



Consumers' Opinion towards Food Product Recall

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Authors' contributions

This work was carried out in collaboration among all the authors. Authors CK and SML designed the study, performed the statistical analysis, wrote the protocol and wrote the final draft of manuscript. Authors SML and BK managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: To examine consumers' opinion towards food product harm crisis.

Research Design: Primary data was collected using well-structured questionnaire. Online survey was conducted and responses were obtained from 100 respondents. The study used convenience sampling technique in order to full fill the objectives.

Methodology: Percentage analysis was used to analyze the data collected.

Results: The results revealed that that the quality is the major factor influencing purchase of food products rather than its taste and promotional activities. Besides, majority of respondents would buy the product again if the issues were resolved. Also, the study revealed that consumers' would switch the brand if there is any quality issues arise in usual brands they are buying.

Conclusion: Results inferred that brand loyalty is dependent on the quality of the product. In order to overcome the food harm crisis, it is suggested that, stringent measures need to be taken regarding the quality of the product, traceability system needs to be implemented for the food products to ensure food safety.

Keywords: Product recall; food harm crisis; purchase behavior; food safety.

1. INTRODUCTION

Food safety is everybody's distress, and it is not easy to find anyone who has not encountered an unpleasant moment of food borne illness at least once in the past year [1-3]. Food borne illnesses may result from the consumption of food contaminated by microbial pathogens, toxic chemicals or radioactive materials. Ensuring food safety is becoming increasingly important in the context of changing food habits [4,5]. Food Safety and Standards Authority of India (FSSAI) is an autonomous body established under the Ministry of Health & Family Welfare, Government of India, established under the Food Safety and Standards Act, 2006 is a consolidating statute related to food safety and regulation in India. FSSAI is responsible for protecting and promoting public health through the regulation and supervision of food safety.

A food recall is one such action taken by a food business to remove unsafe food from distribution, sale and consumption. Recall is the methodology of recovering damaged products from customers and compensating those customers. Recalls frequently happen as a consequence of safety concerns over a defect in a product that may hurt the customers. A company usually recalls its product when the product is substandard or it is dangerous (Pruitt & Peterson, 1986; Chu et al., 2005). The process starts when one of the stakeholders such as supplier, retailer or customer finds a fault in the product. The company could take to recall such product immediately by choice or it can be forced by an agency to do so [6,7]. A manufacturer might release such products, which are harmful for his customers. If it happens then the company will publicly announce the danger of the product and demand for the return of the defected product or dispose of the product, which the customers had bought. Customers will usually be given a full refund or replacement [8,9]. An advertising campaign is frequently created to handle the publicity of the event.

Most of the marketing literature about product recalls comes from the public relations arena, focusing on the managerial aspects of how to implement a product recall [10,11] or how to deal with product-harm crisis. Few empirical studies deal with how consumers perceive and react to product recall information, and what variables influence this process, with the exception of the

studies by Mowen [12], Mowen et al. [13] and Jolly and Mowen [14].

In a non-experimental approach, Mowen et al. [13] surveyed two hundred consumers in order to investigate their perceptions of four companies that had recalled products (Ford, Firestone, Corning Glass Works, Conair). They found that consumer reactions were influenced by the knowledge that a recall had been made, the perceived danger of the defective product, the perceived corporate responsibility of the company, the knowledge of recalls by other companies, and the perceived responsibility of the company for the defect. In the multiple regression models, only the variables regarding the length of time to make the recall and whether or not the company had had previous recalls did not significantly influence the dependent one (i.e. consumer perceptions) in any of the four companies.

In order to minimize this potential negative effect of the product recall message on consumer behaviour, the company making a product recall should emphasize that it is taking action in a socially responsible manner [13]. Other factors can also influence how consumers process the product recall information, including the source of the information (i.e. the own company or an external agency) and the media used (i.e. printed, radio or TV). Jolly and Mowen [14] have found that the recall was perceived as more objective when it was presented by the government, and not by the company; and also that the print medium was viewed as more trustworthy and objective than the sound one.

Product recalls can also be considered as one of the possible company responses in a product-harm crisis. In this context, studies have tried to explain which factors affect consumer perceived danger in the presented problem and the behavioural intentions toward the company's other products. It was found that the degree of danger associated with the defect is small when (i) the company has a high reputation; (ii) the external effects by the press and regulatory agencies are positive to the company's response during the crisis; and (iii) the company responds to the crisis by a voluntary product recall or by being socially responsible and demonstrating concern with consumer welfare.

1.1 Objectives

The main objective of the paper was to study the consumers' opinion towards food product harm crisis with specific objectives as follows:

- ❖ To study the consumers' awareness about food product harm crisis
- ❖ To examine the consumers' reaction towards food product harm crisis
- ❖ To analyze the factors influencing purchase of food products before and after food product harm crisis
- ❖ To study the consumers' purchase behaviour if the product is subject to recall
- ❖ To look at the consumers' opinion about product recall

2. MATERIALS AND METHODS

Convenience sampling method was used to select the respondents of the study. Data were collected from 100 respondents using structured questionnaire through online survey. The study used percentage analysis and binomial logit regression to assess the objectives of the study.

$$\text{Percentage analysis} = \frac{\text{Number of respondents}}{\text{Total sample}} \times 100$$

2.1 Binomial Logistic Regression

Binomial logistic (logit) regression / binary logistic regression was incorporated using STATA in order to predict whether the respondents are being influenced /not influenced in non-purchase of food products. A binomial logistic regression is used to predict a dichotomous dependent variable based on one or more continuous or categorical independent variable(s). It is the most common type of logistic regression and is often simply mentioned as logistic regression. The binary logit model employed to see the degree of influence of each factor on non-purchase is as follows:

$$P(Y) = \frac{e^Y}{1+e^Y}$$

Where, Y = Binary outcome variable indicating whether the respondents are being influenced i.e. Y = 1 if influenced and Y = 0 if not influenced. It was assumed that Y is linearly related to the independent variables shown below:

$$\ln(P / (1 - P)) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9$$

Where,

- ❖ P is the probability of respondents being influenced (Y=1);
- ❖ 1-P is the probability of respondents being not influenced (Y=0);
- ❖ X₁ = Age of the respondents;
- ❖ X₂ = Gender (0 – Female; 1 – Male);
- ❖ X₃ = Education
- ❖ X₄ = Advertising medium
- ❖ X₅ = Awareness of food harm issues
- ❖ X₆ = Negative word of mouth
- ❖ X₇ = Quality of food products
- ❖ β₁,β₂.....β₇ = Co-efficient values.

3. RESULTS AND DISCUSSION

3.1 General Characteristics of the Respondents

Table 1 depicted the general characteristics of the respondents. From the total sample (N=100), more than half (59 percent) belonged to the age category of 21-30 years. Majority of the respondents were female (58 percent). Besides, most of the respondents were graduates (71 percent) and their monthly income (in Rs.) was almost equally distributed in the given category viz. >25000 (36 percent), <15000 (32 percent) and 15000-25000 (32 percent). Nearly, 39 percent of the respondents spent around Rs. 2000-4000 on food.

3.2 Awareness about Food Harm Crisis among the Respondents

Consumer safety has become a major concern worldwide leading to an increased number of product withdrawals and recall. The consumers gained information related to food harm crisis through various media. As awareness plays a major role in purchase decisions the same was enquired and results were presented in Fig. 1. It is inferred from the Fig. 1 that 90 percent of the respondents were aware about the food harm issues in Coca-cola followed by Kurkure (86 percent) and Maggie (85 percent). Besides, 63 percent of the respondents were aware about issues in Cadbury chocolate bars and nearly 59 percent of the respondents were listed about kinder joy.

Table 1. General characteristics of the respondents (N=100)

S.no	Variables	Frequency	Percentage (%)
1	Age		
	<20 years	11	11.00
	21-30 years	59	59.00
	31-40 years	19	19.00
	>40 years	11	11.00
2	Gender		
	Male	42	42.00
	Female	58	58.00
3	Education		
	Higher secondary	3	03.00
	Diploma	6	06.00
	Undergraduate	71	71.00
	Postgraduate	20	20.00
4	Monthly income		
	<15000	20	32.26
	15001-25000	20	32.26
	>25000	22	35.48
5	Expenditure incurred on food		
	<2000	13	13.00
	2001-4000	39	39.00
	4001-6000	27	27.00
	>6000	21	21.00

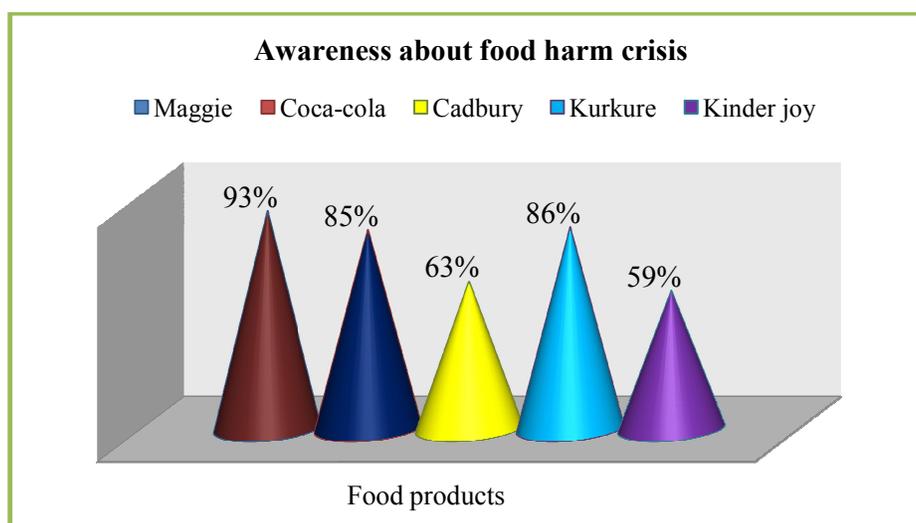


Fig. 1. Respondents' awareness on food harm crisis

3.3 Respondents' Reaction towards Food Harm Crisis

Respondents' reaction towards food harm crisis were collected and presented in Table 2. The reactions include "will stop buying it, will go for alternatives, wait till regulation occur, and cross check if news is correct" if there occurs any issues regarding the quality of food products. As

expected the results inferred that major proportion (48 percent) of the respondents would go for alternative product if they found any harmful issues regarding the products they usually buy. 20 percent of the respondents claimed that they would cross check the issue before taking any decision. Nearly, 18 percent of the respondent said that they would stop buying the product if any harmful issues arise.

Table 2. Respondents reaction towards food harm crisis (N=100)

S. no	Respondents' reaction	Frequency	Percentage (%)
1	Will stop buying the product	18	18.00
2	Will go for alternative product	48	48.00
3	Wait till regulation occurs	14	14.00
4	Cross check if news is correct	20	20.00
	Total	100	100.00

3.4 Factors Influencing Purchase of Food Products before and after Food Harm Crisis

Table 3 portrayed the factors influencing purchase of food products before and after food harm crisis. Majority of the respondents (35 percent) purchased food products based on the product's taste before food harm crisis. Grippingly, after food harm crisis the proportion of respondents' repurchase behaviour was influenced by quality (56 percent) rather than taste. Brand name influenced purchase for nearly 20 percent of respondents before crisis. However, the influence of brand name drastically reduced after crisis (10 percent). There was no much difference in the influence of price and promotional activities before and after crisis compared to other three factors.

Fig. 2 portrayed the influence of negative word of mouth towards purchase of food products. Out of

100 respondents 54 percent were influenced by negative word of mouth due to health harming issues and stopped buying and 46 percent of the respondents were not influenced by the negative word of mouth.

3.5 Purchase Behavior if Chosen Product is Subject to Recall

Table 4 depicted respondents' purchase behavior if chosen product under specified brand is subjected to recall after harm crisis. Four responses were noted and shown in Table 4. The results revealed that the majority of respondents (36 percent) would buy the product again if the issues were resolved. This shows their loyalty towards the brand. In addition, 30 percent of the respondents claimed that they would shift to another brand if any issues arise. On contrary 26 percent of the respondents said that they would not buy if the product is subject to recall after food harm issues.

Table 3. Factors influencing purchase of food products before and after food harm crisis

S. no	Factors	Percentage of respondents	
		Before crisis (%)	After crisis (%)
1	Brand Name	20.00	10.00
2	Quality	35.00	56.00
3	Price	03.00	07.00
4	Promotions	02.00	04.00
5	Taste	45.00	23.00
	Total	100.0	100.0

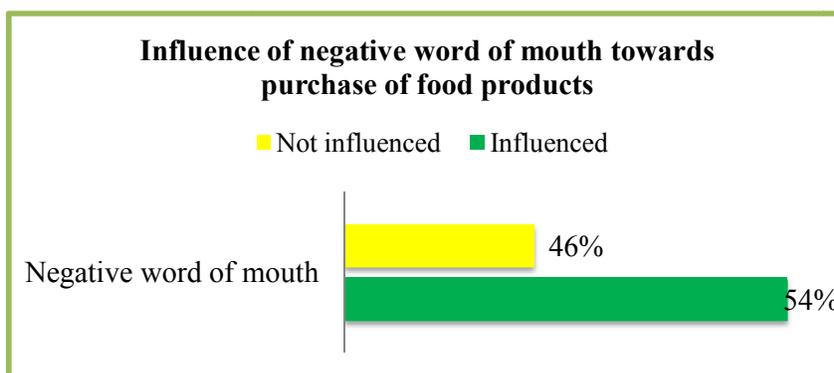


Fig. 2. Influence of negative word of mouth towards purchase of food products

Table 4. Respondents’ purchase behaviour if the product is recalled

S. no	Purchase behavior	Frequency	Percentage (%)
1	Will not buy again	26	26.00
2	Will buy is problems were resolved	36	36.00
3	Will shift to another brand	30	30.00
4	Will buy if after sales service is good	8	8.00

3.6 Consumers’ opinion about Maggie Noodles during Ban

In June 2015, Maggie noodles sample in Lucknow were reported to have tested positive for lead and MSG and it was banned which resulted in recall of the product. When a popular product like Maggie faces issue it is normally difficult for that product to be repurchased. Hence, respondents’ opinion about Maggie during ban was asked and tabled.

It is shown from Table 5 that more than half of the respondents didn’t think about the product at all and nearly 40 percent of the respondents were not convinced with the quality of Maggie. This shows the lack of trust in the quality of that product among the respondents. Regrettably, 3 percent of the respondents gave positive opinion about the product.

3.7 Factors Influencing Non-purchase of Food products

As indicated previously, binomial logistic regression was employed to study the relationship between the dependent variable (influence to not to buy) and predictor variables viz. age, gender, education, income, expenditure incurred, advertisement medium, awareness of food harm issues, negative word of mouth and quality of food products. The values of coefficients and their statistical significance are portrayed in Table 6.

The results revealed that awareness of food harm issues and negative word of mouth shown a significant positive impact on non-purchase of food products, whereas the quality of food products turned out to be influencing negatively on non-purchase behaviour.

Table 5. Respondents’ opinion about Maggie Noodles during ban

S. no	Purchase behaviour	Frequency	Percentage (%)
1	I was secure Maggie was innocent	3	3.00
2	I was skeptical about quality of Maggie	39	39.00
3	I didn’t think at all	58	58.00
	Total	100	100.00

Table 6. Estimates of factors determining Non -Purchase decisions using logit model

S. no	Factors	(β)	Std. error	Wald	Sig.	Exp (β)	Odds ratio
1.	Age	-0.005	0.0104	-0.50	0.614 ^{NS}	0.995	0.4987
2.	Gender	0.143	0.3404	0.42	0.673 ^{NS}	1.154	0.5357
3.	Education	0.359	0.2956	1.21	0.225 ^{NS}	1.432	0.5888
4.	Expenditure incurred	-0.389	0.8189	-0.48	0.063 ^{NS}	0.677	0.4036
5.	Advertisement medium	-0.096	0.0432	-2.23	0.026 ^{NS}	0.908	0.4758
6.	Awareness of issues	1.559	0.5517	2.83	0.005*	4.754	0.8262
7.	Negative word of mouth	2.364	1.2172	1.94	0.052***	10.635	0.9140
8.	Quality of products	-0.096	0.0432	-2.23	0.026**	0.908	0.4758
	Constant	-0.637	1.2884	-0.09	0.621	0.529	0.3460

Source: Estimated using logit model from primary data

*Significance at the 1 percent level; ** Significance at the 5 percent level; ***Significance at the 10 percent level; NS: Non-Significant

As indicated by the Exponential (β) values, a value less than one indicates an inverse relationship between non-purchase behaviour and factors determining it. Thus, when the awareness of food harm issues increase by one unit, then the probability of non-purchase behaviour increases by 5 times. Similarly when the odds of prevailing negative word of mouth increase by one unit, then the probability of having non-purchase behaviour would increase by 10 times. Normally consumers rely more on word of mouth for their purchase decisions. The brands normally take longer duration to create the trust among the consumers. In present day environment, both positive and negative information reach consumers easily and thereach is highly exponential due to various sources namely social media etc. consumers have less time to verify the authenticity of information and so it may create problems for brand if adequate measures are not taken.

An analogous justification could be related to quality of food products in which a reduction in one unit of quality leads to increase in the probability of having non-purchase behavior by one unit.

4. CONCLUSION

A product recall is the process of retrieving defective and/or potentially unsafe goods from consumers while providing those consumers with compensation. Recalls often occur as a result of safety concerns over a manufacturing defect in a product that may harm its user. This study aimed at examining the opinion of consumers about food product harm crisis and their reaction towards product recall. From the study it is inferred that majority of the respondents were female, belonged to the age group of 21-30 years. Most of the respondents were graduates and major proportion of the respondents' income was above Rs.25000. Almost 70 percent of the respondents claimed that the quality is the major factor influencing purchase of food products rather than its taste and promotional activities.

Almost all the respondents were aware about recent food harm crisis in India. Majority of the respondents agreed that they would switch the brand if there is any quality issues arise in usual brands they are buying. The results of binary logit revealed that awareness of food harm issues and negative word of mouth shown a significant positive impact on non-purchase

behavior of food products, whereas the quality of food products turned out to be influencing negatively on non-purchase behaviour.

By and large the study inferred that brand loyalty is solely depending on the quality of the product. In order to overcome the food harm crisis, it is suggested that, stringent measures need to be taken regarding the quality of the product, traceability system needs to be implemented for the food products to ensure food safety.

COMPETING INTERESTS

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly using products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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