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A research on the knowledge regarding legumes among adolescent girls

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Abstract

Mainly this study of mine is about knowledge regarding legumes among adolescent girls. Legumes are plants in the family Fabaceae (or Leguminosae), or the fruit or seeds of such plants. When used as a dry grain for human consumption, the seeds are also called pulses. Legumes are grown agriculturally, primarily for human consumption; for livestock forage and silage; and as soil-enhancing green manure. Well-known legumes include beans, chickpeas, peanuts, lentils, lupins, mesquite, carob, tamarind, alfalfa, and clover. Legumes produce a botanically unique type of fruit - a simple dry fruit that develops from a simple carpel and usually dehisces (opens along a seam) on two sides. (<http://en.wikipedia.org/wiki/Legumes>). I have conducted this study among the girl students of Magadh Mahila College campus because only the girl students will take care of our house as housewives, hence by increasing the knowledge about legumes among the girl students, the knowledge and consumption of high quality grains like legumes among the people of our country can be increased by the girl students.

Keywords: Legumes, soil fertility, green shelled seeds, crop rotation, dry seeds

Introduction

Food is a basic necessity of life as it supplies the nutrients that the body needs for generating energy, building and repairing tissues, and regulating body processes. The body uses proteins present in the food to build and repair tissues. Proteins exist in every cell and are essential to plant and animal life. Of the various foods consumed by humans, the legumes are one of the most important source of proteins. These plants have been consumed by man since times immemorial as an important constituent of the daily diet in many parts of the world. In addition, their seeds have a low water content that makes more suitable for long distance transportation and long storage. They grow rapidly and can be cultivated easily. The value of legumes in improving and maintaining soil fertility has been recognized by man since ancient times. That is why these plants are ideal candidates for crop rotation. Many species of legumes have nodules on their roots which act as nitrogen fixing sites. Legumes are consumed as green vegetables, as green shelled seeds, or as Dry seeds. The dry seeds of legumes are commonly called pulses. They are also termed as grain legumes or beans. The varieties of legumes used as Green vegetables have fleshy-walled pods with less fiber in the younger Stages. (K.M. Singh *et al.* 2023) [2].

Legumes are a widely distributed food resource on the earth and have been consumed because of their nutritional value. For their enjoyable flavor and taste, human health was improved by legumes due to their nutrients including digestible proteins, carbohydrates, fibers, vitamins, minerals and antioxidants. Legumes are a type of plant that belongs to the Fabaceae family, which is also known as the pea family. They are known for producing seeds that are encased in pods and are an important source of protein and nutrients for people around the world. Some of their examples are beans, lentils, peas, peanuts, and chickpeas.

These plants are used for food, feed, and other products such as oil and fuel. They are also known for their ability to fix nitrogen from the air and enrich the soil in which they are grown. This makes them an important component of sustainable agriculture and an attractive choice for farmers looking to improve soil fertility.

The word "legume" comes from the Latin word "legumen," which means "pod" or "seed vessel." The term "legume" is also used to refer to the edible seeds of these plants, which are often used as a source of protein and nutrition. The term "pulse" refers to the dried seed of certain legume crops. (Carol Barfod 2023) [3].

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Legumes crops have both a long and diverse history associated with the development of agricultural practices and meeting human nutritional needs. These food crops have different origins of domestication. Many pulses (i.e., lentils and chickpeas) were generally derived and cultivated in the Middle East regions, whereas common or dry beans are referred to as “new world” crop with small-seeded types (navy, black, pinto) coming from the Mesoamerican region and large-seeded types (kidney, cranberry, yellow Mayacoba) of Andean origins. Geographic distribution from these domesticated gene pools has contributed to distinctive global regions of predominant usage. These crops have distinctive sizes, shapes, colors, and flavors that contribute to consumer appeal. Thus, products are prepared and cooked in many regionally specific cuisines. Legume crops are particularly well suited to cultivation in tropical and humid climates, whereas pulses are more readily adapted to semiarid areas. Sustainable productivity, storage stability, and their nutritional profile distinguish these crops as nutrient and energy-dense foods.

Legumes possess very rich nutritional profile, being high protein and fiber content and having lower carbohydrate levels compared with cereals. Legumes are intrinsically produced in an environmentally sustainable manner, thereby constituting an economical source of proteins as compared with animal sources. Regular consumption of legumes offers a variety of well documented health benefits. These attributes of legumes make them highly suitable for developing value-added products, which can potentially increase the per capita consumption of legumes beyond current levels, especially in the developed countries. The emphasis on increased consumption of food legumes is reflected in government-issued dietary guidelines. The 2015-2020 Dietary Guidelines for Americans (DGA) recommend consuming 1.5 cups (~37.5 g) and 3 cups (75 g) cooked legumes/week for nonvegetarians and vegetarians, respectively (USDHHS & USDA, 2021). (Nicols Affrifah *et al.* 2023) [4].

Legumes grains are important sources of nutrients in human and animal diets and have been so for millennia. Their history as part of traditional diets dates to the origins of agriculture when their benefits for soil health and agricultural productivity started to be realized, mostly empirically, by farmers. In time, legumes have lost their popularity as human food, either because of a negative connotation as “poor man’s meat” occasional gastrointestinal side effects, or habitually longer preparation times when composed to other types of plant foods. Also, the steep rise in the consumption of meat derived foods in the last half of a century has taken a toll on replacing legumes as a major protein source. (Helena de Oliveira Schmidt *et al.* 2023) [5].

India grows at least a dozen species of grain legumes. Area planted to these crops here is estimated at nearly 36 million

ha and production at 29 million metric tons. Chickpea, groundnut, and pigeon pea occupy the second, third and fourth largest area of all grain legumes in the country. One or more of these crops is grown in at least 22 of the 28 states and one union territory of India. The top five producers are Madhya Pradesh, Rajasthan, Maharashtra, Uttar Pradesh and Karnataka for chickpea; Gujarat, Andhra Pradesh, Karnataka, Tamil Nadu, and Maharashtra for groundnut; and Maharashtra, Karnataka, Andhra Pradesh, and Madhya Pradesh for pigeon pea. These crops are largely grown by smallholder rural households where the average area planted per household is a little over 1 ha for chickpea and groundnut, and less than 1 ha for pigeon pea. Approximately 32%, 20%, and <5% of chickpea, groundnut, and pigeon pea area, respectively, is grown under irrigation. Yield and production also fluctuated mainly because of fluctuations in the amount and distribution of the rainfall. The area planted to chickpea and groundnut heavily fluctuated over the years whereas pigeon pea area.

In general, six out of 23 chickpea growing states and union territories showed positive growth for the period from 2001/02 to 2008/09; notable among these were Andhra Pradesh (14.7%), West Bengal (7.2%), Karnataka (5.2%) and Maharashtra (3.3%). On the other hand, 12 of those 23 states and territories showed negative growth. The declines were particularly heavy in Punjab (-12.7%), Haryana (-11.4%), Bihar (-6.3), Nagaland (-5.7%), and Himachal Pradesh (-5.3%). Ten each out of 24 groundnut producing states showed growths and declines in the area planted. Those showing high growths were Bihar (31.2%), Haryana (12.4%), West Bengal (11.4%), Goa (9.3%), and Orissa (5.2%). Nagaland (-12.2%), Punjab (-6.5%), Puducherry (-6.4%), Tripura (-4.1%), and Chhattisgarh (-3.6%) were among the states that showed high declines in groundnut area. Only six of 24 states/territories showed positive growth in pigeon pea area; these were Nagaland (28.2%), Andhra Pradesh (4.1%), Tripura (3.7%), Karnataka (2.8%), Maharashtra (0.4%) and Assam (0.4%). (Tsedeke Abate 2020) [6].

Some basic types of legumes

- Lentils.
- Peas.
- Broad beans.
- Chickpeas.
- Soybeans.
- Beans (lima, common).
- Peanuts.

Legumes - USDA Forest Service [7].

Nutritional Value of Legumes

Composition	Soybeans (<i>Glycine max</i> L. Merr)	Mung beans (<i>Vigna radiata</i> L.)	Cowpeas (<i>Vigna unguiculata</i> L.)	Pigeon peas (<i>Cajanus cajan</i> L.)	Red kidney beans (<i>Phaseolus vulgaris</i> L.)	Jack bean (<i>Canavalia ensiformis</i> L.)
Energy (kcal)	335	345	339.1	336	336	389
Moisture (g)	8	10	10	9.6	12.0	-
Protein (g)	38.0	22.2	22.0	22.4	23.1	30.36
Fat (g)	18.0	1.2	1.4	1.7	1.7	2.9
Carbohydrate (g)	31.3	62.9	59.1	51.2	62.7	54
Fiber (g) ^a	3.8	4.4	4.5	5.5	-	-
Ash (g) ^a	5.1	3.3	3.3	3.7	4.2	-

Calcium (mg)	227	125	77	125	80	153
Phosphor (mg)	585	320	449	275	410	298
Iron (mg)	8	6.7	6.5	4	5.8	10.1
Vitamin A (S1)	110	157	30	150	30	-
Vitamin B ₁ (mg)	1.07	0.6	0.92	0.48	0.64	8.5
Vitamin C (mg)	-	6	2	5	-	-
Folat (pg) ^a	250	490	545	343	310	-

Source: ^a Augustin and Klein (1989); Directorate of nutrition (1981)

Objectives

To know about awareness regarding legumes among adolescent girls.

Hypotheses

Higher the knowledge regarding legumes will higher the consumption of the legumes among adolescent girls

Methodology

Methodology: For this pilot study following methods have been adopted.

- **Method of study:** Pilot survey was done.
- **Area of study:** P.G. Department of Home Science, Magadh Mahila College, P.U., Patna.
- **Sample:** 50 girls were selected as Sample by purposive sampling method.
- **Tools:** Following tools were used for data collection.
- **Interview:** The researcher took self-prepared schedule to ask questions from sample.
- **Schedule:** It was a set of structured questions in which answers were recorded by the interviewers.
- **Scoring:** In this process, all coded relevant information provided by the respondents were transferred in a

master chart which formed the basis for statistical analysis and it gave an overall picture of respondent’s score. Thus, the coded responses were used for further statistical analysis.

- **Data analysis:** The data was analysed using descriptive statistics i.e. tabulation and frequency distribution. The percentage was used to find out the Awareness and Utilisation regarding legume among adolescent girls. After that, editing of the results was finished, the results tables were prepared and the findings were interpreted.

Results and Discussion

The following facts were obtained through tabulation, analysis and discussion from the data obtained. Objective 1. To find out the information related to legumes among the girl students.

Table 1: Classification of respondents on the basis of intake of legumes. (N - 50)

Sl. No.	Response	Number	Percentage
1.	Yes	15	70
2.	No	35	30
3.	Total	50	100

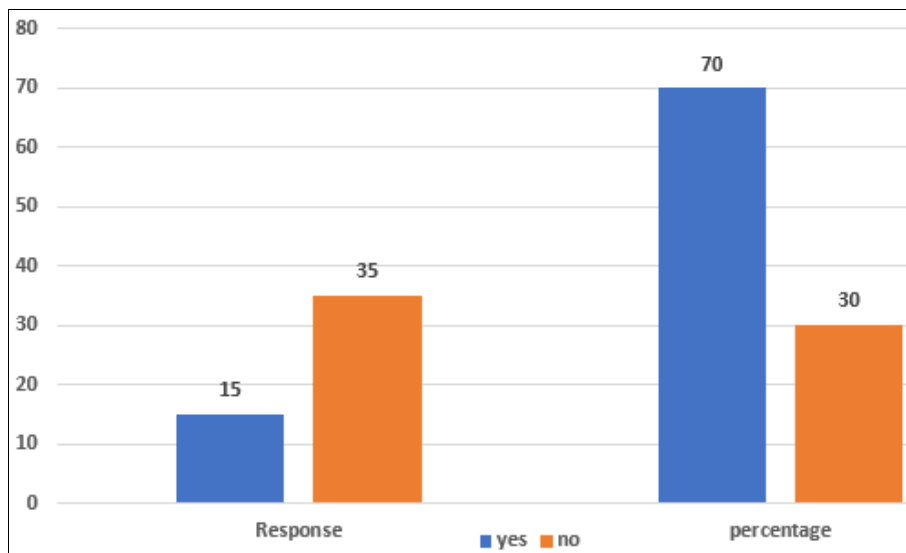


Fig 1: Intake of legumes

Table 1 deals with the structure of intake of legumes by respondents. It was found that Maximum 70% respondents were not in taking legumes in their diet while Minimum 30% were taking legumes.

We found that the vast majority of respondents were not taking legumes in their diet because they were ignorant about the nutritional benefits of legumes and also they had no knowledge about legumes. Only 30% respondents had information about the legumes and were able to take

legumes.

Table 2: Classification of respondents on the basis of information regarding knowledge of different types of legumes

Sl. No.	Response	Number	Percentage
1.	Chickpeas, Beans, Peas	5	10
2.	Soybeans, lentils and broad beans	10	20
3.	No knowledge	35	70
4.	Total	50	100

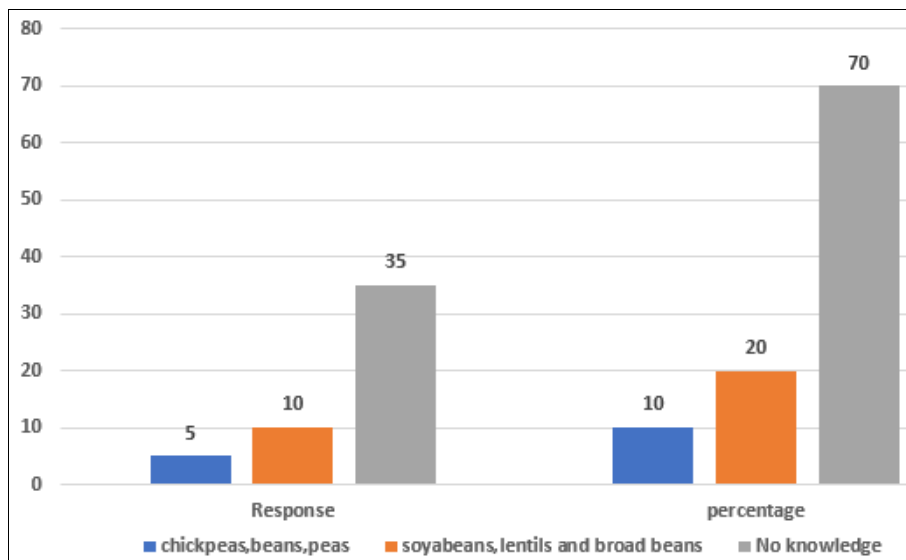


Fig 2: Knowledge regarding different types of legumes

Table 2 deals with the respondents who were knowing about the types of legumes and we found that Maximum 70% percent students had no knowledge regarding legumes. Only 5% of the girl students had knowledge about two-three types of legumes. We found that 70% of girl students’ families did not know about legumes; they used only pulses and lentils in their diet. Only 5% of girl students' families knew about some types of legumes products because they belonged to

agricultural families.

Table 3: Distribution of respondents based on consuming different types of legumes

SI. No.	Response	Number	Percentage
1.	Yes	15	30
2.	No	35	70
3.	Total	50	100

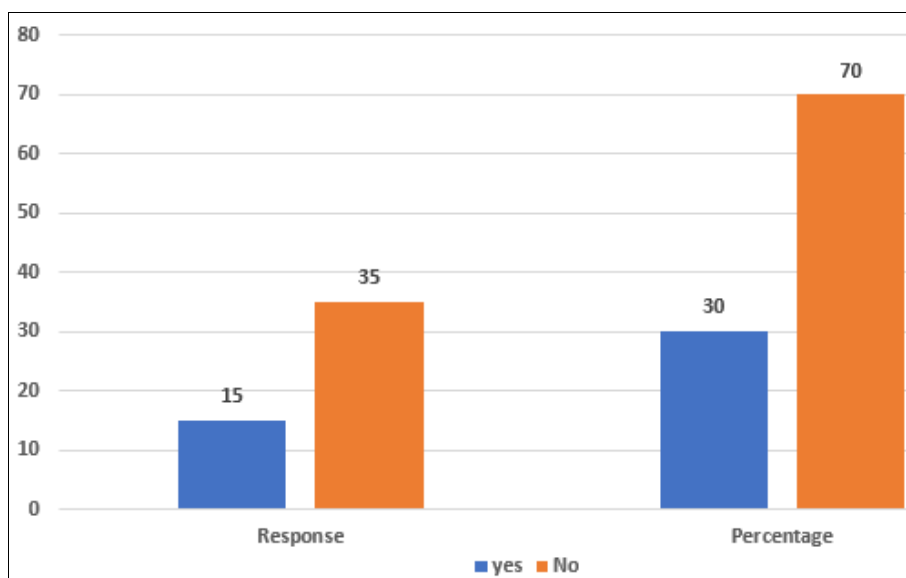


Fig 3: Consuming different types of legumes

Table 3 deals with the consuming different types of legumes by the respondents and we found that only 15% respondents were taking legumes in their diet while 70% students were not. It was found that 70% of girl students’ families did not know about the legumes and their nutritional value. That’s why they used only pulses and lentils in their diet. Only 5% of girl students' families knew about the nutritional value of legumes so they used different kinds of legumes in their

diet.

Table 4: Distribution of respondents based on their knowledge regarding nutritional value of legumes

SI. No.	Response	Number	Percentage
1.	Yes	5	10
2.	No	45	90
3.	Total	50	100

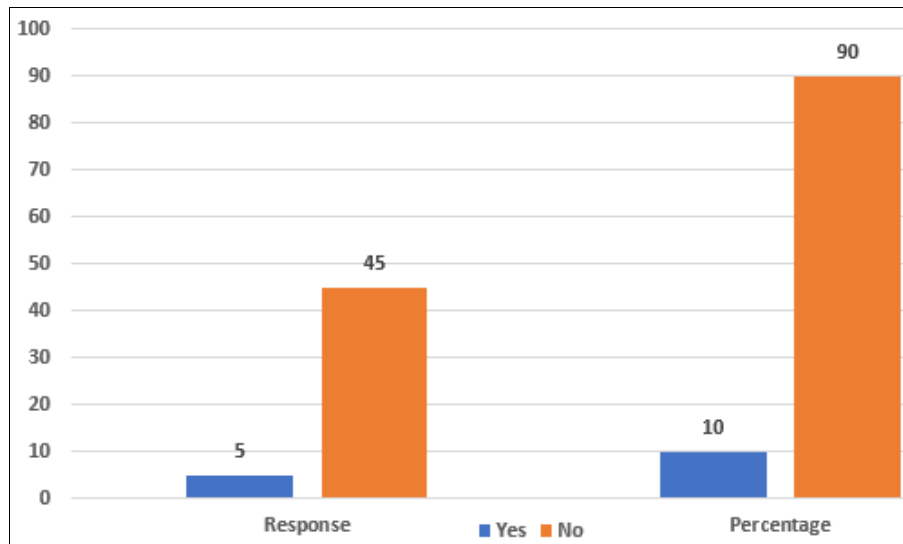


Fig 4: Knowledge regarding nutritional value of legumes

Table 4. deals with the knowledge regarding nutritional value of legumes of the respondents and we found that only 5% respondents had knowledge regarding nutritional value of legumes while 70% students had no knowledge.

It was found that 90% of girl students' families did not know about the nutritional value. Because why they used only pulses and lentils in their diet and apart they were neither health conscious nor well educated while 5% of girl students' families knew about the nutritional value of legumes so they used different kinds of legumes in their diet because they were health conscious and well educated too.

Conclusion

Legume is highly nutritive grain. It is a nutritional food grain of India but people have less knowledge about legumes in India because of legumes low cultivation so we should pay attention for the cultivation of legumes.

Due to planting and increasing their production, instead of legumes, the main place in people's diet was taken by food grains like pulses and lentils, hence people gradually are not knowing many types of legumes, that is why today we should pay special attention to the cultivation of legumes.

It should be made accessible to the people by increasing its production.

Suggestions

- We should promote the cultivation of legumes.
- We should make people aware about the legumes.
- We should spread knowledge regarding legumes in new generation.
- We should promote legumes based snacks among people
- We should use processed form of legumes.

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