Exploring Chinese Consumers' Attitudes Towards Traceable Dairy Products: A Focus Group Study

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Abstract

Dairy products are an essential part of a healthy diet, and dairy is an emerging food industry in China. With rapid economic development, Chinese consumers are increasingly health-conscious and are becoming more selective about the quality and safety of dairy products. Adopting a qualitative approach, we explored Chinese consumers' perception of dairy food safety and attitudes towards traceable dairy products through nine focus group interviews administered in four urban locations in North and South China, with a total of 61 participants. Results showed that a high prevalence of food safety incidents triggers consumers to lower their confidence in food safety and to pay more attention to the news about food safety incidents in the media, including social media. Chemical residues ranked as the first concern on food safety in the dairy industry. Meanwhile, traceable dairy products were not well known among consumers. Although the possibility to trace back all stages of the food supply chain in the dairy sector was considered important, respondents raised doubts about the truthfulness of traceability information.

Keywords: Dairy products, Food traceability, Consumer perception, Focus group

INTRODUCTION

Dairy products are essential components of the diets, and there has been an upsurge in consumption worldwide, especially in developing countries (Handford, Campbell, & Elliott, 2016). The dairy industry in China is new, with huge development potential as part of China's food industry, also thanks to strong government support (Wu et al., 2018). As the developing country with the largest world population, there is a great demand for dairy products in China. According to forecasts, 2018 consumption of milk will reach 41 million tons, about 9.5 per cent higher than in 2017 (Ward & Inouye, 2018). Nevertheless, with the rapid development of the dairy industry in China, many problems concerning safety and quality management have arisen. Dairy quality and safety have emerged as crucial issues because food safety incidents occur more frequently in this supply chain, thus causing consumers to lose their confidence in the dairy industry.

To reduce food safety risks and prevent serious food safety incidents, as well as enhance consumer confidence in food safety, the Chinese Government has undertaken various policy measures to improve the safety and quality of dairy products in recent years. Establishing a food traceability system (FTS) is one of the top policy tools to attain this goal (Zhang, Bai, & Wahl, 2012). However, traceability is not a mandatory requirement for suppliers in the whole dairy industry in China but only for infant formula milk powder.

Implementation of traceability systems could lead to higher production and distribution costs, thus to higher prices of products, and price perception would directly influence demand and customer satisfaction. On the other side, it may lead consumers to perceive a higher value and to be willing to pay a premium price for dairy products. Therefore, firms working in the food business have to compare potential benefits and costs.

It is important to understand consumers' awareness of the quality and safety of dairy products, purchasing behaviour, and attitudes towards traceable dairy products to implement an FTS in the

dairy industry. Furthermore, it is necessary to know consumers' perceptions of the authenticity of traceability information.

Driven by frequent food safety incidents, a large number of studies on Chinese consumers' perception and behaviour for dairy products have been carried out. Chinese consumers' perception of certified dairy products has received increasing attention by scholars due to increasing concern about food safety among consumers (Quan, Zeng, & Liu, 2011; Wang, Mao, & Gale, 2008; Xu, Zhou, & Lone, 2016). Indeed, Chinese consumers are concerned about the safety and quality of the dairy products they consume (Qiao et al., 2010). Some previous studies have emphasised the demographic characteristics that could affect their risk perception of dairy products. Specifically, consumers' family income significantly affects milk safety concerns (Xu, Zheng, & Motamed, 2010). Wu, Yin, Xu, & Zhu (2014) reported that most Chinese consumers had a lack of knowledge of organic food but had a higher WTP for EU and US infant milk formula with organic certification labels. They also found that, in addition to the price factor, the organic certification label, brand, and country of origin are the most important attributes for consumers while purchasing infant milk formula. In another study, young females with a strong educational background have expressed a high safety concern and have the strongest consumption desire for organic milk, while those who shop for the family tend to support organic milk and willing to pay more for the organic milk (Xu et al., 2016).

Some studies specifically aimed to examine consumers' attitudes towards traceable dairy products. Consumers are generally willing to pay higher prices for infant formula with traceable labels, and generally do not approve sales in pharmacies (Zhu & Xu, 2017). Traceability information was more important than brand or country of origin for Chinese consumers while purchasing infant milk formula (Yin, Li, Xu, Chen, & Wang, 2017). A study by Yin et al. (2014) based on the analysis of policy background, analysed consumers' willingness to pay to examine the effects of public management policy through choice experiments. The research showed that consumers had a higher WTP for infant milk formula with traceable information labels, famous

brands, and overseas production place. Bai et al. (2013) indicated that consumers significantly prefer traceable milk products to those carrying no traceability information.

Despite the importance and perceived value of traceability information for dairy products has been established, at the best of our knowledge, no research using a qualitative approach has dealt with the attitudes of consumers towards traceable dairy products. The absence of qualitative studies may lead to a lack of in-depth understanding of the issue at hand, since quantitative studies may have been designed considering only the researchers' view of the problem, thus missing important aspects. This study is aimed at addressing this gap, providing a more comprehensive insight into Chinese consumers attitudes towards traceable products, even though with the typical limitations of a qualitative approach.

The research questions to be addressed here are:

- What is the Chinese consumers' perceptions of food safety in the dairy sector?
- What attitudes do Chinese consumers' have towards traceable dairy products?
- What are Chinese consumers' attitudes towards traceability certification authorities?

This research aims to explore Chinese consumers' perception of dairy food safety, purchasing behaviour related to dairy products, as well as, analyse consumer attitudes towards traceability systems and traceable dairy products through a qualitative approach. This paper addresses the following objectives:

- to explore consumers' perceptions of food safety of dairy products;
- to investigate consumer attitudes and perceptions towards traceability in the dairy industry.

As an exploration, the purpose is to highlight notable issues and to provide insights that, although they cannot be generalised and must be considered with care, can serve as a useful input for further research. We aim to provide a useful contribution and a possible starting point to inform more in-depth qualitative and quantitative analyses on this crucial topic.

MATERIALS AND METHODS

Many methods are available for consumers attitudes and perceptions, such as individual interviews, focus groups, nominal group technique, concept mapping, Delphi method, etc. (Powell & Single, 1996; Hasimu, Marchesini, & Canavari, 2017; Su & Canavari, 2019). Each qualitative technique may have advantages and disadvantages that make them more or less suitable to achieve the research goals (Morgan & Krueger, 1993; Morgan, 1996).

Among the qualitative techniques available, we identified focus group interviews as the most appropriate method for this study, thanks to its ability to stimulate the participants' reactions to new information while they are expressing their thoughts (Crovato, Mascarello, Marcolin, Pinto, & Ravarotto, 2019). In-depth interviews allow the researcher to have a very intense exchange of information with the subject and are suitable when dealing with sensitive or confidential information. Focus groups, on the other hand, are more efficient and enable researchers to identify quickly the full range of perspectives held by the participants in the group discussion. In focus groups, participants can clarify or expand upon their opinion, in the light of points raised by other participants, thus considering more in-depth elements that might be ignored or left underdeveloped in in-depth interviews (Powell and Single, 1996). Thus, a distinctive feature of focus groups is the generation of data through social interaction: the researcher can take advantage of group dynamics interactions between participants, which allows for a better observation of consensus and disagreements between individuals (Belk, Fischer, & Kozinets, 2013). Consumer focus groups are suitable to efficiently explore a number of experiences and ideas of the participants, allowing them to interact, stimulate each other, compare their views, and helping the researcher to gather insight about the group feelings (Morgan & Krueger, 1993; Morgan, 1996; Threlfall, 1999).

The same method has been used in the study of consumers perception in food markets in China or other countries (Asioli, Canavari, et al., 2014; Bruschi, Shershneva, Dolgopolova, Canavari, & Teuber, 2015; Cui, Liu, Woock, Zhang, & Cacciolatti, 2016; Hinkes & Christoph-

Schulz, 2019; Kendall et al., 2018; Lindberg, Salomonson, Sundström, & Wendin, 2018; Roos, Hansen, & Skuland, 2016; Williams, Stewart-Knox, & Rowland, 2004).

Focus group procedure

Interview guidelines were defined based on the literature review and organised in three sections. In the first section, participants were asked to give their opinion relating to food safety concerns. In the second section, consumers were asked about purchasing behaviour and food safety perception of dairy products. The last section led the group into discussions about consumer attitudes toward traceable dairy products and the actors in the food traceability system.

Each focus group interview lasted approximately 90 minutes; before starting the interview, participants were provided with the interview guideline. The participants were told to discuss three categories of dairy products: (1) Milk, (2) Yogurt, (3) Infant formula milk powder.

The data for the study were collected during nine focus group interviews, a number that is higher of most similar studies based on this method (Nyumba, Wilson, Derrick, & Mukherjee, 2018); this number results from both time and budget constraints and from the consideration of saturation in the emergence of new information from the new focus groups (Guest, Namey, & McKenna, 2017).

Geographically, data were collected in four cities (Figure 1): Urumqi and Changji in the Northwest of China (North Group), and in Haikou and Quanzhou in the South of China (South Group). Urumqi and Changji belong to the Xinjiang Uygur Autonomous Region (Xinjiang). Urumqi is the capital city of Xinjiang, which is one of the important high-quality milk sources and significant production areas of dairy products in China. Haikou is the capital, and most populous city of the Hainan province and Quanzhou is the largest metropolitan region in the Fujian province, its GDP ranked first in the Fujian Province for 20 years, from 1991 to 2010. To a certain extent, Haikou and Quanzhou are representative of the coastal regions of South China.

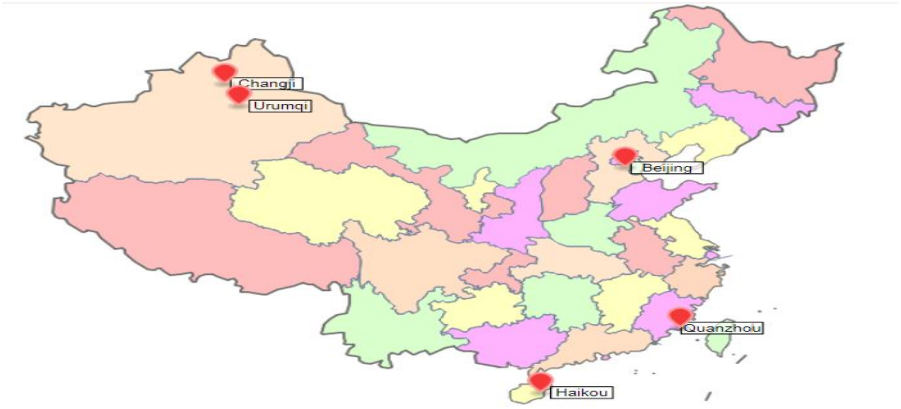

Figure 1. Focus group locations.

The Focus groups were conducted from January to April 2018. Altogether, 61 consumers (24 male, 37 female) of dairy products participated in the focus group interviews. Three focus group sessions were held in Changji, while two sessions were held in each of the other locations.

Most scholars using focus group interviewing recommend a group size of six to twelve people. If there are more than 12, the session takes too long, and group interaction becomes more difficult to achieve, if there are fewer than six, there may be insufficient interaction (Lichtman, 2014). Consistently with best practice, in our study each focus group contained 6-9 participants recruited based on selection criteria aimed at achieving a balance for demographic characteristics and purchasing habits, specifically: 1) gender (40% males and 60% females), 2) age (18–60 years), 3) education background, 4) socioeconomic status (middle/upper class) 5) purchase of dairy products in the last three months. Participants in peer groups were invited to the same group for discussion to reduce heterogeneity among participants in our focus groups. The final composition of the groups is summarised in Table 1. Except for G4, participants in other groups were mostly in the same peer groups.

167

168 ***Table 1. Focus group participants' characteristics***

Focus group location	Focus group number	Participant No	Participant code	Age	Gender	Family members	Personal monthly income (RMB)	Education background
Urumqi	*1*	*n=8*	*G1 M* *G1 F*	*21-25*	*4 M* *4 F*	*2-5*	*1000-4000*	*BD*
	2	*n=6*	*G2 M* *G2 F*	*21-24*	*3 M* *3 F*	*3-4*	*1200-2000*	*BD*
Changji	*3*	*n=9*	*G3 M* *G3 F*	*21-36*	*4 M* *5 F*	*1-5*	*1000-8000*	*BD*
	4	*n=6*	*G4 F*	*23-55*	*6 F*	*4-6*	*2500-4000*	*JMS,HS,BD*
	5	*n=6*	*G5 M* *G5 F*	*18-23*	*4 M* *2 F*	*3-5*	*1000-2300*	*TD, BD*
Quanzhou	*6*	*n=6*	*G6 M* *G6 F*	*22-26*	*3 M* *3 F*	*3-8*	*1500-4000*	*BD*
	7	*n=6*	*G7 M* *G7 F*	*40-60*	*2 M* *4 F*	*3-5*	*1500-4000*	*PS, JMS, HS*
Haikou	*8*	*n=6*	*G8 F*	*26-41*	*6 F*	*2-4*	*3000-8000*	*TD, BD*
	9	*n=8*	*G9 M* *G9 F*	*29-40*	*4 M* *4 F*	*2-4*	*4000-7500*	*TD, BD*
Total	*n=9*	*n=61*		*18-60*	*24 M* *37 F*	*1-8*	*1000-8000*	-

169 *Foreign exchange quotation is 100 Euro =804.72 Yuan, 16th October 2018*
170 *M: male; F: female; PS: Primary school; JMS: Junior middle school; HS: High school; TD: Technical or vocational*
171 *degree; BD: Bachelor's degree;*
172

173 *Data analysis*

174 The participants' agreement to take part in the focus groups was based on fully informed
175 consent; all participants are anonymised. All of the focus group discussions were recorded and
176 transcribed verbatim by two research assistants managing the interviews and checked by the first
177 author and a master's degree candidate to ensure consistency. Data input and analysis were carried
178 out using the software Nvivo version 11.4.0 for Windows, which has features such as character-
179 based coding, rich text capabilities, and multimedia functions that are crucial for qualitative data
180 management (Zamawe, 2015). The first author read and re-read the verbatim text and then carried
181 out the open coding. The interview guide covered the following topics: 1) Purchasing behaviour of
182 dairy products, 2) Perception of food safety in the dairy sector, 3) Attitude toward traceability dairy

183 products, 4) Viewpoint towards the actors in Food Traceability System. The full discussion
184 guidelines are available from the authors on request.

185 **Table 2. Interview guideline**

Topic of interest	Guiding questions
Purchasing behaviour of dairy products	1. Where do you usually purchase dairy products? 2. Do you read food labels? Do you pay attention to them?
Perception of food safety	1. What do you think about food safety? 2. What kind of aspects of food safety do concern you about dairy products? 3. How do you decide whether a source is reliable? 4. Have you ever personally experienced an issue with safety in dairy products?
Attitudes toward traceability for (dairy) products	1. How important is to you to be able to track and trace back all stages of dairy production, processing, and distribution? 2. How would you explain the meaning of traceability in food? 3. Do you think traceability certification is useful? 4. Would you buy traceable dairy products? Why? Or why not? How much more would you pay for Traceability?
Viewpoint towards the actors in Food Traceability System	1. Which actor do you trust the most to manage traceability system food supply? Why? 2. Who should be responsible for ensuring that foods are traceable?

186

187 # RESULTS

188 ## *Purchasing behaviour*

189 Participants are opting for the supermarket as the primary place for purchasing dairy products
190 because they are perceived as more convenient to shop in, and they also offer many opportunities in
191 terms of selecting and buying a safety product. This preference was stronger among the participants
192 in groups from the South.

193 A large number of participants took the large retailers such as Carrefour or other supermarket
194 chains as the most frequent purchasing venue for dairy products. Also, there are some participants
195 in North groups who purchase loose milk in small retail shops such as convenience store
196 (convenience shop, or corner store) or by street vendors. The consumers think that the loose milk
197 sold there is safer and cheaper because they trust that these products are very fresh and without food
198 additives.

199 Concerning label information, with a few exceptions, most of the respondents stated that they
200 have a habit of reading the label information while buying dairy products. Nevertheless, the results
201 from the discussion show that the respondents from different groups have different attention to the

labels information during purchases milk and yoghurt products. Most of the respondents in the North group indicated that they pay the most attention to the production and expiry date. In contrast, the brand and production dates are critical information for respondents in the South group while buying milk and yoghurt.

Food safety concern

When asked about the safety of dairy products, the majority of participants reported that they were "worried" or "very worried" about the safety of dairy products. Food safety incidents were mentioned frequently, resulting in many consumers turning to imported safety and quality in dairy products.

The results from that discussion showed that consumers who live in different areas have a different perception of food safety in the dairy industry. As expected, participants in the North group have stressed the fact that they are also concerned about food safety issues, but on the other hand, they expressed more optimistic views about food safety than participants in the South group. The main reason for that could be the region in which they live - Xinjiang is one of the five traditional pasturing areas and one of the most important milk source bases of China. Participants in the North group consistently expressed higher confidence about food safety of dairy products, mainly because they feel assured by the local origin of the product and the reputation of the area as it is specialised in livestock farming.

Especially those participants who have older people or children (under 16 years old) in their family expressed more concern about food safety and quality in the dairy sector, due to the situation that they pay close attention to food safety when they prepare food for their children or parents.

The answers collected from the discussion about dairy products safety are graphically depicted in Figure 2 using word clouds. It is a visual representation of text data, widespread for reporting qualitative data (Cappelli et al., 2017). The most frequent words appeared to represent the aspect of participants' concern in the dairy sector, as it has demonstrated from the word cloud. From

the data in Figure 2, it is apparent that the respondents had a great concern in chemical residues, followed by food additives and microbial pathogens as the top three concerns. More than half of the participants mentione chemical residues during the discussion, while some other participants replied that they also worried about expired food and heavy metal pollution with dairy products.

Figure 2. Word Cloud of the aspects of concern in the dairy sector mentioned by the FG participants.

Influence of social media on consumers perception

Media coverage plays an essential role in people's food-risk perceptions following a major food scare, as media perspectives on the safety of the food supply might have an impact on those of the general public (Zingg, Cousin, Connor, & Siegrist, 2013). The news reports about food safety incidents have an impact on consumers' perception of food safety in the dairy sector. Participants gave many examples of cases of food safety incidents, which had been reported in the media such as Sudan red, Melamine milk scandal, and others. Though the melamine milk scandal happened ten years ago, consumers have restored their confidence in the safety of dairy products, but some of them have not forgotten it, because this chemical contamination scandal left many families worried about dairy products.

Personal or relatives' experience in food safety is another major factor affecting consumers 'perception. A total of 15 participants out of 61 replied that they or their relatives had direct experience of food safety issues.

Tracking-and-tracing and traceable dairy products

Most of the participating consumers expressed that tracking and tracing back all stages of dairy production, processing, and distribution is of utmost importance. They believe that traceability at all of the stages (from farm to table) can provide information that they want to know and will help them make the right choice while purchasing. Meanwhile, some of them are worried about the reliability of tracking and tracing product information. They are especially worried about the fact that the enterprises might falsify traceability information for their commercial interests.

In contrast, only few participants perceived traceability as unimportant. In this regard, some participants stated that traceability information would help authorities figure out where the problem comes from. It has been perceived almost as a relief measure, and it may not help much by improving the situation of food safety.

The results of the section on consumers' awareness indicated that most respondents do not know much about traceable food. However, some of them just had heard about it before, and a small number of respondents expressed that they had purchasing experience.

Interestingly, although some of them have not heard about traceable food before, nonetheless they could explain the concept of traceable food. The reason may be imputable to semantic reason: in the Chinese language, the word "ke zhui su" explicitly describes the concept of "traceable", it literally means "the ability to trace back", so consumers can easily guess the mean.

However, having awareness about the traceability of products means that the "traceable" - aspect does not necessarily equate with a full understanding of traceable food. When asked about the difference between traceable food and untraceable food, they stated that with traceable food, one could trace back the production information, i.e., the place and date of production or producer

information. They thought the traceability just include product information. However, according to the definition given by The Codex Alimentarius Commission Procedural Manual (FAO/WHO, 1997) traceability is "the ability to follow the movement of a food through specified stage(s) of production, processing and distribution"(Olsen & Borit, 2013). As it can be seen as obvious, most of the participants were not fully aware of the food traceability system features.

Traceability labelling and consumer confidence

Although half of the participants did not know about traceable food, after the investigators gave a brief video introduction, five out of the six participants believe that the food traceability system will be valuable to them. For them, it could enhance their confidence in food safety while purchasing dairy products. Participants explain that:

However, some other participants reported that it is not useful for them, or they do not know whether it is useful to them. Their main reason for that is the food traceability system is an ex-post measure, which can only provide the tracked information and just allows for timely recall the suspected products along the food supply chain in the event of food safety problems. It could help only the Government or enterprises determine who should be responsible for such problems. Furthermore, they were also worried about the reliability of the tracked information.

Most participants mentioned that they had not bought traceable dairy products before. Some of the participants stated that after the investigators gave a brief video introduction, they knew that they had consumed traceable milk without knowing that this is called "traceable milk.

We also asked about the extra charges for traceable dairy products and the reasons of participants do or do not buy the traceable dairy products. The results showed that most respondents are willing to bear under ten per cent extra costs for traceable dairy products. It was evident that the premium consumers were willing to pay were not high. In the supermarket, the price of traceable foods is much higher than those of normal foods (Wu, Xu, Zhu, & Wang, 2012). The result also showed that health benefits are an essential motive for the purchase of traceable dairy products. The

main reasons for not been willing to buy were given as follows: "incomprehension, distrust, inconvenience to purchase and price."

The role of Supply chain operators: trustworthiness of traceability information

In our interviews, participants indicated that they suspected the authenticity of traceability information. They were more likely to trust the traceability information certified by the Government, followed by third-party certified or international certificated. Most of them do not trust the traceability information provided by the producing company that has not been certified by any other third-party certification bodies. They worried that the enterprises might falsify traceability information for their commercial interests.

However, some interviewees stated that the traceability information certified by the domestic third-party or international agencies is valued more highly than certificates issued by the Government or enterprises. Participants explained this by saying:

Another issue worth discussing is the fact that participants who trusted government certificate or third-party agencies certificate have in common the lack of faith in enterprise certificate. They worried that the enterprises might falsify traceability information for their commercial interests. For example, a man 40- years old, said:

Who should cover the cost?

Implementation of traceability systems could lead consumers to perceive a higher value and to be willing to pay a premium price for dairy products. However, traceable food with relatively complete production attributes is bound to have a higher production cost, which will be eventually reflected by the product price, and consumers will have to make trade-offs between complete traceability and higher prices for traceable food (Wu et al., 2017). To understand consumers' perceptions about the cost of the food traceability system, the participants had discussed who should be responsible for the cost of the Food Traceability System. Most of the participants stated that the

Government should be responsible for all or most of the cost of establishing the food traceability system. A participant explains that.

However, some other participants reported that enterprises should bear all the cost for establishing the food traceability system except for a few participants stated that consumers should pay for it.

DISCUSSION

Purchasing behaviour

The results showed that most participants regard supermarkets as the primary place to buy dairy products. One of the reasons for that is that the customers perceive convenience, proximity, variety, and food safety as very important to them. Similar to the results offered by Cheng et al. (2016), supermarkets were the most trusted purchasing places perceived by customers. Although many participants took the large retailers such as Carrefour or other supermarket chains as the most purchasing venue of buying dairy products, but also there are some participants in North groups who showed that they would purchase the loose milk in the small retailer shops such as the convenience store or street vendors. They think that the loose milk sold there is safer and cheaper because they are convinced that dairy products are very fresh and without food additives. Our study confirms the previous finding that the main factors affecting Chinese consumers to select street vendors to purchase foods are convenience, freshness, and price. Street vendors have large numbers of customers because it is highly convenient, and generally, they tend to offer lower prices (Feng, Feng, Tian, & Mu, 2012).

Considering the use of the label information, our findings show that most participants have the habit of reading the label information while buying dairy products. Consumers noted reading food labels could help them to obtain more information and make a good choice to purchase. This finding is in line with a previous study conducted by Qing, Yan, & Wang (2006) and which has revealed that a vast majority of consumers in Wuhan city claimed to read the information on food

labels or production descriptions before making a purchase decision. However, this finding significantly differs from previous results reported in the literature (Zhu, Cai, & Wang, 2013; chan, Tse, Tam, & Huang, 2016; Wang et al., 2013). Our interviewees expressed the opinion that brand and quality certification got the most attention by them while purchasing infant formula milk powder. The respondents from different groups have different attention to the label's information during purchases milk and yoghurt products. Most of the respondents in the North group have indicated that they pay the most attention to the production and expiry date, while the brand and production date is the key information for respondents in the South group while buying milk and yoghurt.

Consumer's food safety concern

Food safety consistently ranks among the top concerns of participants in the discussion. The outcome of this discussion is not surprising. To enhance consumer confidence in food safety, the Government has undertaken various policy measures to improve the safety and quality of food. However, Chinese consumers are gravely concerned about the quality and safety of their food like consumers in other countries, and indeed the Chinese consumers have more reason to be concerned about food safety, especially for dairy products. Our study confirms previous findings that consumers have higher levels of concern regarding food safety, including dairy products (Chen et al., 2013; Qiao, Guo, & Klein, 2010; Veeck, Veeck, & Zhao, 2015; Zhang, Bai, Lohmar, & Huang, 2010). Notably, the participants with children or older people were more leaning to show concern about food safety in the dairy sector. Our findings are in line with the previous study that found that the respondents who had children are more concerned about milk safety (Gao, Li, Bai, & Fu, 2020).

Furthermore, consumers who live in different areas have a different perception of food safety in the dairy industry. Participants in the North group have stressed the fact that they are also concerned about food safety issues, but on the other hand, they expressed more optimistic views about food safety compared to participants in the South group. The results of the previous study

provide a possible explanation for this finding that participants perceive local foods as being of a higher quality than imported foods (Chambers, Lobb, Butler, Harvey, & Traill, 2007). In our study, participants in the North group linked the local dairy products to high quality and safety, because the region in which they live is one of the most important dairy production areas. Furthermore, differently from most of the other Chinese regions, Xinjiang has a long history of dairy cattle farming and milk consumption. (Beldman et al., 2014).

Our results show that regarding the consumption of dairy products, chemical residues are the biggest concern for most consumers. Despite food safety incidents caused by chemical contamination are less frequent than those caused by microbial agents, toxic animal, or plant foods (Lam, Remais, Fung, Xu, & Sun, 2013), it seems that consumers are more sensitive to chemical residues in the dairy sector. Part of the reason for this might be related to the infamous "Sanlu" infant formula milk powder incident, which is the most sensational one: melamine, an industrial chemical, had been added to milk somewhere along with the supply chain，and twenty-two dairy companies were eventually implicated in the scandal. Although it has been more than a decade since 2008, consumers still remind the incident.

The influence of social media on consumers perception

Due to frequently occurring food safety issues, consumers have increased attention to the reports related to food safety incidents in the media, which include social media such as blogs, microblogs, and direct messaging apps like WeChat. This situation is consistent with the one described in a previous study, which concluded that food-safety scandals revealed by the media could easily be noticed and reminded by consumers and further affect their judgments of expected utility and their purchasing behaviour (Peng et al., 2015; Peng, Li, Xia, Qi, & Li, 2015). However, it should be noted that false news has the same effect on consumers. There are constant reports about food safety, and some media hosted false reports published with the sole purpose of increasing web traffic, especially on social media platforms such as Weibo, WeChat. Moreover,

Chinese consumers find it very difficult to confirm the truthfulness of those reports because the response from the Government or other official media is slow, and most consumers choose to trust the adverse reports about food safety because they did not know how to identify the truth (Zhu, Jackson, & Wang, 2017). Another factor highlighted in the focus group discussion is that direct or indirect personal experience with food safety issues would affect consumers' confidence in food safety, as also confirmed by the previous literature (Hansstein, 2015).

Awareness about traceable food

In the opinion of most participants, the possibility to trace back products at all stages of the dairy supply chain is considered essential. In line with the previous literature (Wang et al., 2013), consumers believe that tracking and tracing through all of the stages (from farm to table) can provide the information they want to know and will help them make the right choice while purchasing. However, in our study, we find out that traceable food is not very well-known among the participants in these focus groups. Some of them just had heard about it before, and many participants mentioned that they had never bought traceable dairy products before. About the option to buy or not to buy, the main reasons given were as follows: "incomprehension, distrust, inconvenience to purchase and price." Similar to the study of Wu et al. (2015), basically consumers do not know about or trust traceability information.

Credibility and authenticity

Despite the lack of awareness, providing consumers with food safety and quality information by the traceability system is considered important within the discussion. Respondents suspected that the authenticity of traceability information, particularly about the traceable information, which was provided by enterprises by themselves but has not been certified by other third-party bodies, can be of crucial importance to them. They are worried that the enterprises might falsify traceability information for their commercial interests. The traceability information certified by the Government has more value for consumers than certified by third-party. These results of the present study

corroborate previous findings that consumers were dubious about the authenticity of traceability information, and a government certificate for traceability is currently valued more highly than certificates issued by a third-party (Hansstein, 2015; Ortega, Wang, Wu, & Olynk, 2011).

Moreover, Bai et al. (2013) have found a slightly different result in their study that although government-issued certification is still currently valued at the highest position. However, third-party certification for traceability food will become increasingly important in the future, and the rising income and education are two driving forces. This finding has certain similarities with the conclusion of Wu et al. (2015) that consumers of different ages, education, and income level have different levels of trust in certification agencies. Young consumers with high education and income levels had a high relative willingness to pay for domestic third-party certification while purchasing traceable food.

Cost of the food traceability system

Regarding the issue of the cost for the establishment of a food traceability system, on one side, consumers stated that the Government should be responsible for all or most of the cost. Others argued that enterprises should bear all the costs of establishing the food traceability system. Moreover, the stated price-premium of consumers on the purchase of traceable dairy products is, in most cases, quite low, people often indicate less than ten per cent. That means Government or enterprises should play an essential role in the implementation of the food traceability system. The result corroborates the previous finding of Wu et al. (2012), who found that if the price of certified traceable food is not acceptable or affordable to consumers, the implementation and promotion of food traceability system will be difficult. Therefore, government funding support is critical for the implementation of food traceability systems.

CONCLUSION

The present study explored perceptions about the safety of dairy products and factors affecting consumers' decision while purchasing dairy products, as well as consumers' attitudes toward traceable dairy products. Nine focus group interviews with sixty-one participants have been carried out in four cities in three different provinces of China.

Focus groups indicated that a high prevalence of food safety incidents triggers consumers to lower their confidence in food safety and to pay more attention to the news about food safety incidents in the media, including social media. Chemical residues were ranked as the first concern on food safety in the dairy industry. Meanwhile, traceable dairy products are not well known among consumers. Although the possibility to trace back all stages of the food supply chain in the dairy sector is considered necessary, consumers raise doubts about the authenticity of traceability information. In particular, they are not confident about traceability information provided by enterprises that have not been certified by other third-party bodies. For the interviewers, the traceability information certified by the Government has more value than the information certified by third-party agencies. Meanwhile, consumers suggest that the Government should bear all or most of the cost of establishing the food traceability system.

The study has some limitations that must be acknowledged. The research approach is qualitative and based on a small group of Chinese dairy consumers. The focus group interviews covered two different regions (Northwest and South of China), but cannot fully represent a wide and complex country like China. The number of focus groups was limited to nine because of budget constraints and because the researchers considered a sufficient level of saturation in the emergence of new information was reached. However, it is certainly possible that more insights could have been added if more discussions in other locations were organized. In any case, qualitative research is not based on representative samples and usually its results cannot be generalised on the statistical point of view.

However, the results can serve as a useful input for further research, and they provide a rich insight into consumer views of dairy products' safety problems in China. Some questions remain open, such as what are the internal and external factors affecting consumers buying behaviour and what is the consumers' willingness to pay for traceable dairy products. A follow-up study based on a quantitative survey would be useful to attach a measure of relevance to the issues and aspects raised in this research.

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