Automatic Dispensing Machines supporting Marketing of Dairy Products

(In the context of Pandemic)

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Abstract

Corona is not only a threat to human beings health but also to the health of any nation's economy across the globe with only a degree of variation. Indian economy is no different. No sector is left free from the impact of Corona except pharmaceutical and health related industries. This article is focused on the marketing aspects of dairy products through automatic dispensing machines in the Covid context. A survey has been conducted with the help of a structured and pilot tested questionnaire on various aspects which include demographic profile, customer awareness and perception on the usage of automatic dispensing machines, what are problems in using the automatic dispensing machines and satisfaction of the customer on availing the services of automatic dispensing machines. This article does not discuss about technical aspects of the dairy products like fat content, protein, casein, lactose, nonfat dry matter, pH etc.
Key words: Customer awareness, Perception, Satisfaction, automatic dispensing machines, difficulties in the operation of automatic dispensing machines.

Introduction

The Covid - 19 context has pulled down the revenue growth of the Indian dairy industry because of poor sales of Value added products (VAP) like ice cream, cheese, flavoured milk, curd and yoghurt among others, which are more profitable than liquid milk.
Nevertheless the VAPproducts account for over a third of the organized dairy sector's revenue and are expected to shrink by 2 to 3 per cent this fiscal, reducing operating profitability by as much as 50-75 basis points, (bps) as per trade sources.
Trade sources also stated that based on analysis of 65 CRISIL-rated dairies that account for slightly more than two-thirds of the Rs 1.5 lakh crores revenue of the organized dairy segment, it has been revealed that a return to normalcy will happen in the second quarter – Ref: Public media.
It also highlighted that working capital needs of dairies will need to be increased drastically and liquidity of mid-sized ones (revenue below Rs 500 crore) will be tested as a result of surplus milk being converted to skimmed milk powder (SMP) and the unsold VAP inventory.

The forced lockdown across the country concealed the institutional sales of VAP to hotels and restaurants, which account for almost 20 percent of the organized dairy segment's revenue. Moreover, the peak season for chilled dairy products is summer but forced lockdown, logistical challenges and consumer's reluctance in consuming has adversely impacted sales in the first quarter.

The study has carried out against few objectives:

1. To assess the consumer behaviour on usage of vending/automatic dispensing machines for identified common products of dairy and measure customer satisfaction
2. To sketch preliminary market mapping for automated milk products dispensing machines

Need for the study

The products of the dairy reach to the final customer through channel members who are called distributors and agents. In the context of pandemic, customer is afraid of going out and picking up the product from the hands of the distributor or the agent. Though the products are delivered at the door step, they were sanitizing the products and then putting use of them. Hence, there is every need of using automatic dispensing machines to deliver the dairy products to the customers' at all important places wherein the customer is not required to interact with the channel people. Moreover, automatic dispensing machines offer 24/7 services.

Research gap

Most of the research studies focused on traditional marketing practices, marketing practices of cooperative dairies and private dairies. However, after the review of literature the research gap is identified as there is no specific study on use of automated dispensing machines for dairy products. Hence, it is the gap of the study.

Research Methodology

A well structured and pilot tested questionnaire is catered conveniently to 325 respondents through online with the help of Google forms. However, after a careful scrutinization 309 questionnaires were considered for final analysis using Cronbach's Alfa, frequency distribution, Chi-square, Cross tabs, Standard deviation and correlation.

Results and discussion

RELIABILITY STATISTICS

The structured questionnaire is exposed to Cronbach's Alpha testing for reliability and the value is given below:

Reliability Statistics	
Cronbach's Alpha	No. of Items
.788	28

Cronbach's Alpha: The value was calculated for the questionnaire administrated in order to determine the reliability of the data where the alpha value is greater than .70 is the recommended level. For this study, Cronbach's Alpha value is calculated as .788 for 309 samples which indicates that the data have relatively higher internal consistency.

		LOCATION (place of residence)		
	Frequency	percent	valid percent	cumulative percent
Urban (city)	147	48	48	48
Rural (village)	35	11	11	59
Semi Urban (town)	88	29	29	88
others	39	12	12	100
TOTAL	309	100		

Source: Field survey

From the above table it may be understood the sample respondents are more from Urban, Semi Urban and Rural respectively

|	EDUCATION QUALIFICATION			
	Frequency	Percent	Valid Percent	cumulative percent
10th class	17	6	6	6
Intermediate	34	10	10	16
Graduate	166	54	54	70
Post Graduate	92	30	30	100
TOTAL	309	100		

Source: Field survey

From the above table it may be inferred that among the sample respondents 54% are graduates, followed by 30% postgraduates, 10% intermediate qualified and six percent are qualified in SSC. No illiterate is observed among the sample respondents. This helps to find out that literates may have a better understanding of the operations and benefits of automatic dispensing machines.

		AGE		
	Frequency	Percent	Valid Percent	Cumulative Percent
Below 21	70	23	23	23
22 to 28	150	47	47	70
29 to 35	31	10	10	80
36 to 41	29	3	3	83
42 to 49	19	4	4	87
50 & above	10	13	13	100
TOTAL	309	100		

Source: Field survey

Usage of Milk (Liters per day)
309 responses

- 0.5 Liter
- 1.0 Liter
- 1.5 Liters
- 2.0 Liters
- 2.5 Liters & Above
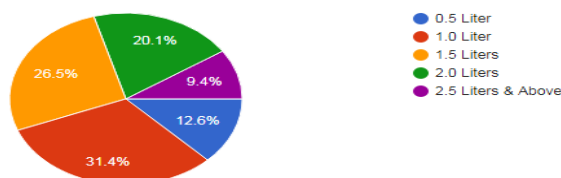
The above chart depicts that 31.4% customers are using milk per day 1.5 liters followed by 26.5% customers are using one liter of milk per day. Around 58% respondents consume around one to one and half liters milk per day. This indicates that in the automatic dispensing machines proportionately more space should be given to one liter and half liter sachets.

Gender of the customer and Awareness of vending machines:

Gender		Yes	No	Total
Female	Count	78	46	124
	% within Gender	62.9%	37.1%	100.0%
Male	Count	114	68	182
	% within Gender	62.6%	37.4%	100.0%

Source: Field survey

From the above table, one can notice that more or less both the Male and Female customers are aware of vending machines.

The result is with respect to the sample. We make use of Chi – Square tests for Independence of attributes, as follows

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.002[a]	1	.962
Continuity Correction[b]	0.000	1	1.000
Likelihood Ratio	.002	1	.962
Fisher's Exact Test			
Linear-by-Linear Association	.002	1	.962
N of Valid Cases	306		

Source: Field survey

H_0: There is no relationship between Gender of the customer and Awareness of vending machine or sample results cannot be attributed to the population

H_1: There is relationship between Gender of the customer and Awareness of vending machine or Sample Results can be attributed to the population.

Decision: Accept H_0 at 5% level of significance when significant value is more than 0.05, which indicates that sample results, cannot be attributed to the population.

Awareness of Automatic dispensing machine & location of customer:

Awareness of vending machine & location			
Location	Yes	No	Total
Urban	133	41	174
	76.40%	23.60%	100.00%
Rural	63	34	97
	64.90%	35.10%	100.00%
Semi-Urban	19	17	36
	52.80%	47.20%	100.00%

Total	216	92	308
	70.10%	29.90%	100.00%

Source: Field survey

From the above table, one can notice that majority of awareness about vending machine is found in Urban places only with 76.40% and next Rural places with 64.90%.

The result is with respect to the sample but to know the independence of the attributes we make use of Chi – Square tests which is as follows

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.148a	3	0.017
Likelihood Ratio	10.145	3	0.017
Linear-by-Linear Association	8.541	1	0.003
N of Valid Cases	308		

H_0: There is no relationship between location of the customer and awareness of vending machine or sample results cannot be attributed to the population

H_1: There is relationship between location of the customer and awareness of vending machine or Sample Results can be attributed to the population.

Decision: Reject H_0 at 5% level of significance when significant value is less than 0.05, which indicates that sample results can be attributed to the population.

This indicates those samples results can be attributed to population which means as we noticed in the sample customers with different locations are having awareness of vending machine.

Gender, Income and Location of the customers:

Location and Income of customers			Gender	
			Female	Male
			Row Total N %	Row Total N %
Urban	Income per month (INR)	20k	43.7%	56.3%
		30k	28.6%	71.4%
		40k	20.0%	80.0%
		50k	35.3%	64.7%
		60k and above	38.5%	61.5%
Rural	Income per month (INR)	20k	42.6%	55.6%
		30k	41.7%	58.3%
		40k	41.7%	50.0%
		50k	25.0%	75.0%
		60k and above	0.0%	100.0%
Semi-Urban	Income per month (INR)	20k	53.3%	46.7%
		30k	25.0%	75.0%
		40k	50.0%	50.0%
		50k	50.0%	50.0%
		60k and above	66.7%	33.3%

Source: Field survey

From the above table, one can notice the information of Male and Female customers from different locations and from different Income group of customers every month.

Location, Age group of the customer and Awareness of Automatic dispensing machine:

				Yes	No
				Row Total N %	Row Total N %
Location (Place of residence)	**Urban**	**Age**	< 21 years	77.5%	22.5%
			22 to 28 years	81.5%	18.5%
			29 to 35 years	73.1%	26.9%
			36 to 41 years	40.0%	60.0%
			42 to 49 years	66.7%	33.3%
			50 years and above	33.3%	66.7%
	Rural	**Age**	< 21 years	52.9%	47.1%
			22 to 28 years	71.2%	28.8%
			29 to 35 years	50.0%	50.0%
			36 to 41 years	87.5%	12.5%
			42 to 49 years	75.0%	25.0%
			50 years and above	25.0%	75.0%
	Semi-Urban	**Age**	< 21 years	37.5%	62.5%
			22 to 28 years	55.6%	44.4%
			29 to 35 years	60.0%	40.0%
			36 to 41 years	100.0%	0.0%
			42 to 49 years	0.0%	100.0%
			50 years and above	0.0%	0.0%

Source: Field survey

From the above table, it may be inferred that most of customers in Urban area are aware, followed by Semi urban and Rural customers are aware about the Automatic dispensing machines. At the same time irrespective of the location of residence across all location customers in the age group between 36 to 41 years are aware about the usage of the Automatic dispensing machines.

Outcome of the analysis is degree of awareness, age group, gender and education only slightly varies irrespective of the place of location of residence. Therefore, this is right time to introduce the Automatic dispensing machines in a massive way across identified locations of Hyderabad and at parallel, promotion through popular social media and word of mouth on operational usage and major benefits of using the Automatic dispensing machines for dairy products may be executed. Also, for some time (until users get accustomed to use the Automatic dispensing machines) a person may be employed to assist the customers to operate the Automatic dispensing machines. the Automatic dispensing machines may be placed in places like all densely populated residential localities, gated communities, shopping malls, travel points like RTC complexes, Railway stations, Metro Rail stations, Airports, Educational institutions, Theaters etc.

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