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A SURVEY BASED STUDY TO ASSESS KNOWLEDGE ON FOOD DRUG INTERACTIONS AMONG PHARMACY STUDENTS

Vallampati Prudhvi and Lakshmi Prasanna Jakka

A.M.Reddy Memorial College of Pharmacy, Narasaraopet.

Abstract:

Knowledge on food drug interactions is necessary to obtain complete therapeutic effect from the medication. Due to lack of awareness they are neglected though interactions may lead to undesired effects. A prospective questionnaire study comprising of 12 questions, each question have both right and wrong options was conducted among pharmacy students to assess their awareness about food drug interactions. The questionnaire was formatted in a simple and easy manner for the understanding of students. These forms are prepared in Google forms and circulated through whatsapp social media and the responses were collected. Total of 215 students participated in the study out of which 43.6% are males and 50.9% are females. Responses were evaluated using Microsoft excel. Most of the students are aware that alcohol is the major drink that causes interactions when taken along with the medication. Almost all the students are aware that milk should not be consumed with tetracyclines. The study also found that students had a limited awareness on food drug interactions. The study findings support the need for the students to update their knowledge through additional training and frequent patient counseling to improve therapeutic efficacy, drug compliance and safety of patients.

Key words: *Awareness, Food drug interactions, pharmacy students, questionnaire, therapeutic efficacy*

Corresponding author:

Vallampati Prudhvi,

Assistant professor,
Department of pharmacy practice,
A.M.Reddy Memorial College of Pharmacy,
Narasaropet.
Phone:+918121153954
Email:vpr965@gmail.com

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INTRODUCTION:

Medicines became part and parcel of our life because of several reasons such as acute and chronic disease treatment, stress due to hectic life style, include both prescribed and over-the counter helps people live a healthy long life. Complete benefit from the Medication is achieved only when taken with precautions and following the instructions given by the physician or prescriber. Food becomes harmful to the body when it reacts with medications administered concomitantly in a diseased patient. Precisely a food drug interaction is the result of a reaction between food and drugs [1]. According to FDA a food and drug interaction is "a situation where a food affects the activity of a drug; for instance, the effects are increased or decreased, or a new effect of that drug is produced that would not be produced without consumption of that food".Food and drug interactions play a significantly important role in the pharmaceutical field as they greatly impact the compliance and success of drug therapy. Food has the ability to affect one or all areas of pharmacokinetics, including absorption, distribution, metabolism, and elimination [2]. The ability of a natural product to interact with a drug is based on the same pharmacokinetic and pharmacodynamics principles as drug-drug interactions. Presence of additional drug, food, herbs, beverages or environmental chemicals alters the pharmacologic activity of a drug, leading to DI [3]. The other methods for food - drug interaction include binding or chelation, altering gastric pH, altering gastrointestinal motility, or affecting transport proteins such as P-glycoprotein [4]. The limits of food - drug interactions are unknown [4].Several studies had shown the drug interactions incidence ranges from 3% to 30% [5]. In 1999, the Institute of Medicine reported that as many as 98,000 deaths occur annually in US from medical errors [6,7]. Risk for food – drug interactions can be affected by many factors such as: Age, gender, Medical co-morbidities, body composition, nutritional status, polypharmacy [8]. A survey was carried out to determine the degree of awareness on food drug interactions among pharmacy students in Narasaraopet. This questionnaire study includes some of the basic questions on interaction of herbal and allopathic drugs, food and drug interaction and which age groups is highly susceptible to food drug interaction.

METHODOLOGY:

This questionnaire study comprising of twelve questions was carried out using online Google forms. These forms were circulated using a social media among various individuals from diverse backgrounds. Two weeks online survey was carried out in the month of January and febrauary. Various articles on knowledge assessment of health care professionals on food- drug interactions were taken into consideration for designing the present questionnaire. Pharmacy & nursing students was choosen as respondents. Groups classified are 3rd, 4th B.Pharmacy, Pharm.D & M.Pharmacy students. Questions included in the study are given below.

Name :	Gender :	Age :

1. Do you have knowledge about food drug interaction:
a) Yes b) no
2. Otc and prescription medicines do not interact with herbal remedies and supplements:
a) True b) false
3. Use the same pharmacy for all your medications to make drug interactions less likely
a) True b) false
4. Which of the following beverages do health experts recommend you to avoid when taking medicines:
a) Green tea b) alcohol c) chocolate
5. This fruit interacts with around 45 different medicines and produces lethal side effects
a) Mango b) grapefruit c) banana
6. Excessive amounts of this common craving may make you happy but can interfere with treatment of depression
a) Ice cream b) apple pie c) chocolate
7. If you are using tetreacyclines,you should avoid
a) Milk b) apple c) meat
8. Allopathic and ayurvedic medicines interact with each other
a) True b) false
9. Avoid using this flavour of juice while taking warfarin
a) Pine apple b) cranberry c) tomato
10. Asthma medicines should not be taken with
a) Coffee b) orange juice c) milk
11. When taking an ace inhibitor such as captopril avoid excess amount of potassium found in
a) Oranges b) bananas c) green leafy vegetables d) all of the above
12. Which age group of patients do you think are at a greater risk of developing drug food interaction?
a) Neonates b) paediatrics c) adults d) geriatrics

RESULTS ND DISCUSSIONS:

The results were obtained after two weeks of online survey. A total of 215 responses were collected from the Google forms and the data was analyzed using Microsoft excel 2010. A total of 2580 responses were collected from 215 respondents and were categorized into two groups as group 1 and group 2 based on the question 1. The respondents who said yes for the questions were categorized as group 1 and those said no as their answer were placed in group 2. Out of 215 respondents 43.6% are male and 50.9% were female. Out of 215 respondents, 76.6% reported as they are aware of food drug interactions and 17% reported as unaware of the interactions. Figure 1and 2 represents the percent of male, female respondents and percent of group 1 and 2 respondents respectively. Respondents those who did not answer to the question 1 were considered as invalid participants in the study. The Figures 3, 4, 5,6,7 and 8 represent various responses for question 2&3, 4&5, 6&7, 8&9, 10 &11 and 12 by all the respondents respectively.

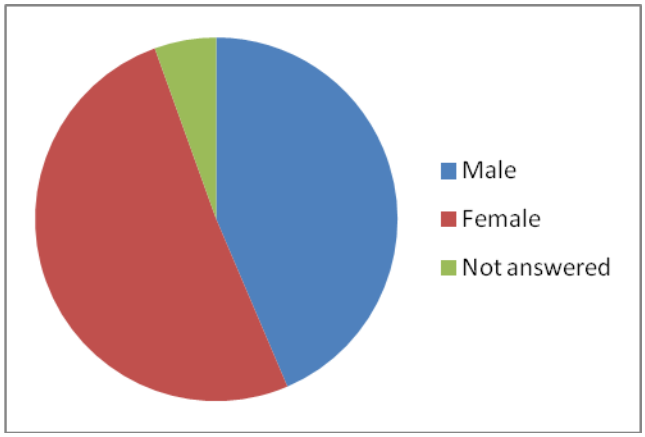

Fig 1: Male and female percentage in the study

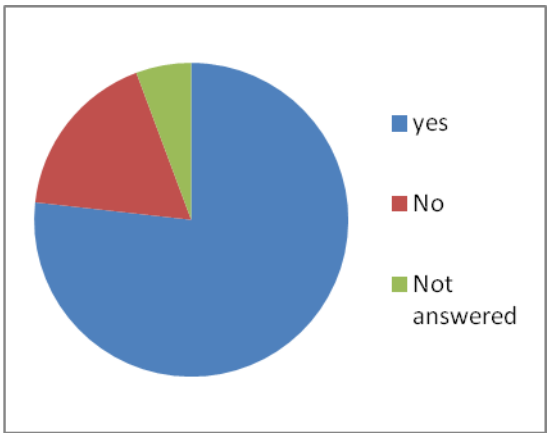

Fig 2: Group 1 and 2 Respondents

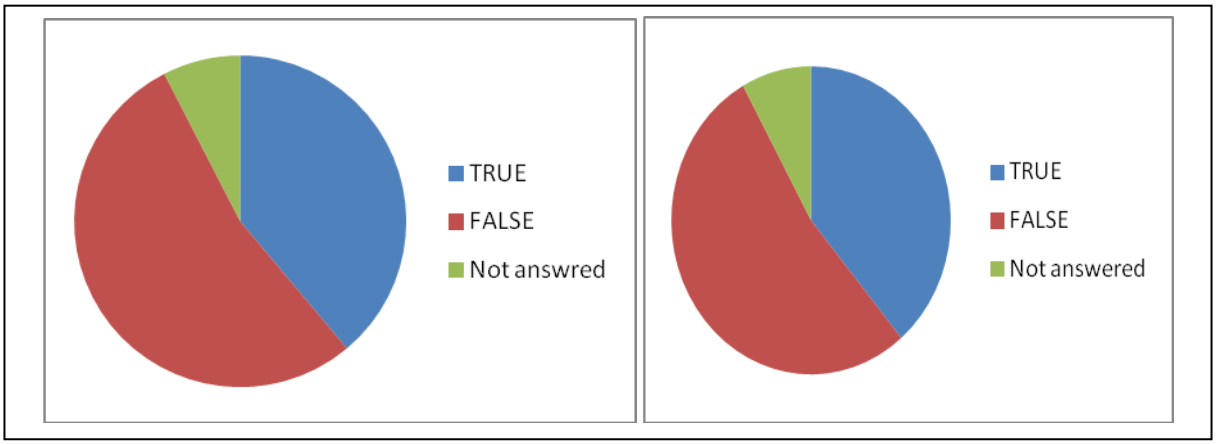

Fig 3: Responses for question no 2 and 3.

53.2 % students answered correctly for question no 3 where 38. 5% students gave wrong answer. 51.8 %students gave correct answer for 4th question and 39.4 % students gave wrong answer.

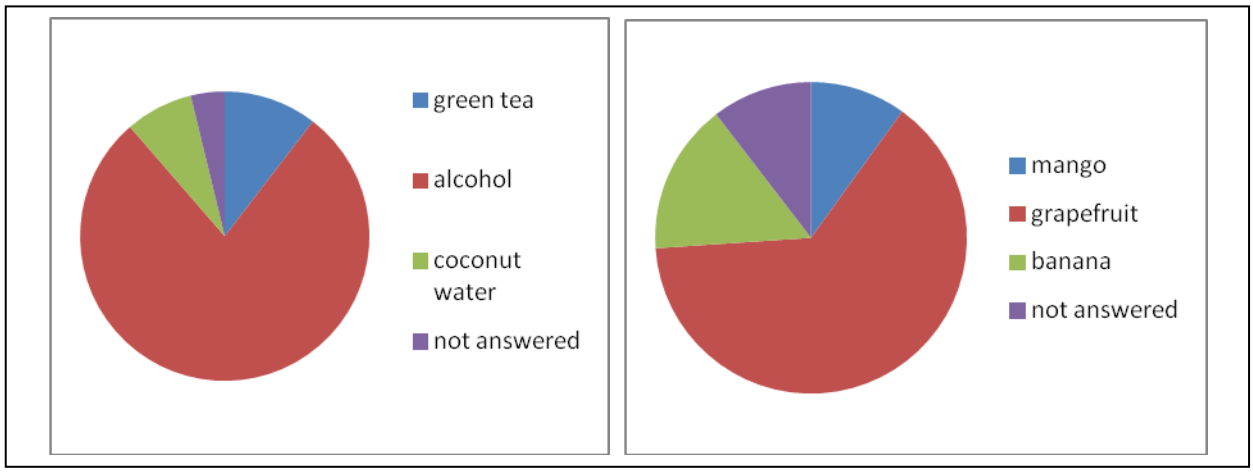

Fig 4: Responses for question no 4 and 5.

77.5 % answered correctly as alcohol for 5th question where 63.8 % students gave correct answer as grape fruit for 5th question.

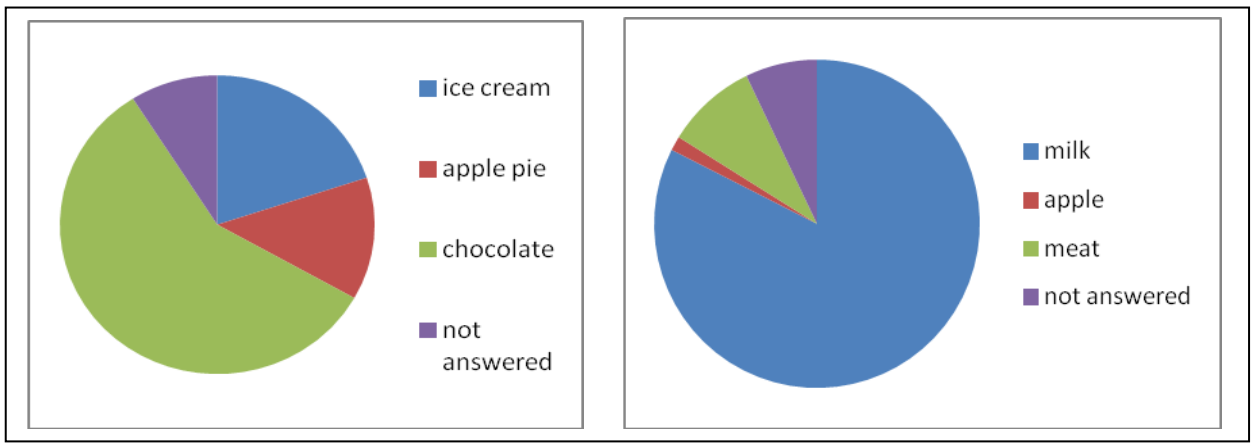

Fig 5: Responses for question no 6 and 7

58.3 % students answered correctly as chocolate for 6th question where 82.1% students gave correct answer as milk for 7th question.

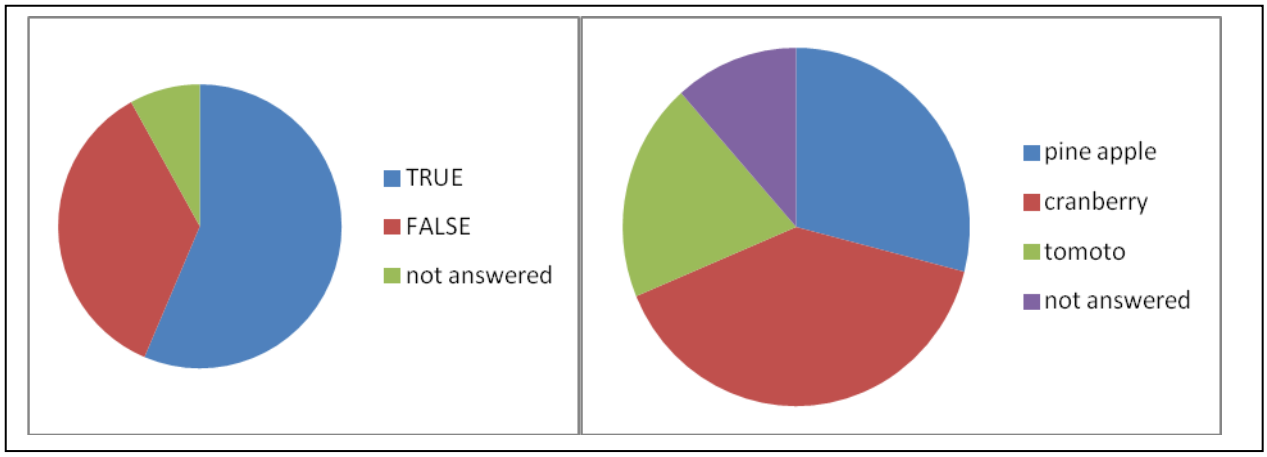

Fig 6: Responses for question no 8 and 9

56.9 % students are answered correctly as true for 8th question where 39.4 % students gave correct answer as cranberry for 9th question.

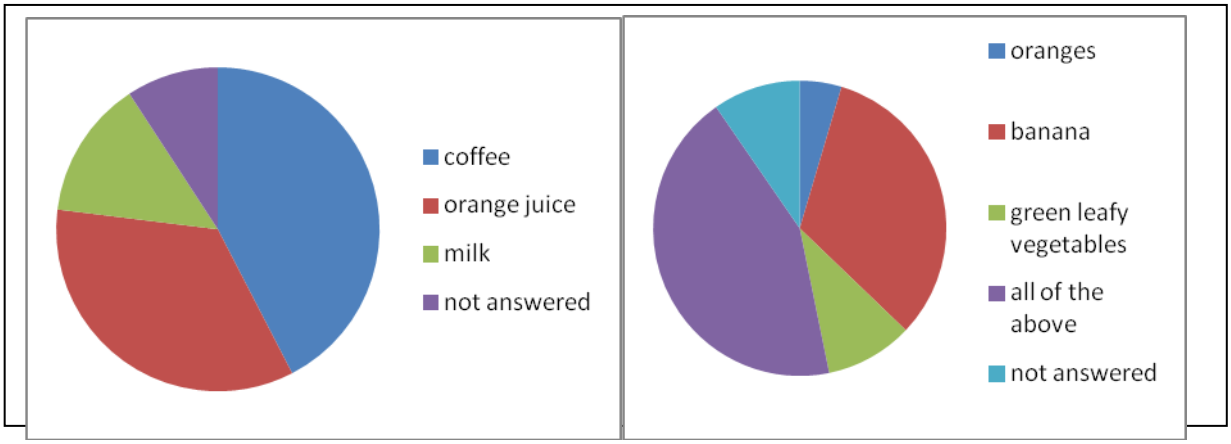

Fig 7 Responses for question no 10 and 11

42.2 % students gave correct answer as coffee for 10th question where as only 32.6% were correct for 11th question with banana as their answer. Only 38.1 students answered correctly as geriatrics for 12th question.

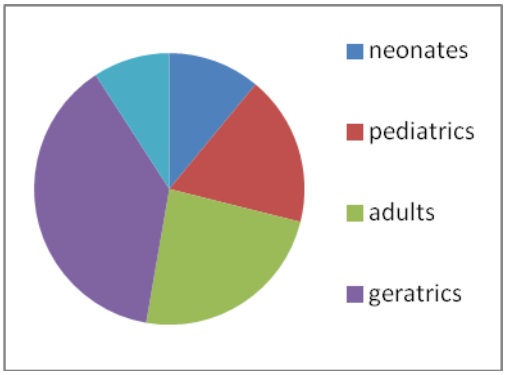

Fig 8: Responses for question no 12

The figures 9 and 10 represent group 1 and 2 responses for questionnaire, where fig 11 and 12 represent group1 male, female and group 2 male, female who gave correct responses respectively.

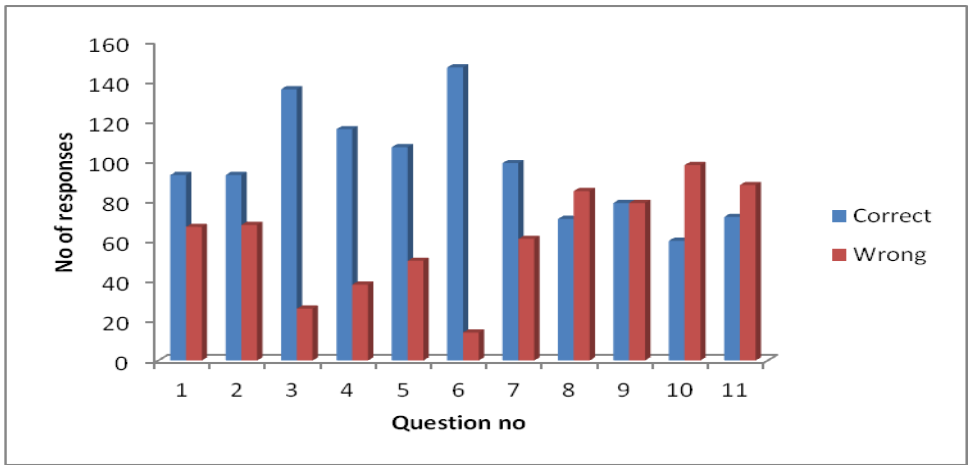

Fig 9: group 1 responses for questionnaire

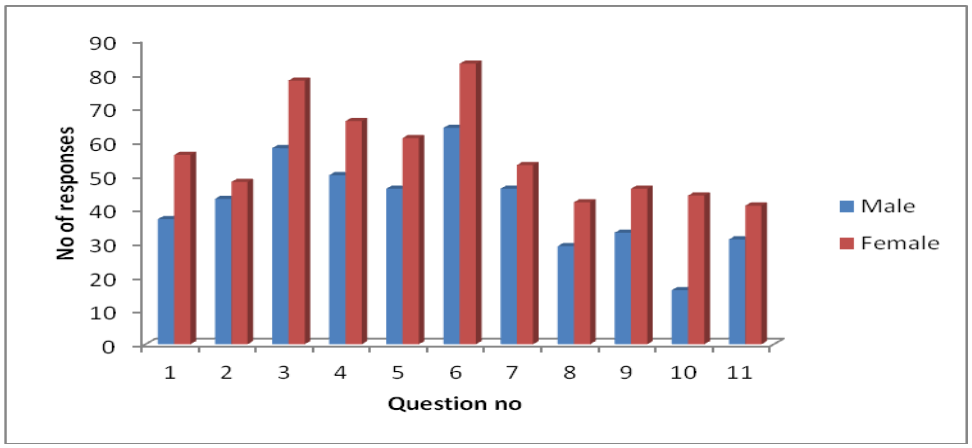

Fig 10: Correctly answered male and female respondents of group 1

Though group1 respondents reported as they were aware of the interactions, they were unable to answer the questioner correctly. Out of the 93 group 1 respondents, 39.78% were male and 62.36% was female. More number of female respondents answered correctly when compared to male respondents.

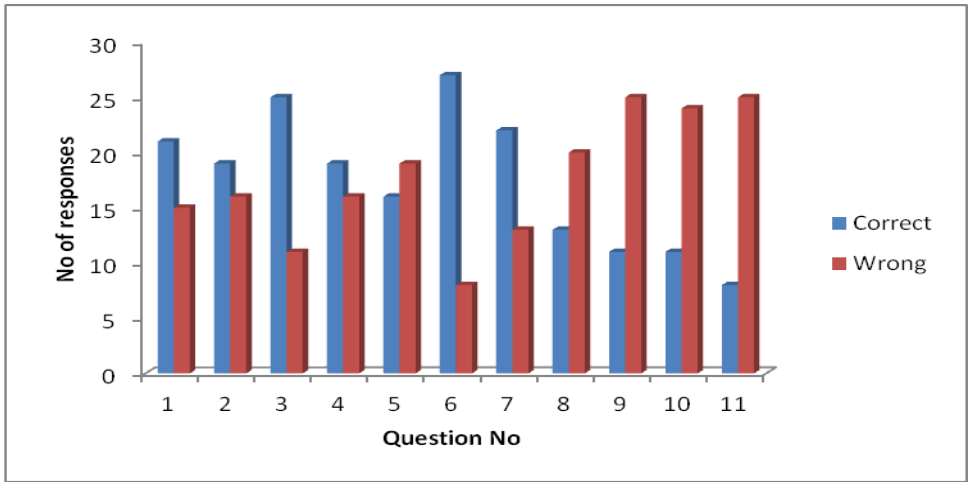

Fig 11: Group 2responses for questionnaire

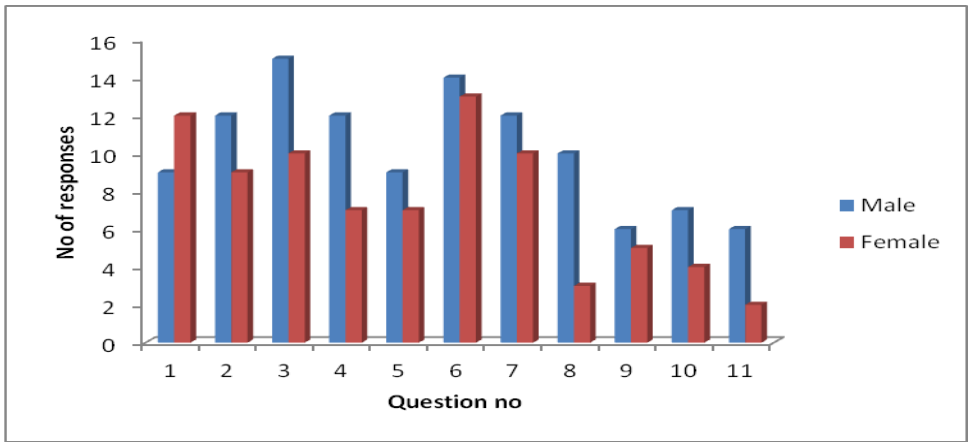

Fig 12: Correctly answered male and female respondents of group 2

Though group2 respondents reported as they were unaware of the interactions, they were able to answer 50 % questionnaire correctly. Out of the 21 group 2 respondents, 42.85 % were male and 57.14% were female. More number of male respondents answered correctly when compared to female respondents.

Present study was successful in assessing knowledge about food drug interaction among pharmacy students. Geriatric population is highly susceptible to food drug interactions due to polypharmacy and altered levels in absorption, distribution, metabolism and elimination. Specific foods greatly affect drug therapy, resulting in serious side effects, or reduced absorption of a drug i.e. therapeutic failure [17] or increase bioavailability.

LIMITATION:

Very few students were enrolled in the study as this study was conducted in a single region. Higher number of responses of students from various regions would have been helpful in understanding their knowledge towards FDI's as they are mainly concerned with public health maintainance. Sample size was small to conduct the study.

CONCLUSION:

Female students participated actively when compared to male students. From this study, it is found that most of the students are aware that alcohol is the major drink that causes interactions when taken along with the medication. Another outcome of the study is that almost all the students are aware that milk should not be consumed with tetracyclines. The study also found that students had a limited awareness on food drug interactions. The study findings support the need for the students to update their knowledge through additional training and frequent patient counseling to improve therapeutic efficacy, drug compliance and safety of patients.

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