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COMMUNICATING FOOD SAFETY IN ITALIAN AGRI-FOOD COMPANIES: THE ENTREPRENEURIAL PERSPECTIVE

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ABSTRACT The aim of the study is to understand how firms communicate food safety, in particular the objectives are twofold: 1) to investigate differences in communication food safety related attributes and customer gender and 2) to investigate differences in tools used to communicate food safety and customer gender. To attain these goals, first, descriptive statistics have been performed and, second, ANOVA was used to test any mean difference in customer gender with regard to the food safety attributes and communication tools used in the entrepreneur's perspective. Data has been collected through an online survey on a sample of Italian agri-food entrepreneurs. The empirical research revealed no significant differences between males and females in the attributes of the communication strategy, while significant differences were identified in the following communication tools: contact personnel, instant messaging and influencers. The main managerial implication for agri-food entrepreneurs consists of investing resources in different tools to satisfy male and female targets.

Keyword: food safety, communication strategy, communication tools, agri-food firms, digital marketing

Theoretical background and hypothesis

Food safety is essential in protecting public health and consumers can play an important role in strengthening overall food safety control if they can get engaged and use food safety information in their food decisions. Studies have shown that informing consumers about food safety will influence their behaviors (Choi et al., 2011), and thus helps to improve food safety controls – for example, improving inspection results (Almanza et al., 2002).

People's perceptions of food-related risks are important determinants of food choice and safety practices (Hohl & Gaskell, 2008; Frewer & Miles, 2001; Knox, 2000).

Several studies have shown that several types of concerns were held by consumers relating to safety and microbiological contamination, chemical additives, concern for animal welfare and less fortunate people, health outcomes, food marketing and promotion of 'junk' foods, and environmental issues (Hohl and Gaskell, 2008; Worsley and Lea, 2008; Worsley and Scott, 2000).

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Previous work (Beardsworth et al., 2002; Worsley and Scott, 2000) on food concerns has shown that they are related to structural or stable factors especially gender.

Women are more aware and concerned about health and food issues because they usually have more responsibility in everyday food preparation and consumption and they tend to choose more nutritious foods than men (Socrates-Grundtvig, 2006; Beardsworth et al., 2002; Worsley and Scott, 2000; Zelezny et al., 2000).

It has been known that gender moderates different relationships in consumer behaviors with respect to health- and food safety-related perceptions (Bieberstein & Roosen, 2015; Redmond & Griffith, 2003). Despite the growing importance of food safety, empirical research examining the gender role is sparse. It would be interesting to explore how the communication content of food safety may differ by customer gender in the entrepreneur's perspective. Accordingly, the following hypothesis is formulated:
H1: there are significant differences between customer gender and food safety attributes used in the communication content.

Food safety communication is important and presents enormous benefits, but in the past, it has not been particularly successful. Traditionally, food safety information has been communicated through push medias that are passive in message delivery, such as TV and newspapers. In fact, the most common outlets for food safety information have been newspapers, television, and radio (Almanza et al., 2003; Efsa report, 2018). The major drawback in push communication is that users have few choices about what information they receive and when, so the information is likely to have low relevancy, resulting in lower information usage. Additionally, the limited reach of traditional food safety communications, combined with low relevancy, reduces the impact of such communication (Dutta-Bergman, 2004). If food safety information were more accessible and the communication more engaging, consumers would be more likely to use it (Worsfold, 2006). In this regard, the Internet presents a great potential in improving food safety communications as it offers high speed, low cost, high scalability, and high message fidelity (Glasgow et al., 2006; Snyder, 2001). In fact, Internet platforms have started to become the top choice for consumers for food safety information (Almanza et al., 2017). Along with consumers' increasing interest in food safety and demand for transparency, using the Internet for food safety communication becomes more appealing. Indeed, social media offers a number of unique benefits such as potential high interactivity and good social support that make it attractive for health communication (Cline & Haynes, 2001). User Generated Content (UGC) may be particular influential in communicating food safety, and can have a persuasive influence over those making the content as the creative process leads to a greater elaboration of the message (Malthouse et al., 2016). According to a recent research conducted by the European Food Safety Authority (EFSA) consumers prefer to receive information on food safety via traditional media channels such as TV and newspaper and the website of national authorities while social media are more popular among 14-34 years-olds (Efsa report, 2018).

It would be interesting to explore how the communication tools used for food safety may be different by gender. Thus, the following hypothesis is advanced:

H2: there are significant differences between customer gender and communication tools used

Before testing the above hypothesis, through the empirical research the food safety attributes of the communication content, the targets of the communication activity, and the communication tools used, have been measured.

Methodology

The study is based on an empirical analysis conducted through a quantitative approach. We adopted a survey technique based on a semi structured questionnaire sent to Italian agri-food firms selected from the AIDA archive. The first section of the questionnaire serves to identify the following firms information: the size in terms of number of employees (micro, small, medium, large), the sector (agriculture, forestry and fishing, manufacturing activities, wholesale and retail trade, accommodation and restaurant services, professional, scientific and technical services, other services), the target of communication (final consumer, commercial intermediates, internal employees, other stakeholder), with what intensity the communication is addressed to males and females. The second part of the questionnaire asks the entrepreneurs to evaluate on a scale of from 1 to 7 how food safety related attributes are communicated and communication tools used. Food attributes were measured with six items, selected based on the main literature (Corallo et al., 2020; Nardi et al., 2020; Flynn et al., 2019; Guadalupe et al., 2019; Bonadonna et al., 2019; Sekhar et al., 2021): the quality of the production processes, the benefits on consumer's health, the quality of the ingredients, the benefits on environment and certifications.

Communication tools consist of seven items (Ferrero, 2018; Tuten & Solomon, 2020) measured with a 7-point Likert scale: traditional advertising (Tv/radio/newspaper/billboards/brochures and catalogue), packaging, direct marketing, public relations, sponsorship, personal communication, website, blog, paid search engine ads, paid social media ads, instant messaging, e mails, chatbot, influencer and social network.

Data were collected in February 2022 and 168 firms completed the questionnaire. Descriptive analysis was performed to determine the sample profile while one-way Analysis of Variance (ANOVA) was used to test any mean difference in gender with regard to the food safety attributes and communication tools used. Differences and associations were considered significant at $p < 0.05$.

Results

Firstly, the profile of the firm that participated in the survey (Table 1) was defined. Most of them are small firms (73%) and work in the agriculture, forestry and fishing sector (45%) together with manufacturing activities (36%).

Table 1 – Profile of the sample

	n	%
Firm size (num of employees)		
Micro	6	3.6
Small	122	73
Medium	34	20.4
Big	6	3
Sector of activity (Ateco code)		

a) agriculture, forestry, and fishing	75	44,6
c) manufacturing activities	60	35,7
g) wholesale and retail trade	15	8,9
i) activities of accommodation and restaurant services	5	3,0
m) professional, scientific, and technical activities	1	,6
s) other service activities	12	7,1

Concerning the target of the communication activities, table 2 show that the communication is mainly for the commercial intermediates (5.43) the internal employees (5.36) and the final customer (4.92).

Table 2 – Target of the communication strategy

Target	Mean	Std. Dev.
Final customer	4,92	1,786
Commercial intermediates	5,43	1,499
Internal employees	5,36	1,510
Other stakeholders	4,77	1,633

The study is focused on the communication strategy toward the final consumer and it emerge that, the communication strategy is mainly targeted to potential female customers (mean 5.23) instead of potential male customers (mean 4.99).

The table 3 shows to what extent are the aspects related to food safety communicated. The quality of ingredients (5.88), the certification held (5.56) and the quality of production processes (5.55) are the main aspect that are communicated. The ANOVA was conducted to statistically compare the differences in food quality attributes and gender. The test showed no statistically significant difference between males and females in terms of food quality attributes.

However, in the case of male potential customers, firms pay more attention to communicate the certification held (6) and the quality of the production processes (5.80) while for the female potential customers firms pay more attention to the health benefits for consumers (5.91).

Table 3 – Anova between food safety attributes and gender of potential customer

<i>Cronbach's Alpha</i> 0.854	All sample		Male potential customers		Female potential customers		Both males and females	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
The quality of the production processes	5.55	1,267	5,80	1,095	6,00	,798	5,45	1,331
The health benefits for consumers	5.47	1,459	5,40	2,302	5,91	1,164	5,39	1,468
The quality of the ingredients	5.88	1,198	5,40	1,817	6,22	,998	5,84	1,202
The benefits on the environment	5.31	1,443	4,60	2,302	5,22	1,380	5,36	1,420
The certifications held	5.56	1,504	6,00	1,225	5,70	1,428	5,52	1,533

M stands for mean, SD stands for Standard deviation

*Significance at 0.05 level

The main tools used to communicate food safety (Table 4) are the web site, the packaging, the personal communication and public relations.

The ANOVA analysis showed some differences between the tools used, in particular, the F-test pointed out statistically significant differences concerning personal communication, instant messaging and influencers.

Table 4 – Anova of communication tools used for food safety and gender of potential customer

Alpha Cronbach =0.898	All sample		Male potential customer		Female potential customer		Both male and female		Anova	
	M	SD	M	SD	M	SD	M	SD	F	Sig.
Traditional ads	4,01	1,824	4,80	1,789	4,80	1,789	3,98	1,820	,491	,613
Packaging	4,73	1,715	3,80	2,588	4,87	1,792	4,74	1,666	,813	,445
Direct marketing	2,59	1,769	3,60	2,793	2,22	1,565	2,62	1,755	1,353	,262
Public relations	4,54	1,901	5,00	1,871	4,74	1,764	4,49	1,937	,315	,730
Sponsorships	3,58	1,827	3,80	2,280	3,87	1,604	3,52	1,858	,385	,681
Personal communication	4,61	1,906	6,20	1,304	4,00	2,023	4,66	1,870	3,046	,051*
Website	4,96	1,768	5,20	2,490	4,96	1,364	4,95	1,818	,047	,954
Blog	3,29	1,984	3,00	2,000	3,70	1,845	3,22	2,014	,604	,548
Paid search engine ads	2,72	1,827	2,60	2,510	2,65	1,496	2,74	1,870	,031	,970
Paid social media ads	2,71	1,890	3,20	2,683	2,91	1,881	2,65	1,870	,353	,703
Instant messaging	2,44	1,815	5,00	2,828	2,65	1,584	2,30	1,742	5,880	,003*
E mails	3,50	2,039	4,80	2,168	3,13	1,792	3,52	2,070	1,408	,248
Chatbot	1,95	1,471	2,20	2,168	2,30	1,608	1,86	1,414	,938	,394
Influencer	2,03	1,608	4,40	2,702	2,43	1,727	1,86	1,451	7,431	,001*
Social network	4,01	2,197	4,60	2,510	4,17	1,969	3,95	2,237	,286	,752

M stands for mean, SD stands for Standard deviation

*Significance at 0.5 level

Discussion, conclusions and implications

The study allowed to test two hypothesis and contributes to improve the understanding of communication of agrifood companies in relation to food safety.

The results obtained show that the manufacturing firms assign a relevant score to the attributes proposed (Table 3), where the quality of the ingredients is the most important for intercepting the food safety needs of the demand. In the difference between genders, generally higher averages emerge in favor of the female group for the quality of ingredients, production processes and health benefits, while the men's group for the benefits on the environment and certifications.

As regards the specific communication tools (Table 4), the results seem to suggest that companies assign a modest role to communication processes in general. The main tools considered most effective (which obtain a score higher than 4) are website, packaging, personal communication and public relations. The web site, in line with the literature, offers the opportunity to provide more and in-depth information on products thus satisfying informative needs of specific segments of customers on food safety (Moreira et al., 2018; Rapporto Efsa, 2018) and to increase the engagement of customers also via new digital communication tools (Almanza et al., 2017; Mercer, 2023). The score

attributed to the packaging also confirms the evolution of this tool, from an element useful for protecting the product and facilitating its transport and storage, to a specific information marketing tool. However, as emerged from the study by Moreira et al., (2018), the information on the label must be evaluated to understand its effective utility. The results also indicate that manufacturing companies and distributors tend to attribute importance to the use of contact personnel and public relations, highlighting how the "trust" component, typical of human relationships, can play a decisive role in contexts involving products that affect the health and safety of people, in particular, as emerges from the study, for companies oriented towards male demand segments.

Specific tools such as instant messaging and influencers seem to play a significant role for businesses oriented towards male customer segments. In particular, the reference to social influencers refers to the innovative figure of the "Nutritional Influencer" who, unlike the food Influencer, shares multimedia content on food in a "healthy" key (Turnwald et al., 2022) and tends to provide information with the aim of transmit the principles of a healthy and balanced diet.

The study suggests some managerial implications: 1) the importance to invest in an heterogeneous communication content that is in many food safety related attributes according to gender as males and females may have different preferences ; 2) firms should also use quite a wide range of communication tools both digital such as corporate web site and traditional ones such as packaging, direct communication and public relations as males and females have different preferences , and 3) agri-food companies should put more importance on new technologies and on the human factor, as creativity and the quality of content are fundamental in communication activity especially in an increasingly challenging sector such as food industry.

The research is in progress as data collection still continues.

The study, at this stage, provides useful insights to continue with future research.

As this research takes into consideration only how companies communicate to the final consumer target in the entrepreneur perspective, other targets (intermediates, internal employees, etc.) could be analyzed and compared.

Another interesting line of research that could be developed in the light of our results could investigate what is the gap between consumers and firms in terms of attributes and of tools to communicate food safety or understand if the attributes adopted by agri-food entrepreneurs are also important for consumers. Do companies use adequate tools for the various targets in consumers' perspective?

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