

AWARENESS, ACCEPTABILITY OF PUBLIC TOWARDS EGG POWDER IN VIJAYAWADA, ANDHRA PRADESH, INDIA

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ABSTRACT

This study aimed to investigate the awareness and acceptability of the public towards egg powder in Vijayawada, Andhra Pradesh, India. Materials and methods: A survey was carried out in urban and rural areas of Vijayawada Andhra Pradesh. A -structured questionnaire was used to interview respondents who consume eggs regularly and. the data were analyzed with 152 respondents,. The data collected was analyzed using SPSS Out of 93 male respondents, majority 72.04% (67) Male respondents are not aware about egg powder, followed by 22, 58% (21). There is a need to create and enhance the awareness about egg powder among communities. Awareness should be created about the advantages of egg powder like the reduced weight per volume of whole egg equivalent and the shelf life, smaller usage of storage space, and lack of need for refrigeration.

Keywords: EGG powder, Awareness, Acceptability, Vijayawada.

INTRODUCTION

The egg is nature's most nutrient-dense product. Eggs contain a lot of protein, vitamins, and minerals. The poultry industry in India has grown to be a well-organized and highly productive industry. Eggs' high nutritional value makes them ideal for humans with special dietary needs. They are also suitable for nutritional enhancement of a variety of foods because they contain four major nutritional components: proteins, lipids, all essential vitamins (except vitamin C), and minerals. Eggs, along with milk, meat, poultry, and fish, are considered high in protein. Egg proteins have a high nutritional value. The nutritional value of egg proteins has been extensively researched and is the result of an ideal balance of nutritionally essential amino acids. Eggs are also a good source of omega-3 fatty acids. Eggs are ideal for young or old people, healthy or convalescent, due to their high nutritional value, low caloric content, blandness, and ease of digestion. An egg is made up of three major components: the shell (10%), the albumen or egg white (60%) and the yolk (30 percent). An average egg weighs between 55 and 60 grammes. Eggs are a low-cost animal protein that has the potential to contribute to food and nutrition Grandidier (1989).

Egg availability, accessibility, and improved livelihood opportunities throughout the year necessitate the use of appropriate storage and preservation technologies. The solutions to such issues are. When compared to fresh eggs, egg drying technology has a longer shelf life, no breakage, and is easier to transport. A powdered egg is an egg that has been completely dehydrated. Powdered eggs are made in the same way that powdered milk is made: by spray drying. Powdered eggs have a lower weight per volume of whole egg equivalent and a longer shelf life than fresh eggs.

Egg Processing: Breaking eggs and removing eggshells are the first steps in the production of dried egg powder.

After the shells are removed, the mixture is filtered and stored in storage tanks at 40 C before being transferred to a tabular heater and dried at 65o C for 8 to 10 minutes before being filtered and passed to a high pressure spray drier via a high pressure pump Sulaiman et al. (2020).

The material that emerges from the high pressure spray drier is not only dried, but also powder, which is then packed in polylined boxes. The average yield is approximately 80%. When stored without oxygen in a cool storage environment; powdered eggs have a storage life of 5 to 10 years. The process of drying eggs to make powdered eggs oxidizes the cholesterol, which has been shown in animal trials to be beneficial in reducing aortic atherosclerosis Rahman & Shafiur (2007); Trager (1997); Food Dehydrator reviews (2016); 6) Onwude, et al. (2016); Trager (1995).

Eggs, in whole or in part, are used to make powder in a variety of industries, including

Whole egg powder (WEP): is used in traditional foods where rising qualities are not required, such as crackers, cookies, and pasta.

Egg yolk powder (EYP): is a colour, texture, and emulsion capacity substitute for fresh egg yolk. Mayonnaise, dressings, sauces, and croissants are the most common applications for egg yolk powder.

Egg albumen powders (EAP): is used in a variety of products such as fish, meat, and potato preparations.

The Benefits of Using Egg Powder

1. **More Shelf life:** Powdered eggs have a shelf life of 18 months and, if properly sealed, 5 to 10 years (much longer than regular eggs) if stored in a cool and dry place. Refrigeration is not required for egg powder.
2. **Ease of storage:** Dried eggs take up much less storage space than fresh eggs. This means that large quantities of eggs can be stored in a small amount of space. Egg powder is also easier to handle and transport than liquid eggs, and there is no risk of breakage during transit.
3. **Lower risk of food-borne illness:** The main risk associated with eggs is food-borne illness caused by Salmonella bacteria. Powdered eggs, on the other hand, are pasteurized, which kills Salmonella and other bacteria, and their nutritional values are the same as fresh eggs (Table 1).
4. **Ease of use:** The dry powder can be easily beaded and mixed with porridge as a complementary food supplement for infants and young children. Powdered eggs can be used in baking without rehydration and can be rehydrated to make dishes like scrambled eggs and omelet's.
5. **Economic Advantage:** When compared to whole eggs, egg powder is less expensive.

The retail price of 100 eggs is 800-850 rupees, while egg powder (1.3 kg) costs 1105-1250 rupees. Table 2 shows the results of the calculations. Furthermore, the largest and most affordable producers of egg powders are found in countries/regions with intensive production

systems, such as Brazil, Europe, and South India, where egg production costs are low Si, et al. (2016).

Table 1			
NUTRITIONAL LABEL FOR WHOLE EGG POWDER			
Typical information	nutrient	per single servING	%RDA
single serving size: 15 g		88.8	
Protein (g)		7.21	65
Sugars, total (g)		0.08	
Calcium, Ca (mg)		36.6	14
Iron, Fe (mg)		1.08	10
Phosphorus, P (mg)		94.35	34
Potassium, K (mg)		81	11
Copper, Cu (mg)		0.03	15
Selenium, Se (mg)		12.5	62
Zinc, Zn (mg)		0.47	16
Thiamin (mg)		0.03	10
Ribo avin (mg)		0.3	75
Vitamin B6 (mg)		0.07	23
Folate, DFE (µg)		17.85	22
Vitamin B12 (µg)		0.44	88
Vitamin A, RAE (µg)		45.15	9
Vitamin E (mg)		0.58	11
Vitamin D (µg)		1	10
Pantothenic Acid, B5 (mg)		0.64	36
Choline (mg)		122	81
Vitamin K (phylloquinone) (µg)		0.18	7
Lipids (g)		6.06	20
Linoleic acid, N6 (g)		0.64	14
α-Linolenic acid, N3 (g)		0.02	4
DHA (g)		0.03	

Source: Miranda, Jose M., et al. "Egg and egg-derived foods: effects on human health and use as functional foods." *Nutrients* 7.1 (2015): 706-729.

Table 2		
100 EGGS ARE EQUIVALENT TO 1.3 KG OF EGG POWDER		
We therefore have to compare the price of 100 eggs and 1.3 kgs of egg powder		
	1.3 kgs of egg powder	100 eggs
	Whole egg powder price (whole-sale price): 600-800 rupees	

	Whole egg powder retail price: 900-1120- rupees /kg (15% margin)	Whole egg retail price: 7 rupees/egg
	Retail price of 1.3 kg of whole egg powder: 1105-1250 rupees	Retail price of 100 eggs:100800-850 rupees

Source: Primary data.

The Research Problem for Study

It has been found that the nutritional value of egg powder is much higher than their normal form. Moreover, they contain 13 foliates and essential vitamins which are necessary for good health. But success of any product depends upon the awareness of people towards the product. Limited studies are available about awareness of public towards egg powder.

Research Aim

The main aim of the research is to know public awareness and acceptability towards powder egg

Research Questions

- a) What are respondents' awareness on powdered eggs,
- b) If unaware, what activities marketers have to undertake to increase consumption of egg powder?

Objectives

1. To study the awareness about egg powder
2. To study the acceptability of the public towards egg powder.

RESEARCH METHODOLOGY

A study has been undertaken to know the public awareness and acceptability of egg powder, Vijayawada, Andhra Pradesh. A cross sectional structured questionnaire is forwarded to around 700 respondents of different ages, gender public in Vijayawada. A convenient sampling technique was adopted and got 152 responses and analyzed with SPSS software.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	59	38.8	38.8	38.8
	Male	93	61.2	61.2	100.0
	Total	152	100.0	100.0	

Source: Field survey.

The Table 3 shows that, out of 152 respondents, majority 61.2% respondents are male, forwarded by 38.8% of respondents are female in the study area.

Count		CAN YOU AWARE ABOUT EGG POWDER			Total
		AWARE, AND USING	AWARE, NOT USING	NOT AWARE	
GENDER	Female	14	2	43	59
	Male	21	5	67	93
Total		35	7	110	152

Source: Field survey.

The Table 4 shows that, Out of 93 male respondents, majority 72.04% (67) Male respondents are not aware about egg powder, followed by 22, 58% (21) male respondents are aware and using egg powder, 5.36% (5) respondents are aware and not using egg powder in the study area. At the same time out of 59 female respondents majority 72.88% (43) female respondents are not aware about egg powder, followed by 23.72% (14) female respondents are aware and using egg powder, 3.38% (2) female respondents are aware and not using egg powder.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-35	130	85.5	85.5	85.5
	36-50	16	10.5	10.5	96.1
	50 AND ABOVE	3	2.0	2.0	98.0
	BELOW 18 YEARS	3	2.0	2.0	100.0
	Total	152	100.0	100.0	

Source: Field survey.

The Table 5, shows that out of 152 respondents, majority 85.5% respondents are in the age group of 18-35, followed by 10.5% respondents are in the age group of 36-50 years, 2% respondents are in the age group of 50 and above, in the study area.

Count		Can You Advice To Your Friends/Relatives/Peers To Buy An Electrical Car			Total
		Aware, and Using	Aware, Not Using	Not Aware	
AGE	18-35	25	7	98	130
	36-50	7	0	9	16
	50 AND ABOVE	2	0	1	3
	BELOW 18 YEARS	1	0	2	3
Total		35	7	110	152

Source: Field survey.

The Table 6 shows that, Out of 152 respondents, majority 72.36% (110) of respondents are not aware about egg powder, followed by 23.02% (35) respondents are aware and using egg powder, 4.6% (7) respondents are aware and not using egg powder in the study area.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FARMER	6	3.9	3.9	3.9
	GOVT. EMPLOYEE	15	9.9	9.9	13.8
	OWN BUSINESS	20	13.2	13.2	27.0
	PRIVATE EMPLOYEE	45	29.6	29.6	56.6
	STUDENT/House wives	66	43.4	43.4	100.0
	Total	152	100.0	100.0	

Source: Field survey.

Table 7 shows that, out of 152 respondents, majority 43.4% respondents occupation is students/house wives, followed by 29.6% respondents are private employees, 13.2% of respondents are own business, 9,9% respondents are government employees, 3.9% respondents are farmers in the study area.

Count					
		Can You Aware About Egg Powder			Total
		Aware, and Using	Aware, Not Using	Not Aware	
Occupation	Farmer	1	0	5	6
	Govt. Employee	3	1	11	15
	Own Business	5	2	13	20
	Private Employee	12	3	30	45
	Student/Housewives	14	1	51	66
Total		35	7	110	152

The Table 8 shows that, Out of 66 students and housewives respondents, majority 77.27% (51) respondents are not aware about egg powder, followed by 21.21% (14) respondents are aware and using egg powder in the study area.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SEMI-URBAN	46	30.3	30.3	30.3
	URBAN	72	47.4	47.4	77.6
	VIJAYAWADA RURAL	34	22.4	22.4	100.0
	Total	152	100.0	100.0	

Source: Field survey.

The Table 9 shows that, out of 152 respondents, majority 47.4% respondents are staying at urban area, 30.3% respondents are living at semi-urban area, 22.4% respondents are living in Vijayawada rural area.

Table 10 NATIVITY*CAN YOU AWAARW ABOUT EGG POWDER					
Count					
		Can You Aware About Egg Powder			Total
		Aware, Using	And	Aware, Not Using	
Nativity	Semi-Urban	9	3	34	46
	Urban	18	3	51	72
	Vijayawada Rural	8	1	25	34
Total		35	7	110	152

The Table 10 shows that, Out of 72 urban respondents, majority 77.27% (51) respondents are not aware about egg powder, followed by 25% (18) respondents are aware and using egg powder, 4.1% respondents are aware and not using egg powder. Out of 46 semi-urban respondents 73.91% respondents are not aware about egg powder, followed by 19.5% respondents are aware and using egg powder, followed by 6.5% respondents are aware, not using the egg powder. Out of 34 Vijayawada rural respondents, majority 73.52% respondents are not aware about egg powder, followed by 23.52% respondents are aware and using egg powder, 2.9% respondents are aware and not using egg powder in the study area.

Table 11 GENDER*ACCEPTABILITY OF POWDERED EGG IN NEAR FUTURE							
Count							
		Acceptability Of Powdered Egg In Near Future					Total
		Agree	Disagree	Neither Agree nor Disagree	Strongly Agree	Strongly Disagree	
GENDER	Female	32	0	6	21	0	59
	Male	48	10	10	23	2	93
Total		80	10	16	44	2	152

Source: Field Survey.

Table 11, shows that, out of 152 respondents, majority 80.2% (including both agree and strongly agree) are accepts powdered egg in near future, because of advantages of powered egg against natural egg, followed by 10.52% respondents are neither agree nor disagree, 7.89% respondents are disagree saying that natural egg is very nutritional, freely available and having no preservatives and chemicals in the study area.

Table 12 NATIVITY*ACCEPTABILITY OF POWDERED EGG IN NEAR FUTURE							
Count							
		Acceptability Of Powdered Egg In Near Future					Total
		Agree	Disagree	Neither Agree nor Disagree	Strongly Agree	Strongly Disagree	
Nativity	Semi-Urban	26	3	5	10	2	46
	Urban	38	4	5	25	0	72
	Vijayawada Rural	16	3	6	9	0	34

Total	80	10	16	44	2	152
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Source: Field Survey.

Table 12, shows that, out of 152 respondents, majority 80.2% (including both agree and strongly agree) are accepts powdered egg in near future, because of advantages of powered egg against natural egg, followed by 10.52% respondents are neither agree nor disagree, 7.89% respondents are disagree saying that natural egg is very nutritional, freely available and having no preservatives and chemicals in the study area.

Count		ACCEPTABILITY OF POWDERED EGG IN NEAR FUTURE					Total
		Agree	Disagree	Neither Agree nor Disagree	Strongly Agree	Strongly Disagree	
AGE	18-35	59	3	14	53	1	130
	36-50	5	0	1	9	1	16
	50 AND ABOVE	0	0	1	2	0	3
	BELOW 18 YEARS	1	0	1	1	0	3
Total		65	3	17	65	2	152

Source: Field Survey.

Table 13, shows that, out of 130 respondents in the age group of 18-35 are, majority 86.15% (including both agree and strongly agree) are accepts powdered egg in near future, because of advantages of powered egg against natural egg, followed by 87.5% respondents in the age group of 36-50 are agree, 66.66% respondents in the age group of 50 and above are agree to use egg powder in the near future in the study area.

Findings

Findings clearly reveals that majority of the respondents are not aware about powdered egg. And people will have interest to use powdered drug in near future.

Out of 93 male respondents, majority 72.04% (67) Male respondents are not aware about egg powder, followed by 22, 58% (21) male respondents are aware and using egg powder, 5.36% (5) respondents are aware and not using egg powder in the study area. At the same time out of 59 female respondents majority 72.88% (43) female respondents are not aware about egg powder, followed by 23.72% (14) female respondents are aware and using egg powder, 3.38% (2) female respondents are aware and not using egg powder.

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Suggestions: The success or failure of a product depends upon awareness of the product and acceptance of the product. The study reveals that majority of the respondents are not aware about powdered egg. May be powdered egg is consuming by bakeries, hostels, military canteens. If product will reaches to the public the usage of the product will increases. People are having challenges like storage, transportation. Egg powder is the appropriate solution for this type of challenges. That's why all the companies which are manufacturing powdered eggs should concentrate on creation of awareness in the public. Marketers should create awareness by distributing powdered egg as a free of sample and conducting cooking contests, Marketer should also advertise heavily through print media, electronic media about the advantages of powdered egg against naturally available eggs.

CONCLUSION

Egg powder is more convenient, more shelf life, easy to transport. But the majority of public in the study are not having awareness. A right category of product is not promoting in right way. There is a need to create and enhance the awareness about egg powder among communities. Awareness should be created about the advantages of egg powder like the reduced weight per volume of whole egg equivalent and the shelf life, smaller usage of storage space, and lack of need for refrigeration. The content of the Advertisements should highlight the information about nutritional benefits of a powdered egg against fresh egg, and qualities like a good source of protein, immune-boosting properties, and antibacterial qualities.

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