



Research Article

Urban Consumer Trust of Information That News Papers Report About the Quality of Milk Sold in Kenya

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Abstract

This study analysed contents of articles in newspapers about milk quality and safety in Kenya to determine prevalent themes and interviewed consumers to determine whether they trust and value the information that is communicated. The newspaper articles (n=215) were published between January 2014 and June 2018 in five major national newspapers while consumers (n=368) were interviewed in four major towns. Qualitative thematic analysis subjected to Chi square test statistics determined the prevalent thematic content in the articles while conditional probability computations determined print media information on milk quality and safety being trustworthy and of educative value to consumers. Results revealed that the prevalent themes were “causes” of poor quality and unsafe milk (44%) and “innovations” for improving milk quality and safety (37%). The theme “causes” was more attributable to poor hygiene (15%) and poor quality feeds (11%) while theme “innovations” was more attributable to use of coolers and pasteurizers (18%). The probability of consumers trusting print media information was higher among those frequently reading newspapers (85.7%) compared

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to those rarely reading newspapers (20%). However, hardly two in ten consumers trusted the communicated information and the probability of the information being of educative value was low (14 to 29%). The findings indicate that what newspapers report about milk quality and safety is about how to improve product safety and quality. This information is more relevant to milk producers, processors and distributors but less relevant to consumers about risk exposure from consuming marketed milk. Because consumer trust of the print information increase when frequently reading newspapers, partnership between the media and the regulating authorities would bolster the role of print media in communicating risk-benefits of milk quality and safety to urban consumers in Kenya.

Keywords: Dairy industry; Food safety; Print media; Risk-benefit communication; Thematic content analysis

Introduction

The print media has an important role in communicating risk-benefits of food quality and safety to the public, consumers included. The food quality and safety information communicated in the print media educates a wider public relative to scientific communication. Readily accessible and educative risk-benefit communication can enhance consumer protection and their confidence in the food that they consume and trust in food safety governance system [1]. The FAO/WHO [2] define effective food safety risk communication as exchange of information and opinions about the risks and risk-related factors associated with food safety hazards and risks. This has great relevance in Kenya today because the quality and safety of traded milk is a pervasively recurring public health concern, barrier to trade opportunities and diminishes competitiveness of the dairy industry [3-6]. Kenya's fast growing dairy industry would benefit from effective risk-benefit communication in protecting public health and trade opportunities and enhancing competitiveness of the industry.

In Kenya, the print media regularly publishes articles on agricultural topics, some of which may be of educative value to consumers regarding quality and safety of traded milk. The major newspapers with national coverage have weekly pull-out agribusiness magazines that features topics in agriculture including milk safety. These, for instance include the *Seeds of Gold* in the Nation newspaper and *Smart Harvest* in the Standard newspaper. However, the educative and informative value to consumers of the content of those articles and as to whether consumers trust the content is largely unknown. Moreover, how the print article content informs the pervasive debate about the safety and quality of traded milk in the country is yet to be subjected to analysis in Kenya.

The media has acknowledged roles in communicating risk-benefits of food quality and safety to the public. A thematic content analysis in China [7] recently found that the media plays a complementary role in food safety governance, exposing a wider range of incidents. However, trust of the media messages can sometimes be low, as found in Australia where trust levels were lower in media reporting on food

safety than on food regulations about food safety [1]. The reasons for low levels of trust in media reporting underscores the need for applying best practices in communicating risk-benefits about food issues.

From a systematic review of 54 papers on the risk-benefit communication about food, a study [8] concluded that it is best practice to consider the target population and the content and source of the information. For consumers, the basis for their attitudes, intentions and behaviour in food purchases can be traced to their perception of the risks. Perceptions of potential risk exposure from poor quality and unsafe milk can be important source of influence on milk purchasing behaviour of consumers and policy responses on the basis of public health concerns.

This study was aimed at elaborating on what messages or information the newspapers communicate about milk safety in Kenya and whether consumers perceive that information as trust worthy and educative. The study adopted qualitative content analysis and consumer survey to answer three research questions. Firstly, what is the prevalent thematic content about milk quality and safety in the newspaper articles? Secondly, what is the level of consumer trust of the information about milk quality and safety in the newspapers and thirdly, what is the degree to which consumers find newspaper information on milk quality and safety educative to them? Three underlying assumptions guided the study. One, that print media articles communicate educative content to consumers about milk safety and quality. Two, that consumers' trust of the print media information is influenced by frequency of reading the newspapers. Three, that the newspaper information can be educative to consumers if the content is about health risks that directly affect them.

Materials and Methods

Data sourcing

The data for this study came from articles published in five national newspapers and consumer survey interviews in four major towns in Kenya with high milk consumption in the county. The newspapers, all private publishers, were the Daily Nation, the Standard Newspaper, Business Daily, The Star, and the East African. All of these have national circulation and regularly publish articles in English on agricultural topics, some of which are about quality and safety of traded milk. The criteria applied in selecting the newspapers were: i) has a national coverage, ii) publishes in English language, iii) regularly publishes articles on agricultural topics, some of which are about quality and safety of traded milk and iv) is accessible from online database in Egerton University Library using the Open Access Catalogue (OPAC system). A search was performed using two terms: "milk quality" and "milk safety" to yield newspapers with articles on milk quality and safety. Only articles published between January 2014 and June 2018 were retrieved and selected from the archive section in the library for screening. The screening was performed to exclude articles that were editorials, news brief, medical brief, direct question-answer interviews, letters to the editors and advertisements. The screening yielded a total of 215 articles for in-depth content analysis.

For the consumer survey, a sample of 368 consumers was randomly approached for interviews at different milk market outlets. Before engaging a consumer for interview, the researcher explained the

objectives of the study, kind of information sought and made assurance of confidentiality for the information that they offered. A structured questionnaire with questions on food risk-benefit communication was administered to a consenting consumer respondent.

The questions about milk quality and safety information were the frequency of accessing information from newspapers (0=never, 1=rarely, 2=often, 3=frequent), degree of trusting print article information (1=very untrustworthy, 2=somewhat trustworthy, 3=neutral, 4=somewhat trustworthy, 5=very trustworthy), and the educative value of the information (1=very low, 2=low, 3= moderate, 4=high, 5=very high).

Content and data analysis

A literature review of scientific publications provided background for issues of importance about quality and safety of milk and formed basis for starting the coding scheme. Further, the coding scheme was validated by technical experts in milk safety and quality to objectively contextualise thematic content in the articles. The identified issues of importance were benefits, health risk, regulations, policy, standards, innovations, causes, business opportunities. The second author was assigned to perform frequency tabulation of these content words in each article retrieved then subsequently characterize them into themes that the content most reflected. The other authors validated consistency of the contents of each thematic category to reflect a common meaning [9]. Computation of intercoder reliability was not applicable in this study because only one coder performed coding [10,11]. Frequency distribution was subjected to Chi-square test statistics to determine the prevalent thematic content about milk quality and safety in the 215 articles and conditional probabilities were computed of consumers trusting and attaching educative value to information on milk quality and safety published in the newspaper articles.

Results

Print media content on milk quality and safety

Table 1 presents percent distribution of the print media articles published in the period January 2014 to June 2018 by theme content on milk quality and safety. Four themes were identified differing in prevalence ($p < 0.05$). In order of decreasing prevalence, the themes were: "Causes" of poor quality and safety of milk (44%); "Innovations" for improving milk quality (37%); "Benefits" of quality and safer milk (11%); "Risks" posed by poor quality and unsafe milk (9%). On causes theme, the most prevalent content was on poor hygiene (15%) and poor quality feeds (11%), whereas on innovations theme the most prevalent content was on milk coolers and pasteurizers (18%). Less prevalent content in the articles examined were themes on "benefits" of quality and safer milk and theme on "risks" posed by poor quality and unsafe milk. The content reported under the theme "benefits" of quality and safer milk were frequently about income earned and quality of the product. The content that featured more frequently within the theme "risks" were presence of antibiotics and use of unapproved chemicals, either as preservatives or additives.

Consumer trust and educative value attached to print media information

The characteristics of the sample consumers (Table 2), reveal a general dominance of females over males (57% vs 43%) who were

self-employed (52.2%) youths below 35 years old (57%) with at least secondary level education (88.6%) residing in the urban areas (83%).

Theme	Articles (n)	%
Causes	94	43.7
Poor hygiene	32	14.9
Poor quality feeds	24	11.2
Milk adulteration	20	9.3
Mastitis disease	9	4.2
Not observing antibiotic withdrawal period	9	4.2
Innovations	79	36.7
Milk coolers and pasteurizers	39	18.1
Milking machines	13	6.0
Milk quality testing kits	10	4.7
Milk processing	6	2.8
Solar milk cooling system	7	3.3
Vending machine milk retailing	4	1.9
Benefits	23	10.7
More income	12	5.6
Quality product	11	5.1
Health risk	19	8.8
Presence of unapproved chemicals	11	5.1
Presence of antibiotics	8	3.7
Total	215	100

Table 1: Percent distribution of articles by their theme content about milk quality and safety as published in the five major Kenyan newspapers between January 2014 and June 2018.

Fisher's Exact Test; $p=0.001$

Descriptor	Sample (n)	Proportion (%)	Chi square (χ^2)
Gender			6.793*
Female	209	56.8	
Male	159	43.2	
Age (years)			135.364**
≤ 35	211	57.3	
36 - 50	128	34.8	
≥ 51	29	7.9	
Employment			237.652**
Self employed	192	52.2	
Salaried	134	36.4	
Casual labour	24	6.5	
Unemployed	18	4.9	
Formal education level			74.630**
Primary	42	11.4	
Secondary	150	40.8	
Post-secondary	176	47.8	
Residents			164.446**
Rural	61	16.6	
Urban	307	83.4	

Table 2: Socio demographic characteristics of the sample consumers.

Significance = * $p<.01$; ** $p<.001$

Figure 1 compares the conditional probabilities of consumers trusting information on milk quality and safety as published in the print media articles given their frequency of reading the newspapers. Of the sampled consumers, only 21.2% (78/368) reported reading the newspapers and of these consumers that read newspapers, 14.1% were very trusting and 44.9% somewhat trusting the print media information. Subjected to Fisher's exact test, consumer trust of the print media information had an association ($p<0.05$) with reading of the newspapers. The probability of very trusting was higher with frequent reading of the newspapers (0.857) compared to when rarely reading the newspapers (0.200).

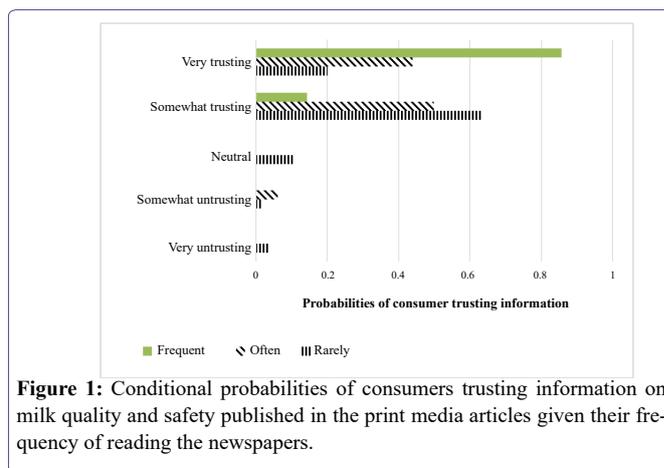


Figure 1: Conditional probabilities of consumers trusting information on milk quality and safety published in the print media articles given their frequency of reading the newspapers.

Figure 2 compares the conditional probabilities of information being educative to consumers about milk quality and safety when published in the print media articles. The probability of information being of high to very educative value to consumers was low, in the range of 0.14 to 0.29. Subjected to Fisher's exact test, the educativeness of the published information had an association ($p<0.05$) with the type of information communicated about milk quality and safety. The highest probability (0.29) of educative value was on information about the benefits of high quality milk while the lowest probability (0.14) was on information about the incentives associated with high quality milk. The probability of the information on milk quality standards and risks of poor quality milk being of high to very high educative value to consumers were both (0.24) relatively lower than that associated with the benefits of high quality milk (0.29).

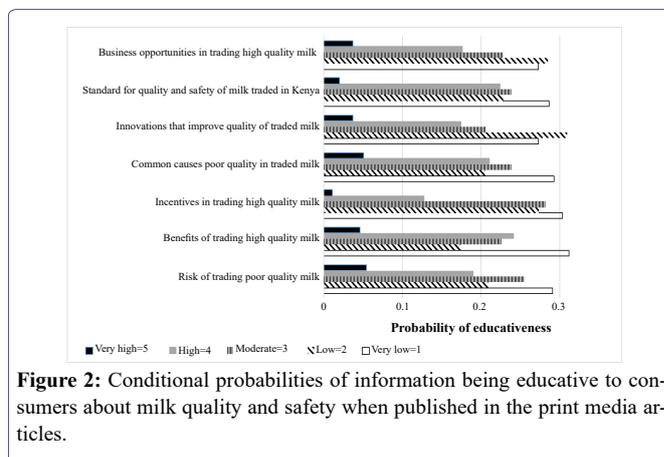


Figure 2: Conditional probabilities of information being educative to consumers about milk quality and safety when published in the print media articles.

Discussion

The prevalent story contents in the newspaper articles are a reflection of newsworthiness of the information and the public segments that they choose to target [12]. For the major five newspapers in Kenya whose articles were analysed, they find newsworthiness in content about causes of poor quality and unsafe milk and innovations for improving the quality and safety of traded milk. The article contents associated poor hygiene and poor quality feeds with poor quality and unsafe traded milk and use of milk coolers and pasteurizers to enhancing quality and safety. Because these are factual, it serves to demonstrate that print media can be factual in reporting. Poor quality feeds is traced to prevalent unsafe levels of aflatoxin (AFM1) contamination in milk [13,14] and is attributable to poor handling and storage of on-farm feeds and high demand for feeds in dairy farms [15]. Where the media demonstrates a virtue of factual reporting, regulating agencies can capitalize on that virtue, like holding regular factual briefings about milk quality and safety situation in the country. This way, in turn, the media would disseminate the risk-benefits of milk quality and safety to the public to promote awareness and advocate for interventions in identified hotspot areas in traded milk.

However, newsworthiness judged on causes of poor quality and unsafe milk and innovations for improving the quality and safety of traded milk is likely to exclude consumers from informative and educative content on which to base their milk purchasing preferences and decisions. The prevalent content theme in the print media portray information that is of relevance to enhancing milk quality and safety among milk producers, transporters, processors and milk traders. Therefore the print media can be engaged in educating milk producers, handlers and traders about safe milk production and handling. This way, the print media can play a role in disseminating informative and educative content about food quality and safety to different segments of the public. However, consumers are likely to find limited use value from article contents that little inform and educate them about the risk exposure from consuming poor quality and unsafe milk [16,17]. Presently print media communication is weak on content about health risk exposure from consuming poor quality and unsafe milk. More content around health risk exposure would be supportive to influencing milk purchasing behaviour of consumers and policy responses on basis of public health concerns with traded milk in Kenya.

In the published articles analysed, the contents on risks exposures associated with poor quality and unsafe milk were of low newsworthiness to the print media firms. This would suggest that the major Kenyan national print media are less sensational and non-alarming on issues of food risks. In addition, it would mean that the print media are contributing little to food safety governance in the country, although they do have the responsibility to play a complementary role to that played by the government. This contrast with the communication on food safety in the industrialised countries and China included. In these countries, the content in media articles on food issues prominently features health hazards and risks exposure to consumers, exposing non-compliance and unethical behaviours [7].

Milk traded in Kenya also exposes consumers to health hazards and risks from prevalent non-compliance with standards and from

unethical behaviours [18-20]. However, to consumers, the print media information was more educative on the benefits of high quality milk (probability of 0.29) than on the milk quality standards and risks of poor quality milk (probability of 0.24). In this regard, the print media information is less informing consumers about the prevalent non-compliance with milk quality standards and potential risks and hazards associated with consumption of poor quality milk. For instance, non-compliance in bacterial load is as high as 53% [21] and increases after the farm-gate along the value chain [18]. There is prevalent presence of unsafe levels of hydrogen peroxides, aflatoxin, antibiotics and water adulteration and lower than specified levels of solid not fat [5]. These are evidences supporting the need for consumer education as well, so that they are in a position to make informed purchases and foster reorientation of the dairy industry towards quality, safety, trust and transparency.

The findings that the probability of consumers trusting the print media information increases with frequency of reading newspaper demonstrates the potential for an increased role of media in educating consumers on matters of food safety. This provides evidence of the role that the print media can play a role in disseminating informative and educative content about food quality and safety. This is a role that can be exploited by the regulating authorities to enter into partnership with the media to provide access to a communication channel that quickly reaches a wider population of consumers with promotional awareness and advocacy content.

However, the print media has to publish content that is informative and educative to consumers [22]. This is an important issue, because in a random sample of consumers, hardly three out of ten (14 to 29%) considered the published content as very educative, despite their trust in print media information increasing with the frequency of reading newspapers. For this reason, development of working partnerships between the regulating authorities and the media is desirable to bolster the educative value of content published in the print media for consumers. In this study, the sample consumers were predominantly educated urban youths, who nowadays access shared information on real time basis from digital technology platform as they engage with social media most of their times. This is a likely source of influence on consumers' trust of the print media information that increased with frequency of reading newspaper because they may read sentiments, approvals or disapprovals expressed about particular food products [23,24].

Conclusion

Results show that the content of print media articles is more educative to those producing and handling milk and dairy products. This is evident from the articles primarily reporting information about causes of poor quality and unsafe milk and about innovations that actors need to apply to improve product safety and quality. Consumers find the content less educative and hardly three in ten do trust the content. However, their trust of the print media would increase with more frequent reading of the newspapers. As print media have an important role in communicating risk-benefits of food safety, they require a working partnership with the regulating authorities. This partnership should bolster, for consumers, the educative value of the content published in the print media and should enhance the role of print media in food safety communication and complementary governance. At the moment, reorientation of the dairy industry to

quality assurance and healthiness of milk and dairy products is of low newsworthiness from the perspectives of the print media. With prevalent noncompliance [5] in quality and safety standards in the dairy industry, enhancing consumer awareness is essential in fostering reorientation towards quality, safety, trust and transparency.

Author's Contribution

Conceptualization, B.O.B. and J.v.L.; Methodology, B.O.B., J.v.L. and C.W.K.; Software, B.O.B.; Data collection, C.K, Validation, B.O.B., C.K, J.v. L. and C.W.K.; Formal Analysis, B.O.B, CK; Writing-Original Draft Preparation, B.O.B.; Writing- Review & Editing, B.O.B., J.v. L. and C.W.K.; Visualization, B.O.B.; Data Curation, B.O.B, C.K.; Supervision, B.O.B.; Project Administration, C.W.K.

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Conflicts of Interest

The authors declare no conflict of interest.

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