



## Article

# Shifts in Food Consumption Practices among Middle-Class Households in Bengaluru, India

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**Abstract:** The middle class in India is estimated to be roughly half of the population and, as such, holds considerable sway in influencing consumption trends. We explored food consumption practices and indicators for food transitions among middle-class households in the South Indian megacity of Bengaluru. Through 38 qualitative interviews, we asked respondents about their perceptions of food safety and how they navigate food safety risks in their daily food practices. The COVID-19 pandemic brought the topic of food safety into sharp relief, and consumers were keen on maintaining good health through food consumption. We engaged social practice theory to understand food shopping practices, the rise in immune-boosting foods and the consumer demand for safe, healthy food as this relates to wider sustainable food transitions. We found that middle-class consumers mitigate food safety risks through careful selection of where food is purchased. A rise in immune-boosting foods, traditional herbs and spices part of the regional diet are being revitalized. Demand for organically grown foods is hampered by a lack of trust in verification systems. We argued that government investment in building consumer confidence in both food safety, and organic labeling increases the willingness to pay a premium price among middle-class consumers.

**Keywords:** food safety; food transitions; social practice theory; middle class; COVID-19; India



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## 1. Introduction

The COVID-19 (SARS-COVID-2) pandemic has drastically affected the lives of millions around the globe. India is among those populous countries that were particularly hard hit. Officially, India has recorded more than half a million deaths due to COVID-19 as of May 2022 [1]. However, independent researchers from the Center for Global Development calculated that from March 2020 to June 2021, between 3.4 and 4.9 million excess deaths, plausibly due to COVID-19, occurred in India [2]. This figure, disputed by the Indian government, is nearly ten times the country's official COVID-19 death toll [2]. In India, as everywhere else, the waves of infections and the spread of variants have impacted the decision-making processes of individuals as they seek to maintain health, avoid infection or recover. With so many unknowns and severe disruptions to daily life, one area in which individuals can still feel comfort and control is in their food consumption practices.

In this paper, we examine how the disruptions caused by COVID-19 have led some urban middle-class households in the South Indian megacity of Bengaluru to reevaluate their food consumption practices. We consider the broader implications of trends that are linked to the onset of the COVID-19 pandemic, namely, changes in food safety perceptions and the rise in immune-boosting food practices. We focus on the middle class because they have the means to be more selective and cautious with their food purchasing and consumption practices and they are key-decision makers concerning pathways towards sustainable food transitions [3].

This paper aims at two objectives. Firstly, we contribute to an evidence-based understanding of food safety perceptions and the resulting practices. Here, our scope of interest

lies in the consumers' perception and evaluation of 'safe' or 'unsafe' food items, rather than on the technical composition of the food in their diet. Secondly, we examine urban middle-class food consumption practices and values during the crisis to identify possible pathways towards sustainable food consumption practices. Our goal is to better understand how the practices surrounding food consumption have changed with the COVID-19 pandemic and how these changes align with sustainable food transitions. We use the phrase sustainable food transitions to combine sustainable food consumption practices and the dietary changes that occur with food transitions.

Our leading research questions are the following:

1. Which factors influence and shape the perception and evaluation practices with regard to food safety among urban middle-class consumers in Bengaluru?
2. How are these perceptions and evaluations translated into food consumption practices?
3. How can these changes in food consumption practices link with sustainable food transitions?

In our conceptual framework we use social practice theory, concentrating on perception and evaluation with regards to food consumption (i.e., acquisition, preparation, eating and socializing) [4]. Social practice theory opens up the possibility of understanding consumption as a broader, socially embedded set of actions [5]. By putting emphasis on routinized practices, not on an individual act, social practice theory allows for broader conclusions regarding sustainability. Sahakian and Wilhite [6] present how social practice theory applied to sustainable consumption is valuable in identifying the pathways for shifting habits towards more sustainable options. However, with the exception of Wertheim-Heck et al. [7], who examine food safety concerns of Vietnamese consumers as a social practice, there is a lack of empirical analyses linking food safety, practice theory and food consumption, especially for the Indian megacity setting. In our analysis we build on the work of Erler et al. [8], who employed social practice theory to study middle class consumption practices, specifically regarding millets and organic foods.

Based on responses from 38 qualitative interviews, conducted in the Fall of 2020, we find that the overall concern for health and healthy living is brought into sharp relief with the current pandemic. We see sustainable diets as consisting of many small parts, or practices, which, when aligned and coordinated, can embody sustainable transitions in individual diets and, by extension, local food systems. The COVID-19 pandemic has centered and accelerated the urgency for discussions around sustainable food consumption and we see this as an unexpected, positive aspect to an otherwise dismal global crisis. In this paper we will explore how the themes which emerge from our interviews shed light on the drivers behind food consumption practices and sustainable food transitions.

### 1.1. Conceptual Framework

In his approach to social practice theory, Schatzki [9], presents practice through two concepts, one of practice being the "doings and sayings" of a given activity and two, of practice as performance in the actual execution of the "doings and sayings" (pp. 89–90). By engaging social practice theory to our conceptual framework, we are honing in on food consumption activities that are so integral to daily life, that they are done with minimal attention or contemplation. As Warde [10] states: "Performance in a familiar practice is often neither fully conscious nor reflective" (p. 140). The selection of fresh fruits and vegetables, for example, is determined not only by cost, but more often through sensory analysis of look, smell, touch and taste. This performance of selecting produce viscerally demonstrates how engrained many of our daily habits and routines become. However, in the context of an external shock, practices can be altered, sometimes for the first time ever. Noting that practices are not necessarily uniform nor static, Warde [10] states that "practices also contain the seeds of constant change. They are dynamic by virtue of their own internal logic of operation, as people in myriad situations adapt, improvise and experiment" (p. 141). By engaging our respondents in discussions about their food consumption practices at

the onset of the COVID-19 pandemic, we encourage them to reflect on their “doings and sayings” as well as how these practices have changed or endured under crisis conditions.

### 1.2. Middle Class

As Lange and Meier [11] point out, there are at least two reasons why the middle classes are the focus of research activities. First, they are the key decision-makers and consumers in the world’s emerging economies. Secondly, they contribute to spreading social innovation and modernization beyond the borders of the traditional industrialized nations. The practices of the Indian middle class are therefore of great national and international relevance insofar as they drive fundamental changes in Indian society, including pathways for sustainability [12,13].

The middle class in India, estimated to be somewhere between 300 and 600 million people, is a very large, heterogeneous group whose identities and practices vary greatly [14]. Research from Mumbai University calculated the Indian middle class to be roughly half of the national population, consisting of households that spend between 2 and 10 USD per day [15]. The middle and upper classes are the target groups for driving changes in consumption behavior, especially as economic liberalization and the ever-expanding offer of international goods broaden consumption possibilities [16]. As a result of the COVID-19 pandemic, the Indian middle class, including the lower and upper-middle income groups, is estimated to have shrunk by 74 million people [17]. Despite the hardships endured by the Indian middle class and the direct impacts of the pandemic on livelihoods and wellbeing, the COVID-19 pandemic had limited impact on their food purchasing practices, with most consumption declines occurring in the purchase of durable, non-essential goods in direct relation to an increase in the relative price of these goods [18].

Determining who belongs to the middle class is a question that many scholars have attempted to answer through both quantitative and qualitative analyses [14,15,19–22]. While both approaches capture aspects of the middle class, Erler [23] argues that many quantitative scales, which focus on income and education, fail to capture the global context of consumerism in which middle-class households engage and which, in reality, draws distinct borders to class affiliation. Given that the middle class as a whole, from the lower to the upper ranges, makes up roughly 40% of the population, it is meaningful to study this subset of the population and their food practices to better understand current shifts in food consumption practices and their implications for food transitions [3,11,24].

### 1.3. Food Safety

“Food safety refers to all those hazards, whether chronic or acute, that may make food injurious to the health of the consumer” [25] (p. 3). Food safety is an integral part of achieving food security insofar as food security “exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” [26] (p. 1). The utilization of food as one of the four pillars of food security is further subdivided into its nutritional value, social value and food safety [4]. As for food consumption behavior, this “involves everything from deciding what to select through to preparing, eating and digesting food” [4] (p. 238). It is crucial to distinguish between food security and food safety. Food security is determined by the economic and physical access to safe and nutritious food, as well as the availability and utilization of such food [27,28]. Food safety is one determinant of food utilization that describes risks that deal with the quality of the food consumed rather than with an absence or shortage of food [29]. The definition of food safety introduced by Ericksen [4] emphasized the important role of food safety standards along the food chain. This goes hand in hand with a growing global focus on international food standards and quality management, as described by Poulain and Dörr [29]. Following Augustin-Jean and Poulain [30], we argue that consumers not only evaluate food safety from a rational, health perspective; they also consider the cultural, social and symbolic relationship they have with their food. In line with this argument, and taking into account the effects of development

and urbanization on foodborne illnesses, Zanetta et al. [31] emphasized that “new food safety studies should focus more on understanding individuals’ motivations, beliefs and values about food safety in specific cultural contexts” (p. 3).

While substantial research has been conducted on food safety concerns and consumption behavior in high-income countries, there is a lack of inquiry into this linkage for low- or middle-income countries [32–34]. In their evaluation, Liguori et al. [33] highlight studies that examine how food safety concerns strongly influence the site of food purchases and, for Asia and Africa specifically, an overall reduction in the consumption of outside food. The choice between shopping in traditional shops and wet markets or supermarkets is another arena in which food safety shapes consumer choices. Consumers weigh the freshness and trust factors found in traditional shops and vendors in wet markets with the food safety assurances presented in supermarkets [33]. In their study of Vietnamese consumers, Wertheim-Heck et al. [35] found that, while supermarket foods are marketed as safer, consumers perceive supermarket products to be more expensive and not as fresh. Furthermore, the social relationships and cultural routines associated with traditional shops and wet markets significantly factor in food safety decisions, while supermarkets are primarily used for ultra-packaged goods and the convenience of purchasing household items in addition to food items. In a recent study that examined consumer perceptions of food risks in both EU and non-EU countries, Djekic et al. [36] found that consumers universally feel that they are the least important actors in the food chain regarding food safety risks. We understand this to reflect the vulnerability of consumers in perceiving and mitigating food safety hazards in their day-to-day lives.

#### *1.4. Food Safety in India*

Before the Green Revolution in the 1970s, India’s biggest goal was to achieve food security for its population. Food safety concerns did not play a major role in the public debate at that time. Due to food insecurity and a lack of food safety regulations, several actors took advantage of the lucrative opportunity to mix food with non-food substances that have similar external appearances, such as combining ground bricks with chili powder [37]. The first law dealing with food safety in India was the Prevention of Food Adulteration Act and its associated Rules in 1954 [37]. In Indian legislation, the Parliament and the President pass Acts. If necessary, these Acts designate subordinate executive bodies to then draft further Rules and Regulations within the framework of the Act [38].

Although every country has its own food safety standards, an increase in the international trade of food led to the establishment of the Codex Alimentarius Commission in 1963 by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO). The Commission coordinates different standards at the international level, which are then implemented into national law by the respective member states. None of the more than 300 guidelines and standards are legally binding but only constitute a framework for protecting consumers and granting fair trade practices [39]. India has been a member of the Codex Alimentarius Commission since 1964 [40]. This membership has resulted in the partial integration of the guidelines formulated by the FAO and WHO into India’s food safety laws [37].

With the stabilization of food production in the late 20th century and the opening of international markets, further Acts, Rules and Regulations in the field of food safety were adopted. At times, eight different ministries, such as the Ministry of Agriculture and the Ministry of Health and Family Welfare, were responsible for setting standards and enforcing them. This confusing and fragmented regulatory landscape makes it difficult to incorporate new research findings into laws or to react adequately to sudden events, such as the bird flu [37]. The complexity of the laws resulted in a certain lack of transparency, which necessitated the adoption of the Food Safety and Standards Act (FSSA) in 2006 [37]. This Act was the basis for the establishment of the Food Safety and Standards Authority of India (FSSAI), which is part of the Ministry of Health and Family Welfare. This brought together the governance of several ministries and levels into a single focal point [41]. FSSA

was intended to make food production and distribution safer for the Indian population and to facilitate international trade [42]. Despite these advances in food safety regulation and communication, recent food scams, such as that with Maggi instant noodles containing lead and monosodium glutamate (MSG), have contributed to a lack of trust in food safety testing and communication among the Indian public [43]. Furthermore, the high incidence of foodborne disease in India, conservatively estimated at 100 million cases in 2010, or one in 12 people falling ill per year, indicates widespread failures in food safety regulations and education [44]. These experiences leave consumers doubtful about food safety standards enforcement and thus require them to individually assess food safety risks based on their own perceptions.

### 1.5. Food Transitions

Transition theories, at their core, are used to analyze change. There are multiple transition theories that have emerged from the fields of science and technology studies, nutrition, economics and climate, to name only a few [45,46]. With regards to transitions that relate to food, Poulain [46] referred to the “theoretical matrix of ‘transition’” (p. 704) and identified four versions of transitions: the demographic, epidemiological, nutritional and food transitions. In our work, we focus on the later food transitions, which refer to shifts in values and practices related to food production and consumption at all levels, from the individual to global actors. Within food transition theory, three dimensions of transitions are used to delineate the levels and various actors and institutions involved: the socio-cultural dimension, the socio-technical dimension and the policy/governance dimension [45]. In our work, we focus on the socio-cultural dimension of transitions at the household level to better understand the decision-making process that influences shifts in food consumption practices.

Some of the foremost scholars in the field of food and nutrition transitions have assigned stages or phases of transitions to describe how diets change in relation to dietary diversity, eating practices, urbanization and rising incomes [47,48]. The food transition is generally described as a process in which the dominant consumption of staple grains is replaced with more diverse consumption of nutrient-dense foods, such as milk and dairy products, vegetables, fruits and meat products, as well as more sugar, more processed foods and more food consumed away from home [47,49]. Food transitions in India have been followed with great interest due to India’s large population and the impacts of such dietary changes on the environment and food systems [49–52]. Pingali et al. [49] use two stages to describe food transition in India. The first stage, achieving food self-sufficiency as a result of economic growth and increased income, has been largely accomplished. The second stage, building access to and affordability of nutritious foods, is underway. In this second stage, the focus of consumers shifts to taste preferences and dietary diversity increases. The ever-expanding variety of global fast food and processed food brands entering the Indian market, coinciding with the growing urban middle class (and associated sedentary lifestyle changes), has led to a rise in diet-related non-communicable diseases such as diabetes, high blood pressure and obesity [49,53]. In their work on the nutrition transition in India, Misra et al. [53] described the dangerous health outcomes of these changes in food consumption practices, where Westernized diets of fast food and highly processed foods are prevalent, especially in urban areas of India. In their work, they describe the nutrition transition in three stages, where the first transition is to food security, the second transition is dietary diversity (including many unhealthy processed foods) and the third transition is where healthy foods are prioritized. Using this Misra et al. [53] three-stage version of food transition, urban middle-class households are mostly in the second transition, where dietary diversity includes more processed foods, which could lead to diet-related health problems.

In our analysis of food transitions, we center on consumers and their preferences and practices as catalysts for change. By focusing on the consumer rather than on the macro scales of food systems, we can better identify the daily practices that could lead to sustainable food consumption practices. When discussing sustainable food consumption,

we are guided by the definition of sustainable diets given by the FAO, which states that “sustainable diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources” [54] (p. 294). Alone defining sustainable in the context of food is complicated because it is not a one-size-fits-all term but is rather dependent on time and place [55] insofar as external circumstances impact which aspects of sustainability in food garner attention from consumers [56]. Nevertheless, Hinrichs [57], in their analysis of transitions to sustainability, sums up sustainable diets succinctly as “linking human diet, nutrition and health to agro-ecological sustainability” (p. 150). In exploring how food transitions can align with sustainable food practices, O’Neill et al. [55] referred to moments of change in food practices as ‘fractures’ and argue that these are the “critical moments of change at different scales” (p. 228) when sustainable food consumption practices can take root. We argue that the COVID-19 pandemic and the related shocks in the food system created a fertile space in which such ‘fractures’ emerged in the collective consciousness of consumers, with the link between their food consumption practices and maintaining health heightened. While we cannot predict whether these practices will lead to more sustainable food practices, we can offer our insights into current trends and how these could align with sustainable food transitions, which, we argue, coincide with the third transition described by Misra et al. [53] of a shift to healthy foods.

## 2. Materials and Methods

Our research site is the South Indian megacity of Bengaluru, the capital of Karnataka state. Once known as the ‘garden city’, it is now one of the fastest growing tech hubs in the world [58] and is often referred to as the Silicon Valley of India [59]. It is also one of the fastest growing cities worldwide, with an estimated population of 10 million inhabitants, a 47% increase over the past 10 years [60]. Given its rapid growth and development, especially in the information and communications technology (ICT) sector, Bengaluru’s milieu is attractive to both globally oriented entrepreneurs and professionals, as well as local and migrant workers who profit from the abundance of service-sector employment opportunities tangentially linked to these industries. Sahakian et al. [61] describe Bengaluru as a study area of utmost relevance for research in the field of food consumption behavior. They see this as a result of the fact that Bengaluru is one of the cities characterized by transnational economic and cultural exchange and, at the same time, increasing prosperity among large parts of the population.

Building on six years of ongoing fieldwork in Bengaluru on rural–urban food transition [8,62–64], our research employs a mixed-methods approach for data collection, including quantitative household surveys, focus group discussions, and in-depth qualitative interviews. Due to the COVID-19 pandemic and the nature of our research, which primarily involves household surveys and interviews, we have been unable to travel to Bengaluru for data collection activities in the past two years and have had to change our data collection methods. In order to continue our work and to understand the effects of the COVID-19 pandemic on food consumption, we pivoted our approach to online and telephone-based methods. These methods were more suitable for targeting urban localities and for this reason, this paper is based on interviews conducted exclusively in the urban center of Bengaluru.

We conducted telephone interviews from September to November 2020 with 38 middle-class households located in the urban center of Bengaluru. Participants were selected with the assistance of a Bengaluru-based research assistant using personal contacts and snowball sampling. See Appendix A for a descriptive list of participants. Our sample size of 38 was selected to ensure that a diverse group of participants was included in the study. The first author conducted 22 interviews and the second author conducted 16 interviews. For qualitative research that uses thematic analysis, this large sample size significantly

increases the likelihood of reaching thematic saturation, which Guest et al. [65] asserted is achieved at a 95% rate with a much smaller sample size of 12 interviews. When we used the sample size calculation proposed by Guest et al. [65], we achieved thematic saturation at 10 interviews. See Appendix C for our calculations. The research assistant was directed only to select interviewees from middle-class households. She based interviewee selection on the ability to speak English, education level of at least completing higher secondary (the equivalent of high school), occupation and her own personal judgment of ensuring diversity among interviewees based on age, religious affiliation and geographic location within the city. We employed the abovementioned criteria to reach a heterogeneous group of urban middle-class households and reduce bias in our sampling strategy. After giving consent to participate, the interviewees were contacted by the authors via voice call using the instant messaging app WhatsApp or Skype. The interviews were conducted in English and were recorded and transcribed for analysis. The interviews took between 15 and 40 minutes. The interview guidelines can be found in Appendix B.

From 38 qualitative interviews, we gained valuable insights into the food consumption practices of Bengaluru residents. We find that by exploring the connection between the heightened awareness induced by the COVID-19 pandemic toward food safety and food consumption practices, we can identify values, beliefs and/or practices that motivate middle-class consumers in their food consumption choices. We aim to contribute to the literature on sustainable food consumption by offering first-hand accounts of criteria, standards, expectations and risk assessments that middle-class consumers negotiate during food purchases, preparation and consumption, and how these insights could inform the need for greater trust in regulatory institutions in India, especially those that manage food safety and organic food labeling.

The interview consisted of questions on the following themes: food shopping, food preparation and consumption practices, food safety, media and sources of information, COVID-19 and culture. The interviews were transcribed and coded using the software MAXQDA, based on the methodology presented by Kuckartz and Rädiker [66]. All interviews were transcribed verbatim. Using thematic coding, we identified 12 thematic categories. Out of these 12 categories, we selected two to be the focus of our analysis: food safety and immune-boosting foods. These two thematic categories dominated the discussions in our interviews and we argue that taken together, they signal meaningful shifts in practices that align with sustainable food transitions, as access to safe foods and the consumption of culturally acceptable foods are critical components of a sustainable diet.

### 3. Results

We find that respondents consider several factors when shaping their food safety perception, evaluation and subsequent food consumption behavior. These deliberations are often subconscious and routinized behaviors based on trust in food retailers, as well as trust in oneself. Since food consumption is always linked to food production, distribution and the upstream and downstream generation of losses, waste and emissions, food consumption practices are inevitably linked to environmental and sustainability debates. Purely quantitative considerations of the effects of food consumption can be useful in determining the extent of environmental degradation. However, they do not contribute to explaining the motives and mechanisms behind consumption behaviors [61]. Furthermore, understanding food safety values and beliefs in a given cultural context is needed to develop effective policies and interventions [31]. The following section focuses on the responses we received discussing food safety, middle-class identity with regards to food shopping, sustainability and the rise of immune-boosting foods. These topics demonstrate both the perceptions and practices of middle-class consumers toward their food consumption and present potential pathways toward sustainable food transitions.

### 3.1. Food Safety

Based on our findings, the Indian middle-class consumers we spoke with are concerned about food safety issues of contamination along the value chain. Namely, two points are of particular concern: (1) farmers' use of pesticides and other harmful chemicals during plant production and (2) food handling and storage duration at the market. These concerns, however, seem to be significantly reduced at their front door. Almost all of the interview respondents showed confidence in their or their family members' ability to prepare safe food. R24, a 40-year-old NGO worker and mother, describes her perceptions of food safety and her concerns about food production practices based on media reports.

*"We see the news, whatever the non-veg, the chicken they'll be injected with something in order to grow faster or be bigger. Even the fish. And for the vegetables and fruit they use more chemicals. The pesticide and everything is very strong, which is not good for human health. Just to make it look good and bright and make it look big, they use certain chemicals which is not safe for consumption. But we are not able to identify exactly which one is with chemicals and which one is without. Even the fruits and vegetables we feel are not safe, because of the chemicals. We just pray. We don't have any other option. We wash it and cook it properly and pray and eat. What else to do? We have no other option."*

Illustrating how food safety awareness has changed over time, R27, a 39-year-old receptionist, describes what several other respondents also express, namely that they do not consume raw foods, only cooked foods. This distinction between eating raw or cooked foods is also one way that respondents distinguish between traditional and Western diets.

*"Some foodies, before, like ten years ago, we just pick up a tomato and have that tomato. We don't think of washing it. Those days, when I was young, we just pick up a tomato and eat it. But nowadays most veggies are infected like they spray some medicine to grow faster, they are colorized. I am not happy to have veggies directly. We need to soak it in salt water, wash it and clean it up. And cook it well and then have your food. That's how most Indians do it. Cook it well and insects and everything will be vanished."*

When asked about food shopping locations, visceral qualities of food, such as freshness and hygiene, were often mentioned. Supermarkets, with the bulk of their products being packaged, give consumers a sense of quality but elicited concerns regarding freshness. In contrast, *kiranas* or small local shops are perceived to have a faster turnover and thus give consumers a greater sense of trust in the freshness of their products. R27 contrasts the difference between supermarkets, in this case a chain supermarket called D-mart, and small local shops, which she refers to as regular shops.

*"When I purchase like the different shops such as D-mart. I am just giving D-mart as an example, there are other shops which have packed items. I mostly don't buy foods that are packed because we go to the regular shop where they get everyday bulk grocery. Every day it keeps on changing, groceries, rice, whatever you take. But in other shops, such as D-mart, they pack it for 15 days, one month. I am not sure how true the information is and how safe the food. And if it is healthy. So, I prefer going to the regular shop where the products keep on moving. They empty fast so they have to refill it with fresh products."*

R25, a 32-year-old network consultant, said that a system for validation of safety, be it a government program or a reliable third party, would give him a greater sense of trust in selecting where he purchases food. He specifically referred to a phone app as his preferred medium for receiving this kind of information. R25 goes on to explain why fresh fruits and vegetables from supermarkets are met with even greater skepticism.

*"I feel that sometimes in the supermarket. Especially the vegetables in the supermarket. I don't have trust in the quality of vegetables or fruits there. I don't know, I just don't feel that it's safe. It's something about the way it looks or where they procure it. Whereas if it is someone who's getting it from very local every day, I know that person goes to the market every morning and gets it straight from the market. I cannot say the same thing about the supermarket. I cannot trust where they are getting it from."*

When asked specifically how the COVID-19 pandemic has affected his concerns regarding food safety, R23, a 33-year-old financial fraud analyst, responded by stating his doubts that food safety practices are being upheld or regulated.

*“The biggest impact it had is that I think about consuming even a cup of tea. From any type of café over here or even from a small street vendor because you don’t know what that guy has gone through or where he has gone. They are using their bare hands. Zero to nil safety measures at times. That has definitely raised my concern. Not only with the street vendors, also in the local supermarkets. We don’t know who handled the food or who packaged the food. And what are the safety measures applied? Even though they promote that ‘our food is with the highest of standard’ and all that, there’s always a concern at the back of your mind.”*

### 3.2. Middle-Class Values

In terms of evaluating food safety, Indian middle-class consumers are led by societal understandings of what good-quality food is. Freshness, sufficient time for preparing and seasonality in food selection all play major roles [67]. Food selection is also based on personal ideas about hygiene and trust in their own senses to distinguish between safe and unsafe foods. These perceptions and evaluations are reflected in consumption behavior, as consumers tend to buy regularly at the same shops and identify food retailers that they trust [32,68,69]. Their social and class hierarchy is reflected in food consumption insofar as they use it as legitimation for consumption behavior, which they know is either non-ecological or unsafe. Conversely, some consumers also use their affiliation with the middle class as a quality determinant: where middle-class people buy and eat, food safety concerns ought to be minimal. Many scholars point to the socio-economic status of an individual and their awareness and concerns for food safety as a catalyst for strengthening food safety regulations and policies [34,49,70–73]. Ultimately, official information networks by federal and state governments seldom reach consumers. Instead, consumers rely on the experiences of family members and friends as well as hearsay and rumors when evaluating their food in terms of safety.

Much deliberation goes into selecting the site(s) for food shopping. Consideration is given to price, quality, convenience and hygiene as well as personal relationships with vendors and the general clientele. As R27 describes below, middle-class consumers select shops where the quality seems to be better; nevertheless, they are still unsure of the safety of the food. She also vocalizes the importance of trust with the vendor, as well as trust in her own ability to determine if food is safe.

*“Certain shops they don’t have the good quality. So, we need to go for a higher quality. I don’t go to the very small shops like that. I go to the medium shops where the middle-class people can go and buy. Some foods are safe. And when you buy, you also have to check if it is clean, if it is good in quality. You need to check everything. So, we buy the open ones. Not the closed. We don’t buy packed food, like daal or rice, veggies. Everything we buy directly from hand to hand. From the vendor. So, we check if it is fresh or dry.”*

R38, a 42-year-old associate professor, also raises concerns about food safety and how middle-class consumers can afford to shop at supermarkets, where she feels that packaged foods are safer.

*“When it comes to groceries, there is one particular market where I usually buy. And in Bangalore, we have this D-Mart. It is all around India. Most of our groceries are there ( . . . ) We usually see that our groceries are packed. If they are packed, then we buy ( . . . ) The rates are not very high. Not very cheap either, but normal. It is ok for middle-class people to buy. The products are good. Whatever you buy from D-Mart is quite good. And, so we buy most of the things from D-Mart actually. But when it comes to groceries we buy only things which are packed.”*

The importance of fresh food is relayed in the work of many scholars; for example, Ganguly [67] explained that “[f]ood cooked more than three hours before being eaten is

considered stale, putrid, decomposed and unclean. The time element of when food is cooked until when it can be eaten and therefore ‘fresh’ is embedded in cultural codes and norms” (p. 7). Hofmann and Dittrich [74] explained that “freshness and cleanliness are values deeply embedded in the religious customs” (p. 38). Religion is seen as an important influencing factor when examining food consumption [63]. Religion is perhaps one of the most embedded practices that dictates food consumption decisions, so much so that our questioning of this was ineffective in extracting any useful information beyond whether an individual is vegetarian or non-vegetarian. While our respondents consisted of Christians, Hindus and Muslims, the dominance of Hindu values applied to food is apparent in the ‘veg’/‘non-veg’ dichotomy, phrases which are used as both a personal identifier as well as a common way to group foods in India. The use of the term non-vegetarian “itself attests to the historical hegemony of vegetarianism in India” [75] (p. 55). In his study of changing Indian diets, Bruckert [24] found that “vernacular notions about purity and health are not disappearing but they are reconfigured by the middle classes into modern discourses about hygiene and nutrition” (p. 470). In our work, ‘hygiene’ or ‘hygienic’ was mentioned 36 times by 11 respondents in relation to standards for food handling, shopping locations and consumption decisions. Nutrition was only mentioned four times by three respondents; in two incidences, the respondent lamented her lack of focus on nutrition when preparing food for her family due to time constraints.

The tasks of women in the household also greatly influence food consumption practices. Sahakian et al. [61] explored food consumption practices in Bengaluru and found that despite the rise among urban women joining the workforce, the preference for freshness is deeply ingrained and strongly influences daily food practices. R29, a 39-year-old teacher and mother, describes her role and decision-making process in preparing food for her family.

*“I think that the food habits here in India depends mostly on how the woman of a household is placed. If she has time, she can make sure that the food is good and nutritious. But somebody like me, it’s only day to day basis to fill the stomach. That kind of thing. Quality food, but maybe no variety or nutritious. I never get into the vitamins part of it. I don’t do that. Whichever vegetable is easier to cook, that I’ll do. And even when it comes to fruits. Whichever one is easier to eat, I tend to buy that.”*

The above sentiment was echoed by several respondents, such as R36, a 47-year-old teacher and mother who feels guilty when she is unable to provide a balanced meal to her family.

*“The problem that I feel is that after marriage the time is very less. As I am working, I don’t provide them a balanced diet. This is one thing which I feel guilty of myself. Because we don’t give them the exact fiber or the fruits. Whatever we have at home we give them. And if we don’t have it home, we just give them some plain daal or something like that. We are sometimes unable to provide the quantity of fresh fruit and vegetables, which they would need. So in that way it is not balanced. The main thing is the timing. Sometimes I am not at home to give them the right food. So I just cook something in the morning in a hurry, then I go away and they get along with that food. That is one thing which I find I am not doing correctly to them.”*

As we stated earlier, the middle class is a heterogenous segment of society and their engagement with food is dependent on a number of factors. In our sample, all of our participants reside in Bengaluru. Pandey et al. [76] found that the association with urbanization and urban living—infrastructure, access to markets, working women, and local norms and institutions—all strongly influence food selection and increase the dietary diversity of households.

### 3.3. Sustainable Food Consumption

Indian middle-class consumers show various entry points for further deepening and supporting sustainable consumption behaviors. On the one hand, the COVID-19 pandemic

inspired urban middle-class consumers to buy more products directly from the farmer and support local neighborhood shops [64]. On the other hand, many consumers already rely on a heterogeneous structure of food supply, are willing to pay more for better quality and want to support regionally-sourced food items. Consumers have distinct ideas about whether loose or packaged products are safer in terms of hygiene and cleanliness. Packaging can lead to a longer shelf life for products but also contributes strongly to environmental pollution, especially when adequate waste strategies are not in place.

In terms of sustainable food consumption, several respondents expressed concerns about the current food system and its impact on health and the environment. R27 reflects on how the shift away from traditional, non-pesticide agriculture has impacted the taste and quality of food. She describes the food transition in India, where food security is achieved, and consumer demands are now for more diverse, healthy foods. Interestingly, she describes how, before the Green Revolution, the prevalence of food grown without chemical inputs was healthier and tasted better, touching on another important component in sustainable diets on the role of organically grown foods.

*“I expect that now we are ok with food, but in future, we need good and healthy food that can be grown on earth naturally. We should avoid the chemicals. You can see the generations ( . . . ) Nowadays, people who are older than 50 or 60 is very rare. In the olden days the food was so healthy that the people lived for 100 years. Now the food is not safe. We are just having food to reduce our hunger. Nowadays food is just for hunger and not for tasty. Any small food you had earlier was good and healthy, but now it is difficult to expect that. If you compare it from 30 years ago to now.”*

The food security argument made by R33, a 65-year-old gender and development consultant, also speaks to the need for a transition to more sustainable food consumption practices and the hindrances to achieving this on a larger scale. Furthermore, her assertion that foods grown for the global market are not always culturally acceptable for the local market is a clear critique of the unsustainable qualities of the current food system.

*“I think though there is a demand for a lot of organic food, vegetables and all that, that is not very easy on the pocket. Not everybody can afford it. That also becomes a cause of concern. A very large section of the population does not have that kind of purchasing power. There should definitely be some kind of effort from the governments to ensure that the right kind of nutrition is accessible and affordable to people across different economic categories. Also, to encourage organic farming. There is a need to really help the farmers to subsidize their production and to give a good price for what they produce ( . . . ) A lot of our traditional foods which are highly nutritious and affordable, they have been kind of pushed aside. There has been a global push for food that can be sold in the global market. That food is not necessarily something that is going to serve the domestic market.”*

The food safety and food security concerns of the current food system raised by R27 and R33 demonstrated a longing for traditional healthy foods to be incorporated into the modern food system. They described sustainable food transitions.

### 3.4. Immune-Boosting Foods

One prominent example of food practices changing as a result of the COVID-19 pandemic is the rise in interest in what is termed immune-boosting foods. Respondents often mentioned immune-boosting foods as their new food practice to protect themselves from COVID-19 infection. Specific spices that have a long history in traditional Indian cuisine, such as ginger, turmeric, jaggery and black pepper, have gained a new status and are being prepared with the belief that their consumption strengthens the immune system. In our interviews, the most-cited change in food consumption practices as a result of the COVID-19 pandemic is the rise in the consumption of kashaya(m) tea. Kashaya(m) is a liquid concentrate of various herbs and spices based in the traditional Indian medical system Ayurveda. It is primarily prepared at home, with recipes being passed around in

family and friend circles. R13, a 27-year-old biochemist, described how many Indians have turned to traditional foods to boost their immune systems.

*“Basically in India we believe that there is kind of a mixture, they say a kashaya or something like that they call it, basically all the Indian spices mixed together and they make a drink out of it, because you know your body requires heat, so my mom does this ok, she makes ginger, water, jaggery, honey, lemon, and she makes this syrup kind of a thing, which is really good for your immunity system. ( . . . ) This she has started to do post the pandemic. This particular immunity drink that she makes, she believes that you know, it won’t cure corona, but it won’t let the virus get into you as well. So, it’s all heat product, like pepper and ginger and things like that.”*

The consumption of food items to strengthen the immune system increased as a direct result of the COVID-19 pandemic. R18, a mid-40s executive at a global investment firm, stated that her awareness of health-conscious eating has risen with the onset of the COVID-19 pandemic and has led to dietary changes.

*“[T]here is a lot more awareness, we are kind of conscious. One is we ensure we have mostly home food, avoid food from out to a large extent. Of course, dining out is totally ruled out. But we may just get it delivered home. And we are selective about what kind of food and what kind of restaurant we deliver food from. There is a bit of an awareness, the intake of some kinds of fruits and vegetables and drinks just to build immunity levels. Yes, we are very conscious of that and try our best to follow that.”*

Gaining a new appreciation for traditional Indian foods and recipes, R15, a 30-year-old science teacher, shares the sentiment that the spices in the local dishes have gained a new reputation as having immune-boosting properties.

*“So, we basically have a lot of spices in our food, we actually didn’t know the value of these spices until we came across this pandemic situation. On a regular basis we take in the spices which will boost our immune system.”*

R10, a mid-30s former quality analyst and now housewife, describes how the diet in her household changed as a result of the pandemic. Like many respondents with children, she was especially concerned about maintaining the health of her children in uncertain times.

*“[W]e are taking like those foods which, you know like these mushrooms and you know, lot of herbs, like we are making this, it’s like a concoction, we do it with these pepper, and things like that, we put it little more, you know, spices in the food. We use a lot of ginger these days. With the milk I give kids with a lot of turmeric, the golden milk we call it here. So, I prefer that for the kids these days. The food it will be the same, but just that, I make sure that the kids are getting equal amount of fiber also and they are also eating things which are very important for them, like vegetables.”*

#### 4. Discussion

Whether it was a heightened awareness of food safety issues, changes to food shopping practices or the amplification of immune-boosting foods into the daily diet, we see that the practices surrounding food consumption have gained new meanings while also remaining grounded in the realm of traditional foods (for millets, see [8]). In Warde’s [10] social practice theory framework, “consumption is not itself a practice but is, rather, a moment in every practice” (p. 137). He argues that the performance of a familiar practice is engrained so as to be executed with little reflexivity. In our work, we find that the practices associated with food consumption—namely, determining the safety of foods and increasing ‘immune-boosting’ foods in the diet—exemplify how traditional foods have endured through the stages of food transitions but are undergoing a transformation in terms of meaning, in part as a result of the COVID-19 pandemic. For example, applying the label ‘immune-boosting’ to herbs and spices that have a long tradition in Indian cuisine signals a shift in the perception and practices associated with their consumption.

The first question of this paper is to explore the perceptions of ‘safe’ and ‘unsafe’ foods from the perspective of urban, middle-class consumers. Food safety considerations have caused changes in food selection, handling and storage practices. We observe that, in light of the COVID-19 pandemic, the food safety factor has become a more conscious consideration for middle-class consumers. This research was conducted in the first year of the COVID-19 pandemic, a few months after the first nationwide lockdown in India, which lasted for 76 days, was lifted before vaccines were available. The link between COVID-19 and food safety gained prominence in the public psyche because food shopping was one of the few reasons people left their homes at that time. While food safety practices in terms of handling likely improved as a result of the COVID-19 pandemic, this sentiment was not communicated by our respondents; rather, fear and uncertainty with regard to food safety were heightened in tandem with a greater interest in maintaining good health. Given that public trust in food safety regulations remains low, many consumers have added new practices to their repertoire, such as soaking fruits and vegetables with salt water and rinsing with drinking water to assuage their food safety concerns. Along with this, the selection of where to shop and whether to buy packaged or unpackaged food items have both food security implications and factors in sustainable food consumption practices. The fact that food safety perceptions drive a segment of our respondents to strongly prefer packaged food items, while another segment to strongly prefer unpackaged food items, demonstrates to us how challenging it is for consumers to have trust in the institutions responsible for monitoring food safety.

When we consider our second question of how these perceptions and evaluations translate into food consumption practices, we are looking for what O’Neill et al. [55] referred to as “‘fractures’ that offer potential ‘points of transition’ where sustainable change might be more naturally integrated” (p. 226) in changing food practices. What constitutes a fracture and at what scale a fracture is occurring requires taking a broader view of the surrounding circumstances. O’Neill et al. [55] stated that fractures occur on different scales depending on the initial stimuli, which in turn induces varying degrees of reflexivity in food practices. They elaborate that fractures initially appear at the micro-scale of individuals or households and give insights into spaces where transitions in food practices could occur on a larger scale, both through vertical (the individuals’ adoption of new practices) and horizontal (the addition of new participants to these practices) integrations. In our work, we identify several ways in which perceptions and evaluations of food safety impact food consumption practices.

The type of shop where middle-class consumers choose to buy their food is strongly influenced by their perceptions of hygiene, freshness and quality standards for members of this social class. The willingness to pay for quality is apparent; however, how to determine quality is very much based on individual evaluation and trust in the shops where food purchases are made. While many of our respondents noted the benefits of organically grown foods, very few of them actually purchased them due to the prohibitive costs and lack of trust in a product actually being organic. We argue that the COVID-19 pandemic induced a small-scale fracture in food practices regarding organically grown foods by raising its profile among urban middle-class consumers. At the time of our research, many respondents said that organic food shops were not conveniently located for them to visit regularly or that the high prices deter them from doing more than infrequent visits for specific items such as honey, organic grains, oils and dried fruits. In their work, Klintman and Boström [77] made the case that organic labeling on foods can raise consumer awareness, impact policy and bring the topics of food and sustainability to more prominent platforms in public debates. We believe that, with the support of a trusted verification system, the demand for organically grown foods could have a two-fold effect of more organically grown foods being sold in existing supermarkets and small local shops and more urban middle-class households acting on the idea of purchasing organically grown, pesticide-free foods.

Another change in food practices mentioned by several respondents was a move away from eating raw vegetables. Several respondents stated that, in their youth, they would eat raw vegetables, but now, because of food safety concerns, they no longer do this. Everything has to be washed and thoroughly cooked. Aside from the nutritional losses that occur when some vegetables are cooked, there is a risk of reducing dietary diversity because of the labor required to cook all foods. Out of 27 female interviewees, 13 were mothers with young children who spoke of their struggles balancing their careers while managing food shopping and cooking in the home. Meals that can be prepared quickly are chosen over more nutritious, time-consuming ones, with the mother expressing guilt and feelings of inadequacy. By excluding raw foods due to food safety concerns, further limitations are placed on these mothers, in particular, who are under pressure to feed healthy foods to their families. While the COVID-19 pandemic deepened fears of consuming raw vegetables, this change in food practices is related to the rise in pesticide use in agriculture and the lack of trust in food safety information. We see this fear of consuming raw vegetables as another important area of focus for food safety improvement to contribute to sustainable food transitions. At present, the decline in raw vegetable consumption is an unfortunate but justified change in food practices, given that raw vegetables are one of the main sources of foodborne disease in India [44].

Our third question asked whether changes in food consumption practices link with sustainable food transitions. This is challenging to answer given the limitations of our sample size; however, within our group of respondents, the shift to higher-quality foods and the heightened awareness of the importance of food safety do indicate that food practices are in transition, where healthy foods are of utmost importance and the majority of the daily diet consists of traditional foods, albeit with higher quality ingredients. We find this to be inherently sustainable due to the regionally produced nature of many traditional dishes, the frequent purchasing of fresh foods that limit food waste, and the dominance of a diet where meat is generally consumed on a weekly basis, if at all. However, there are also themes that emerged in our research that indicate that sustainable food transitions are not underway in all food groups. A decline in raw vegetable consumption exemplifies how sustainable diets are unattainable until food safety practices improve.

The rise in immune-boosting foods is an interesting change in food practices that has come about with the COVID-19 pandemic because it is the meaning of the foods that has changed. The spices used to make kashaya(m) tea are common to Indian cuisine, but their role in maintaining good health gained a higher status for many of our respondents. It is possible that the emergence of the immune-boosting food category is another fracture in food practices that feeds into sustainable food transitions, but we cannot make this claim definitively at this time. Nevertheless, the elevation of traditional foods, such as kashaya(m) or golden milk (milk prepared with turmeric), by many of our respondents demonstrates the strong association between maintaining good health and food consumption practices.

Finally, in assessing how the COVID-19 pandemic influences sustainable food transitions, we find that the heightened awareness of maintaining good health has led urban middle-class consumers in our survey to reevaluate their food consumption choices and to place greater value in their traditional foods. The tension that these consumers experience in being able to afford better-quality foods while also navigating relatively new spaces for food purchases, i.e., supermarkets and online food shopping, exemplifies the choices that they are confronted with as they engage in food transitions. This paper focuses on broader trends that are common triggers for food transitions, namely health consciousness with food intake and membership in the middle class, which affords greater access to dietary diversity and higher-quality foodstuffs. R10 succinctly describes these shifts when she says, “small little changes we are doing to make sure that, you know, we eat a little better food.”

## 5. Conclusions

In this paper, we shed light on current attitudes and perceptions toward food safety among urban middle-class households in Bengaluru. By applying social practice theory,

we focused on the actions of our respondents to ascertain how their food consumption practices are undergoing change in relation to perceptions of food safety. A lack of trust in food safety standards and oversight was expressed by most respondents, with an overall sense of apathy or powerlessness in the food system to change this. Instead, respondents turn to thoroughly washing raw foods, consuming well-cooked foods, and finally, hoping and praying that the food they are to consume is safe.

There is much greater trust in the foods prepared at home than in outside foods. With the onset of the COVID-19 pandemic, many of our respondents claimed to have reduced their consumption of outside foods, despite other studies showing that Bengaluru has maintained a high volume of food delivery transactions since the COVID-19 pandemic began [78]. The major concern for our respondents was safety in food preparation and handling. A rise in the consumption of immune-boosting foods was also reported as a direct response to the COVID-19 pandemic and associated health concerns. This, coupled with a growing interest in organic foods, signals fractures in food consumption practices that can lead to sustainable food transitions.

In terms of sustainable food consumption, many respondents prefer to shop at small local shops, where the bulk of fresh produce is procured from the surrounding peri-urban area. These shops are located within neighborhoods, and thus, traveling to and from them is often done by foot or by two-wheeler. The trust factor between consumers and shop owners is another important element for ensuring food safety and seems to be the main point of assurance for consumers. Furthermore, in terms of sustainability, there is a significant reduction in packaging when foods are purchased from small local shops.

Nevertheless, from a policy standpoint, the government needs to invest more in developing food safety monitoring and transparency, especially with regard to outside food establishments. The framework exists, but consumer trust in FSSAI labeling remains low. Strengthening the communication strategies of food safety institutions with the public would garner greater trust. Similarly, trust needs to be built into the production and marketing of organically grown foods. A nascent market for organic foods exists and the COVID-19 pandemic has raised interest among urban middle-class households; however, without a trusted verification system in place, consumers will remain skeptical and opt out of paying a premium price for organic foods.

Our study is based on qualitative data from 38 interviews with a diverse group of urban middle-class households. Although it is not representative of the megacity of Bengaluru, it does provide insights into the perceptions and food consumption practices of urban middle-class households and can be a useful entry point in designing more robust investigations into pathways for sustainable food consumption. While hearing from a diverse group of people provided interesting initial results, in the next round of research we would modify our approach to speak with a more targeted demographic to better understand the circumstances surrounding food consumption transitions among, for example, families with children under the age of 5 compared to families with teenagers. Also, when travel and fieldwork resume, we believe that focus group discussions and interviews with consumers, producers and the numerous stakeholders involved in the food system would also greatly contribute to identifying where changes in food consumption practices can align with sustainable food transitions. Future research could look at what constitutes sustainable diets in Global South megacities from the perspectives of various stakeholders and the structures and policies that are needed to support sustainable food transitions.

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## Appendix A

**Table A1.** Profile of Participants.

Respondent	Sex	Age	Religious Affiliation	Occupation	Responsible for Food Shopping and Cooking
R1	F	34	Muslim	Banking	Yes
R2	F	26	Christian	Graduate student	Yes
R3	F	23	Hindu	IT sector	No
R4	M	22	Muslim	Healthcare	No
R5	F	27	Christian	IT sector	Yes
R6	F	38	Christian	Healthcare	Yes
R7	M	33	Hindu	IT sector	No
R8	M	59	Christian	Retired, former NGO	No
R9	M	19	Muslim	Bachelor student	No
R10	F	35	Muslim	Housewife, former IT sector	Yes
R11	F	39	Christian	Educator	Yes
R12	M	27	Christian	Healthcare	Yes
R13	F	38	Muslim	Housewife	Yes
R14	F	27	Christian	Scientist	Yes
R15	F	30	Hindu	Educator	Yes
R16	F	30	Hindu	Healthcare	Yes
R17	M	40	Hindu	IT sector	No
R18	F	40	Christian	Banking	Yes
R19	M	25	Christian	Church pastor	No
R20	F	30	Christian	Educator	Yes
R21	F	63	Christian	Retired, former NGO	Yes
R22	F	55	Christian	Housewife	Yes
R23	M	33	Hindu	Banking	No
R24	F	40	Christian	NGO	Yes
R25	M	32	Hindu	IT sector	No

Table A1. *Cont.*

Respondent	Sex	Age	Religious Affiliation	Occupation	Responsible for Food Shopping and Cooking
R26	F	23	Hindu	Logistics	No
R27	F	39	Christian	Receptionist	Yes
R28	F	27	Christian	Banking	Yes
R29	F	39	Christian	Educator	Yes
R30	M	26	Hindu	Educator	No
R31	M	32	Hindu	Educator	No
R32	F	40	Hindu	Service sector	Yes
R33	F	65	Hindu	NGO	Yes
R34	F	33	Muslim	Housewife	Yes
R35	F	51	Hindu	Educator	No
R36	F	47	Christian	Educator	Yes
R37	F	63	Christian	Retired	Yes
R38	F	42	Christian	Educator	No

## Appendix B

### Appendix B.1. Interview Guidelines

#### A. Introduction

- ☐ My name is Elena. I am a researcher from Germany and I work within an Indian–German research project.
- ☐ Thanks for making time for me.
- ☐ Very broadly speaking, our topic today will be food and what safe food means for you. There are no right or wrong answers; I value all your views on the topic and everything you say will be treated anonymously. I will only use this information for research purposes.
- ☐ I have prepared some questions. The interview will take around 30 minutes.
- ☐ If you would prefer not to answer any of my questions, you can always say so. You can stop the interview at any time.
- ☐ If you agree, I will record the interview. That makes it easier for me to transcribe it later on.
- ☐ Last of all, I want you to remember, that I am not from Bengaluru and therefore, I sometimes might ask you to explain some things again, in order for me to understand it.

#### B. Easy introductory questions + Importance of food

- ☐ In your home, who does the food shopping and cooking?
- ☐ What factors do you consider most important when selecting food? [Rephrase: What influences you to buy a certain product? Which characteristic of a food item is for you most important?]

#### C. Consumption behaviour

- ☐ Generally, where do you buy your food? Do you visit different shops for different kinds of food? Why?
- ☐ Can you explain to me why you go to that specific shop. [Where is it located? How do you travel there? For how long have you been a customer there? Have you changed the shop in the last time? Why?]

#### D. Unsafe Food Perception

Now I want to talk a little bit about your ideas about safe or unsafe food. By “safe” I mean that the food will not make you sick or does not contain any harmful material.

- ☐ What are important factors for you to see if a food item is safe to consume?
  - ☐ Which shopping places do you avoid because you think the food there is bad? Why do you think so?
  - ☐ What foods are particularly unsafe or harmful in your opinion? [Rephrase: What foods would you never consume because they are bad for your health?]
    - Why is that? Who taught you about that?
  - ☐ Do you still consume them? Where do you buy them? Why do you still consume them if you think they are bad for your health?
  - ☐ Are there certain food items you would like to consume but don't because of food safety reasons? What would have to change for you to start buying them?
  - ☐ Are you ever worried that the food you consume might be harmful or unsafe? [Not even if you have food outside of your home?]
  - ☐ What caused these concerns? [Rephrase: Why do you have these worries? Where do you have that knowledge from?]
  - ☐ I know from Shilpa that . . .
  - ☐ You are married. How did your eating behaviour change after you married?
  - ☐ You have children. How did your eating behaviour change after you had children?
- E. Media/Sources of information
- ☐ I would like to talk a little bit about the media and the sources of information about food. Have you ever heard any bad news about certain food items? Any kind of food adulteration, food fraud? How did you react to it?
- F. COVID-19
- ☐ I would like to talk a little bit about COVID-19 and the pandemic in India. How did your worries and concerns regarding the safety of your food change?
  - ☐ Can you explain how your food consumption changed with Coronavirus?
    - [Did you stop or start buying particular food items? Did you shop more frequently or less frequently? Did you change the places you went shopping? Did you change your diet?]
- G. Culture
- ☐ I'd like to know a little bit more about cultural and traditional influences on food safety. Do you follow any food culture, for example the culture of your ancestors? What does your culture teach you about safe food?
- H. Closing Question
- ☐ We are now at the end of our interview. Is there anything else you would like to add?
  - ☐ Thanks again for participating. As I said, I will treat all your answers anonymously and only use them for research purposes.
  - ☐ If you have any further questions, do not hesitate to contact me again.

### Appendix C.

We use the approach presented by Guest et al. [65] to calculate thematic saturation in our sample of 38 interviews.

In their method, there are three distinct elements that are used to calculate saturation:

- (1) Base size. This refers to the data collection event. In our case, this would be an interview. The number of new themes from the first four interviews are calculated to determine the base size, which is then the denominator for the saturation ratio.
- (2) Run length. This is the number of interviews that are examined to determine the emergence of new information. The number of new themes found in a run is used as the numerator in the saturation ratio.

- Table A2.** Emergence of new themes in the first 16 interviews.

\* The number of new themes is determined by adding the last interview from the previous run with the next interview. For example, run 1 is based on interviews 5 and 6 and run 2 is based on interviews 6 and 7.

The run length that we are using in our calculation is two. This means that for our first calculation, we will look at the number of new themes that emerged from interviews five and six. We calculated four new themes from these interviews. This is our numerator.

Based on the above result, we achieved 24% thematic saturation after conducting six interviews.

In order to determine when thematic saturation is achieved, we repeat this calculation with the run lengths until we have reached 0% thematic saturation.

Interview Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
New themes per interview	8	4	4	1	3	1	0	1	2	0	0	0	0	1	0	0
Number of base themes	17															
Number of new themes						4	1	1	3	2	0	0	0	1	1	0
Saturation %						24%	6%	6%	18%	12%	0%	0%	0%	6%	6%	0%

In Table A2 thematic saturation is achieved after 10 interviews, with only one new theme emerging at interview number 14. In our work, we conducted a total of 38 interviews, which we argue is a sufficient number to ensure that we captured the relevant themes surrounding our research questions.

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