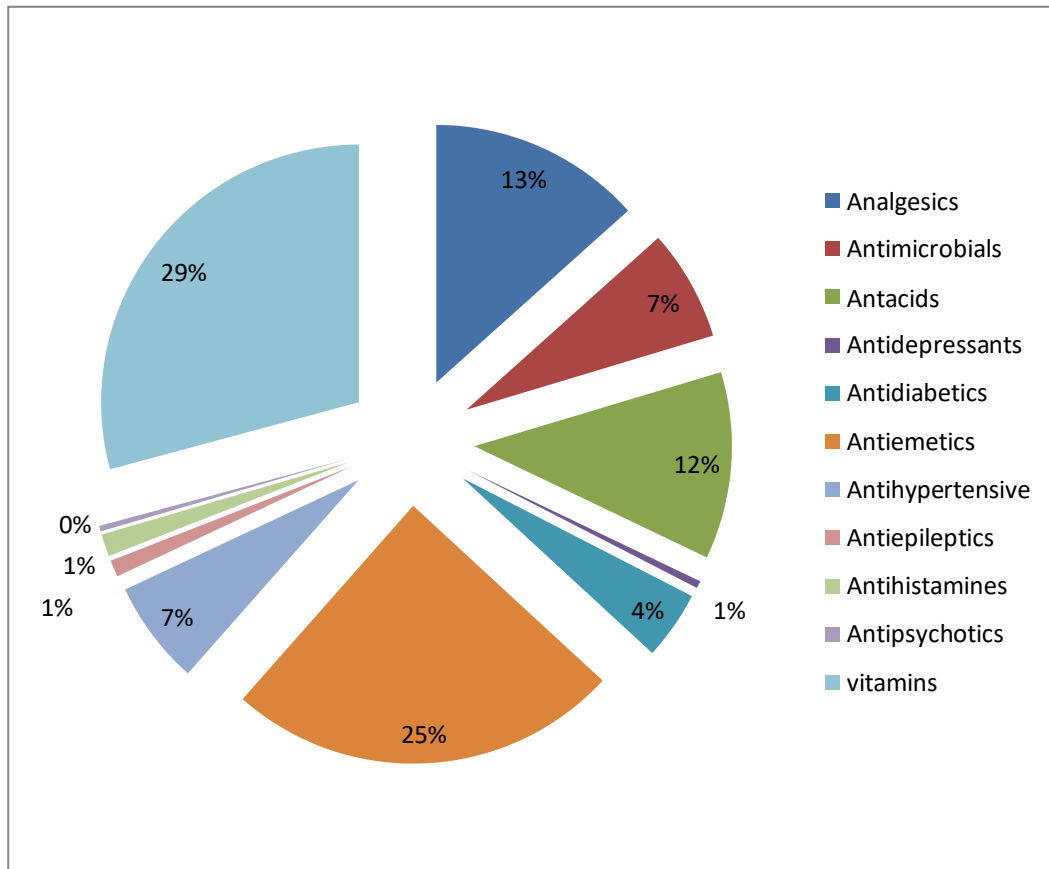


Figure 9: Pharmacist's response to most commonly dispensed medication to pregnantwomen

Table 10: Knowledge of community pharmacist towards medication safety during pregnancy

S. No	Knowledge towards medication safety	Total no of participants n=260(%)		
		Yes	No	Don't Know
1	OTC medicines might be harmful during pregnancy	141(54%)	40(15%)	79(30%)
2	Topically applied medicines might be harmful during pregnancy	39(15%)	159(61%)	62(24%)
3	Contents of herbal medicine might be harmful during pregnancy.	67(26%)	36(14%)	157(54%)
4	FDA drug risk category in pregnant women are category A, B, C, D and X	167(64%)	18(7%)	75(29%)
5	A drug which is classified under FDA pregnancy category "B" is always safer than pregnancy category "C"	76(29%)	48(18%)	136(52%)
6	The drugs comes under D and X category are proven teratogens in pregnant women	63(24%)	56(22%)	141(54%)
7	Contents of food supplements might be harmful during pregnancy	81(31%)	58(22%)	121(47%)
8	Daily iron and folic acid supplementation is necessary during pregnancy	194(75%)	24(9%)	42(16%)
9	Daily calcium supplementation is necessary during pregnancy	191(73%)	18(7%)	51(20%)
10	Are you aware about teratogen and its effects	87(33%)	81(31%)	92(35%)

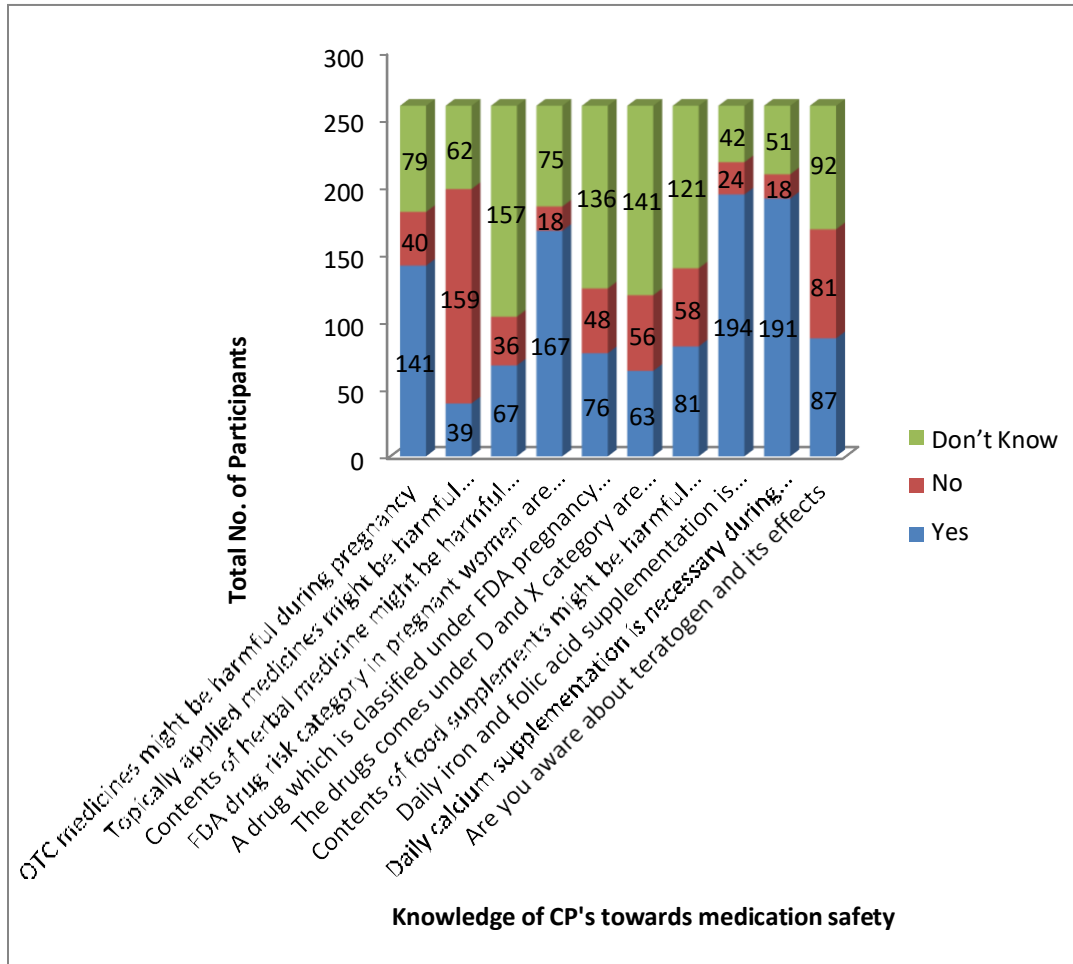


Figure 10: Knowledge of community pharmacist towards medication safety during pregnancy

Table 11: Knowledge of community pharmacist towards medication safety during pregnancy

S. No	Knowledge about safe use of drugs in pregnancy	Total no of participants n=260(%)		
		Yes	No	Don't Know
Prescription drugs				
1	Valproic acid	39(39%)	142(55%)	79(30%)
2	Tetracycline	109(42%)	67(26%)	84(32%)
3	Statins	124(48%)	60(23%)	76(29%)
4	Phenobarbitone	42(16%)	137(53%)	81(31%)
5	OCP	35(14%)	73(28%)	152(58%)
6	Lamotrigine	63(24%)	35(14%)	162(62%)
7	Ciprofloxacin	127(49%)	78(30%)	55(21%)
8	Budesonide inhaler	78(30%)	34(13%)	148(57%)
9	Amoxicillin	164(63%)	40(15%)	56(22%)
Non-prescription drugs				
1	Ibuprofen	176(68%)	33(13%)	51(19%)
2	Dextromethorphan hydro bromide	78(30%)	55(21%)	127(49%)
3	Bismuth subsalicylate	69(26%)	55(21%)	136(52%)
4	Acetaminophen	189(73%)	23(9%)	48(18%)
5	Aspirin	152(58%)	41(16%)	67(26%)
6	Supplement Vitamin A	142(55%)	38(14%)	80(31%)
Herbal medicine				
1	Senna	142(55%)	43(16%)	75(29%)
2	Ginseng	51(20%)	37(14%)	172(66%)
3	Ipecac	161(62%)	45(17%)	54(21%)
4	Ephedra	52(20%)	22(8%)	186(72%)

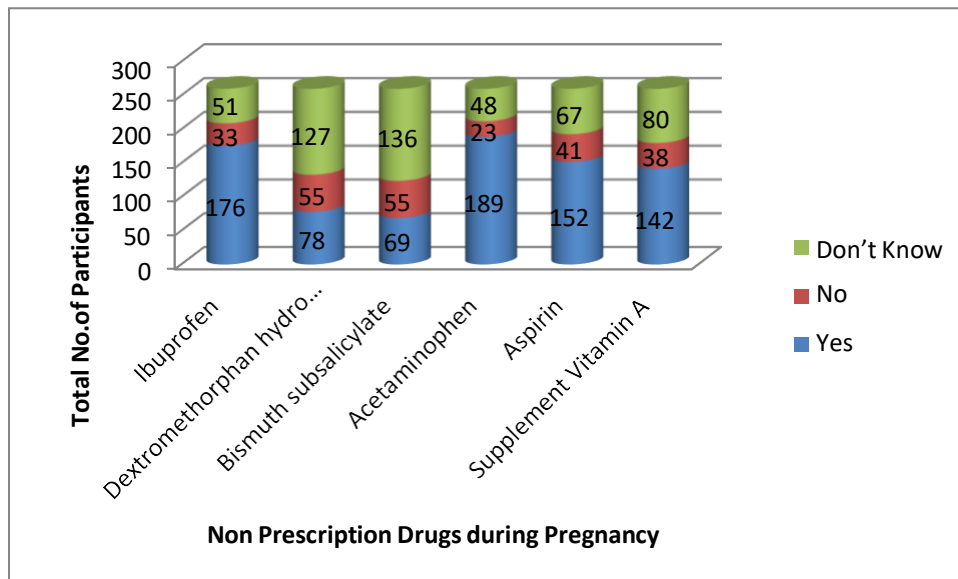
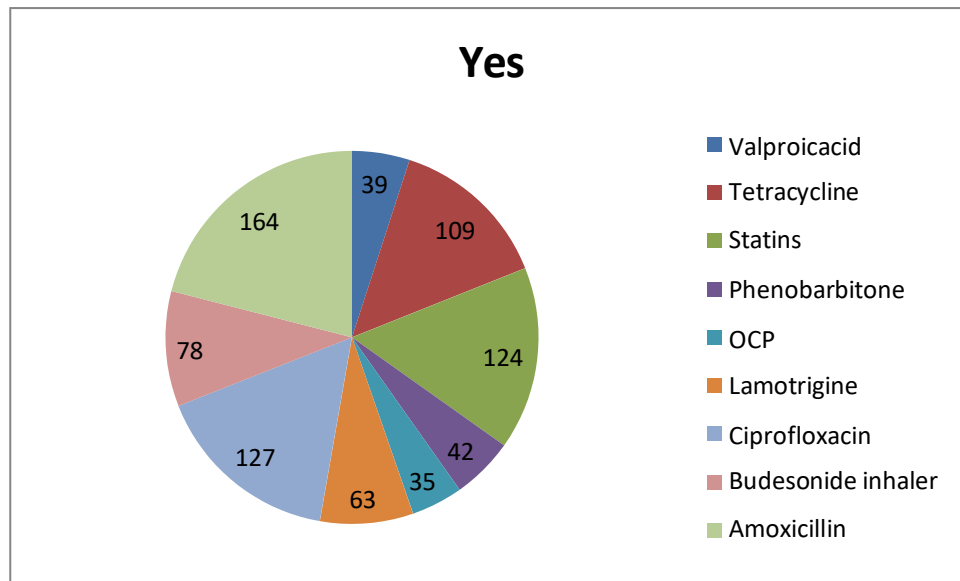


Figure 11: Knowledge of community pharmacist towards medication safety during pregnancy

Table 12: Attitude of community pharmacist towards medication safety during pregnancy

S.no	Attitude toward medication safety	Total no of participants n=260(%)		
		Agree	Disagree	Neutral
1	You are more confident about dispensing drugs during pregnancy	92(35%)	64(25%)	104(40%)
2	An extra caution is required while dispensing drugs during pregnancy	129(50%)	46(18%)	85(32%)
3	All OTC drugs are not safe in pregnant women	115(44%)	91(35%)	54(21%)
4	Only some drugs are proven teratogen	109(42%)	62(24%)	89(34%)
5	Only some of the antibiotics are contra indicated in pregnant women	132(51%)	15(6%)	79(30%)
6	Diuretics and Beta blockers are contra indicated in pregnant women for the management of hypertension	74(28%)	35(14%)	151(58%)
7	Most of the presently available drugs are safe during pregnancy	89(34%)	30(12%)	141(54%)
8	I take a chance and dispense safest drugs in pregnant women	99(38%)	76(29%)	85(33%)

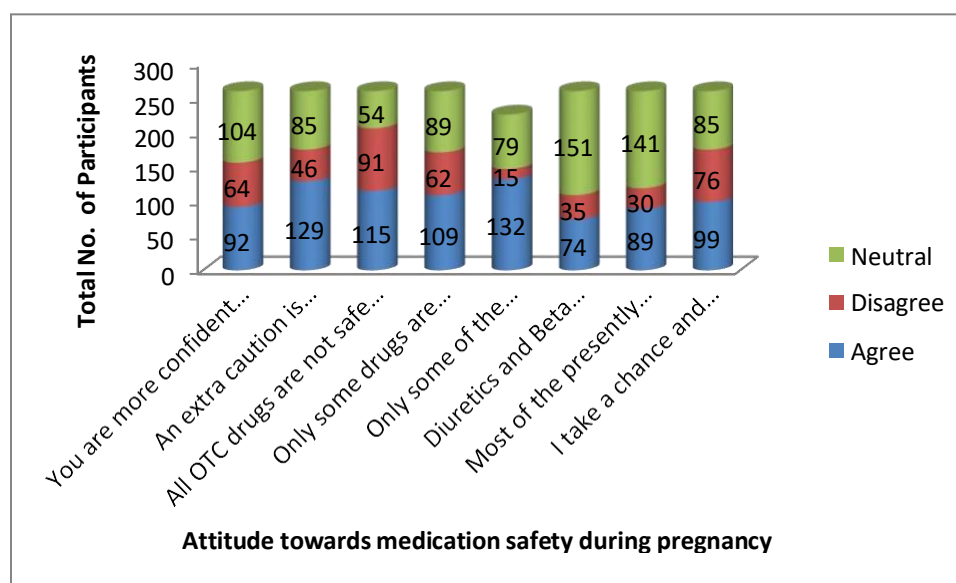
**Figure 12: Attitude of community pharmacist towards medication safety during pregnancy**

Table 13: Practice of community pharmacists on medication safety during pregnancy

S.No	Practice of community pharmacists	Total no of participants n=260(%)	
		Yes	No
1	Do you advice pregnant women about non-prescription drugs that not to be taken during pregnancy period	152(58%)	108(42%)
2	Do you advice pregnant women about prescription drugs that not to be taken during pregnancy period and change it by consultation of physician?	207(80%)	53(20%)
3	Do you advice pregnant women about herbal medicine which should not to be taken during pregnancy	91(35%)	169(65%)
4	Did you gone through any drug information resources for any unknown drug before dispensing in pregnant women	88(34%)	172(66%)
5	Do you regularly update your knowledge about safe medication dispensing in pregnant women	66(25%)	194(75%)
6	Do you dispense drugs to pregnant women without prescription	202(78%)	58(22%)

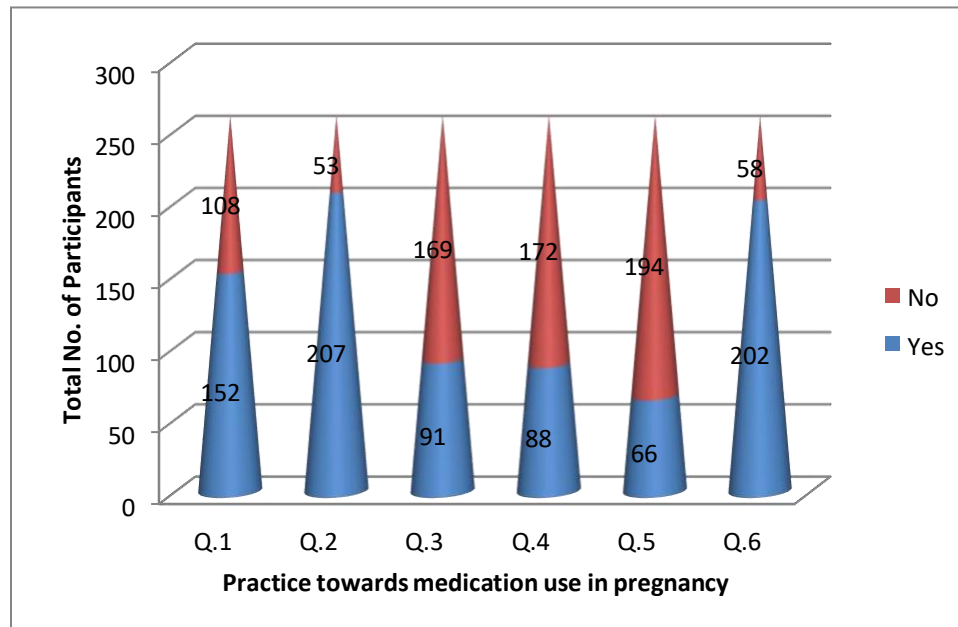
**Figure 13: Practice of community pharmacists on medication safety during pregnancy**

Table 14: Factors responsible for prescribing drugs without prescription by pharmacist for pregnant women

S.No	Factors for dispense	Total number of participants n= 202(%)
1	Patient request	85(33%)
2	Pharmacist long experience	52(20%)
3	Pharmacist knowledge and background	41(16%)
4	Treating previous similar cases	16(6%)
5	Taking patients symptoms simply	8(3%)

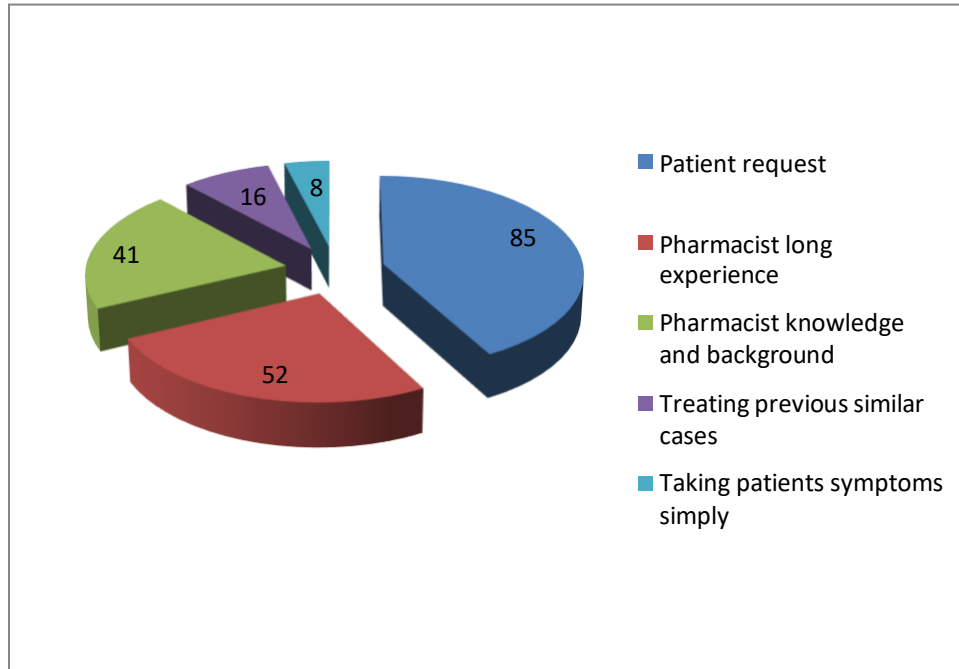
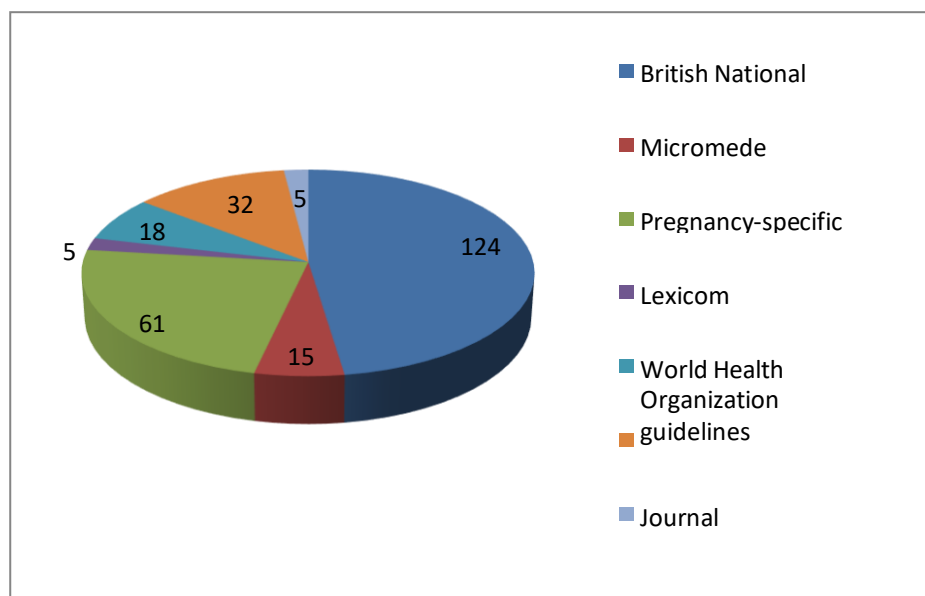
**Figure 14: Factors responsible for prescribing drugs without prescription by pharmacist for pregnant women**

Table 15: Resources used by pharmacists to answer drug information for pregnant women

S.No	Sources of Information	Total number of participants n=260(%)
1	British National Formulary	124(48%)
2	Micromedex	15(6%)
3	Pregnancy-specific books	61(23%)
4	Lexicomp	5(2%)
5	World Health Organization guidelines	18(7%)
6	Other online resources	32(12%)
7	Journals	5(2%)

**Figure 15: Resources used by pharmacists to answer drug information for pregnant women****DISCUSSION:**

KAP studies in community pharmacists concerning about safe medication use during pregnancy are very limited. Community pharmacist plays a vital role in promotion of medication safety during pregnancy by providing appropriate medication counseling and drug information to pregnant women. Also, CPs are the

most accessible health care personnel to the public.

Medication use during pregnancy is common, and prevalence continues to increase as women's age at pregnancy increases. Pharmacy professionals must carefully appraise the potential risks of medication use versus risks of untreated disease during pregnancy.

The KAP (Knowledge, Attitude & Practices) study was

conducted among community pharmacists towards medication safety in pregnant women. A total of 260 community pharmacists agreed to participate in the study.

A total of 260 community pharmacists were enrolled in the study, in which 157 male pharmacists and 103 female pharmacist (Table 1).

Age wise distribution among the community pharmacists is shown in Table 2. The age of the pharmacist participated in the study was between 20 to 60 years. More number of study participants were seen in 20-29 years 115(44%), followed by 30-39 years 71(27%), 40-49 years 44(21%), and least number in 50-59 years 20(8%). In Narayana G et al study, majority of the community pharmacists were present in the age group of above 30 years, which is similar with our study results.

The distribution of the participants by their level of education is shown in Table 3. Majority of the subjects had diploma in pharmacy 127(49%) followed by B.Pharm 99(38%) and M.Pharm

34(13%). Majority of our participants have diploma qualification with less knowledge towards safe use of medication during pregnancy. This suggests that there is a need to upgrade of minimum qualification to B.Pharm for practice of pharmacy in community setup. Upgrade of qualification for practice of pharmacy requires a lot of change in the Indian pharmaceutical law that takes a long period.

The majority of the study subjects 106(41%) had 5 to 9 years of professional experience, 98(38%) had less than 5 years and 56(21%) had greater than 10 years. The distribution of professional experience is shown in Table 4. This study result is in-contrast with previous study that has experience more than 15 years (68.4%, 33.7%).

Most of the study participants 167(64%) had completed their pharmacy education at private institution and remaining 93(36%) at government institution (Table 5).

Among the respondents, 135(52%) community pharmacists had dispensed ≤ 50 prescriptions per day, 78(30%) had 51-100 and 47(18%) had ≥ 101 prescriptions per day (Table 6). Out of 260 community pharmacists, 129(50%) had worked ≤ 40 hours per week followed by 86(33%) worked ≥ 50 hours and 45(17%) worked ≤ 40 hours per week.

Major concerns expressed by pharmacists while dispensing medication to pregnant women is shown in

Table 8. 107(41%) pharmacists expressed unknown stage of pregnancy, followed by 63(20%) said risk-benefit ratios not clear, 41(16%) felt only animal studies, data not reliable, 35(13%) felt most data from observational studies and least 24(9%) replied lack of clinical trial data. Table 9 shows pharmacist's response to most commonly dispensed medication to pregnant women. The most frequently dispensed medications were vitamins 251(96%) followed by anti-emetics 212(82%) than 115(44%). Anti-epileptics 9(3%), antidepressants 4(1%) and antipsychotics 3(1%) were the least dispensed. Our result is similar with previous study done by Pallivalapilla AR et al

[27] who found that most frequently dispensed medications were vitamins and anti-emetics ($> 95\%$); anti-epileptics, anti-lipidaemics, antidepressants and antipsychotics were the least dispensed ($\leq 3\%$).

Knowledge of Pharmacy Professionals of Medication safety during Pregnancy

Table 10 presents the knowledge of community pharmacists' response to drug safety during pregnancy. Most of the respondents believed that 141(54%) OTC medicines might be harmful during pregnancy followed by topically applied medicines might be harmful during pregnancy 159(61%), FDA drug risk category in pregnant women are category A, B, C, D and X 167(64%), daily iron and folic acid supplementation is necessary during pregnancy 194(75%), and daily calcium supplementation is necessary during pregnancy 191(73%).

Very less number of pharmacists are having knowledge regarding teratogen and its effects 87(33%), followed by contents of food supplements might be harmful during pregnancy 81(31%), the drugs comes under D and X category are proven teratogens in pregnant women 63(24%), a drug which is classified under FDA pregnancy category "B" is always safer than pregnancy category "C" 76(29%) and contents of herbal medicine might be harmful during pregnancy 67(26%). Out of 260 participants, nearly half of the pharmacist replied don't know regarding the knowledge towards medication safety during pregnancy

The USFDA classified all drugs into five categories (A, B, C, D and X) to promote safe use and to prevent teratogenic effects of drugs in pregnant women and fetus. Pharmacist need to aware about the drugs comes under D and X category, because these drugs are proven teratogens in pregnant women.

The study findings revealed that 54% of the pharmacists are unaware about USFDA pregnancy risk categories and only 24% of them were able to

answer all risk categories. Similar type of findings but with higher awareness are also observed in the study conducted by Narayana G et al

Table 12 presents the CPs' response towards safe use of drugs during pregnancy. Most of respondents correctly identified valproic acid 142(55%), phenobarbitone 137(53%) are not safe and amoxicillin 164(63%) & ciprofloxacin 127(49%) are safe during pregnancy except for the drugs like tetracycline 109(42%) and statins 124(48%) believed wrongly as safe drugs. Remaining replied don't know for safe use of drugs like OCP 152(58%), lamotrigine 162(62%), and budesonide inhaler 148(57%) during pregnancy.

In non prescription drugs, most of CPs 189(73%) and 176(68%) said that acetaminophen and ibuprofen are safe. A majority of CPs 152(58%) & 142(55%) not knew that aspirin and supplement vitamin A are unsafe to be used by pregnant. For drugs like dextromethorphan hydrobromide and bismuth subsalicylate, replied don't know to identify the safe drugs 127(49%) and 136(52%).

In herbal medicine, CPs identified senna 142(55%) and ipecac 161(62%) as safe herbal drug to use during pregnancy except for the drugs ginseng 172(66%) and ephedra 186(72%).

Similar types of findings are also observed in the study conducted by Morgan et al [32]. Most of the community pharmacists are having poor knowledge 344 (85.3%) and unsafe practice 284 (70.5%) towards medication use during pregnancy. These findings suggest that, community pharmacist needs to undergo continuous training and educational program about medication safety during pregnancy. This will promote safe medication practice during pregnancy and prevents unwanted effects offered by the drugs. This cross-sectional study revealed that PPs have insufficient knowledge about the risk of medications used by pregnant women.

Attitude of Pharmacy Professionals of Medication safety during Pregnancy

Among all community pharmacists, most of the pharmacist's attitude was agree about various statements like 129(50%) an extra caution is required while dispensing drugs during pregnancy, followed by 115(44%) all OTC drugs are not safe in pregnant women, 109(42%) only some drugs are proven teratogen, 132(51%) only some of the antibiotics are contra indicated in pregnant women and 99(38%) pharmacists take a chance and dispense safest drugs in pregnant women except for the statements like you are more confident about dispensing drugs during

pregnancy 104(40%), diuretics and beta blockers are contra indicated in pregnant women for the management of hypertension 151(58%) and most of the presently available drugs are safe during pregnancy 141(54%) replied neutral by pharmacists.

about safe medication use during pregnancy as represented in Table 3. Another study by Narayana G et al. reported that irrespective of age, qualification, area of practice and experience, more than 90% of the CPs had shown a positive attitude towards medication safety during pregnancy. This may be due to CPs believed that medication safety is one of the major concern in the pregnancy period. Definitely, this positive attitude will give a space for providing educational intervention to improve the knowledge and to channel this into a practice.

Practice of Pharmacy Professionals towards Medication Risk during Pregnancy

Majorly, pharmacists 152(58%) advised pregnant women about non-prescription drugs that not to be taken during pregnancy period and 207(80%) advised pregnant women about prescription drug that not to be taken during pregnancy period and change it by consultation of physician.

Remaining practices by community pharmacists like 202(78%) replied dispense drugs to pregnant women without prescription, followed by 194(75%) have not regularly update your knowledge about safe medication dispensing in pregnant women, 172(66%) have not gone through any drug information resources for any unknown drug before dispensing in pregnant women, 169(65%) have never advised pregnant women about herbal medicine which should not to be taken during pregnancy. The majority of the community pharmacists are shown unsafe dispensing practice for pregnant women as shown in Table 14.

The patient request 85(33%), the pharmacist's long experience 52(20%) and the pharmacists' knowledge and background 41(16%) represented the most common factors that guided the pharmacists to prescribe the drugs to patients without any written prescription. This report is dissimilar with previous study by Al-Rukban et al. found that the patient request (57.6%), the pharmacist's long experience (51.1%) and the pharmacists' knowledge and background (46.3%) represented the most common factors.

Most of the respondents used the point of care references. The most common drug information resources used by the pharmacists were the British National Formulary 124(48%), followed by

pregnancy-specific books 61(23%), other online resources 32(12%), World Health Organization guidelines 18(7%), Micromedex 15(6%) and least as Lexicomp 5(2%) (Table 15). Our findings is similar with previous study where BNF as the main drug information resources.

Instantly, several measures need be taken to improve CPs knowledge about safe medication use during pregnancy like, free continuous educational programs about medication safety during pregnancy and providing readily available medication software to access the unbiased safety information about the drugs [25]. The lack of well-designed focused training and the scarce availability of continuing education programs about drugs usage in pregnancy may contribute to the poor knowledge of PPs towards medications safety during pregnancy.

CONCLUSION:

The cross sectional study concluded that more number of study subjects were male between 20-29years with diploma in pharmacy education. The study found that community pharmacists are having a poor knowledge, positive attitude and poor practice about safe medication use in pregnant women. Poor levels of knowledge directly pay a path to poor practice among community pharmacists. This can be fulfilled by providing focused educational intervention to CPs, based on the lacunas observed in the study. As women take different medications during pregnancy, both prescription and over-the-counter drugs, including complementary and traditional medications, it is important to understand their knowledge about the use of such products in pregnancy. The absence of obligatory continuing pharmacy education for pharmacists is expected to have negatively affected the level of medication knowledge and consequently the pharmaceutical care services delivered in community and hospital pharmacies.

REFERENCES:

1. Committee on Ethics, American College of Obstetricians and Gynecologists. ACOG Committee Opinion No. 377: research involving women. *Obstet Gynecol* 2007;110:731–6.
2. Adam MP, Polifka JE, Friedman JM. Evolving knowledge of the teratogenicity of medications in

human pregnancy. *Am J Med Genet C Semin Med Genet* 2011;157:175–82.

3. Briggs GG, Freeman RK, Yaffe SJ. *Drugs in pregnancy and lactation*. [S.l.]: Lippincott Williams & Wilkins, 2011.

4. Mitchell AA, Gilboa SM, Werler MM, et al. Medication use during pregnancy, with particular focus on prescription drugs: 1976–2008. *Am J Obstet Gynecol* 2011;205:51 e1–8.

5. Odalovic M, Vezmar Kovacevic S, Ilic K, et al. Drug use before and during pregnancy in Serbia. *Int J Clin Pharm* 2012;34:719–27.

6. Gagne JJ, Maio V, Berghella V, et al. Prescription drug use during pregnancy: a population-based study in Regione Emilia-Romagna, Italy. *Eur J Clin Pharmacol* 2008;64:1125–32.

7. Engeland A, Bramness JG, Daltveit AK, et al. Prescription drug use among fathers and mothers before and during pregnancy. A population-based cohort study of 106,000 pregnancies in Norway 2004–2006. *Br J Clin Pharmacol* 2008;65:653–60.

8. Bakker MK, Jentink J, Vroom F, et al. Drug prescription patterns before, during and after pregnancy for chronic, occasional and pregnancy-related drugs in the Netherlands. *BJOG* 2006;113:559–68.

9. Lacroix I, Hurault C, Sarramon MF, et al. Prescription of drugs during pregnancy: a study using EFEMERIS, the new French database. *Eur J Clin Pharmacol* 2009;65:839–46.

10. Malm H, Martikainen J, Klaukka T, et al. Prescription drugs during pregnancy and lactation—a Finnish register-based study. *Eur J Clin Pharmacol* 2003;59:127–33.

11. Daw JR, Hanley GE, Greyson DL, et al. Prescription drug use during pregnancy in developed countries: a systematic review. *Pharmacoepidemiol Drug Saf* 2011;20:895–902.

12. Rubin JD, Ferencz C, Loffredo C. Use of prescription and non-prescription drugs in pregnancy. *J Clin Epidemiol* 1993;46:581–9.

13. McKenna L, McIntyre M. What over-the-counter preparations are pregnant women taking? A literature review. *J Adv Nurs* 2006;56:636–45.

14. Odalovic M, Vezmar Kovacevic S, Nordeng H, et al. Predictors of the use of medications before and during pregnancy. *Int J Clin Pharm* 2013;35:408–16.