

# Perspectives on Modes of Eating and Its Impact on Health in a Methodological Comparison

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**Abstract** This study analysed the meaning of what the act of eating is, and which modes of eating are seen as positive or negative for health, among a sample of Brazilian adults. The data were collected using an online questionnaire (OQ) (n = 25) and face-to-face interview (FI) (n = 10) and compared. The data were analysed using the exploratory content analysis. The results obtained from the analysis of the participant responses through OQ and FI were comparable. For the participants, the act of eating was, primarily, a *basic need*; the most evident positive and negative modes of eating were *eating healthily* and *eating unhealthily*, respectively. The findings suggest that the sample population responses to the act of eating and modes of eating may be in line with the Dietary Guidelines for the Brazilian Population. Our results are relevant to the international community since several countries are updating their food guidelines based on the Brazilian guideline.

**Keywords:** health, dietary guidelines, qualitative research, methodology, internet, Brazil

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## 1. Introduction

National dietary guidelines are official documents developed and published by government agencies to guide public policies and advise people on health-promoting dietary practices [1]. In a recent document, the Food and Agriculture Organization of the United Nations (FAO) recommended that each country’s food guide be updated and be more holistic [2]. According to holism, naturally interconnected systems (for example, physical, biological, chemical, social, economic, mental, and linguistic) must be seen as part of a whole, and their functioning cannot be fully understood only in terms of their component parts [3]. This approach has been increasingly recognized and applied in human nutrition [3].

Following FAO recommendations, the Brazilian food guide, presented in the second edition of the Dietary Guidelines for the Brazilian Population (DGBP) published by the Brazilian Ministry of Health in 2014, presented recommendations for healthy and adequate eating using a holistic approach rooted in health nutrition. The DGBP recommendations consider nutrients, food, meals, modes of eating, and socially and environmentally sustainable food systems [4].

The act of eating is greatly emphasized in the second edition of the DGBP. In this document, the chapter

entitled “the act of eating and commensality” is dedicated to the guidelines on the modes of eating that favour good health and nutrition. The guidelines presented in this chapter are “eating regularly and carefully”, “eating in appropriate environments” and “eating in company” [4]. These guidelines address the circumstances, such as time, place, company, and attention, that influence how food is digested and absorbed, and also the pleasure of eating [5], highlighting that the act of eating should not only consider the biological aspects, but also social, psychological, and cultural aspects. However, how people understand the act of eating is unknown, creating a need to investigate the question “what does the act of eating mean to you”?

According to House [6], modes of eating relate to how eating practices are constituted and organized, amid particular or predominant configurations of social practices that affect a person’s diet. The modes of eating emphasize the interrelationship of eating practices and their recursive and routine nature. However, according to Arnaiz [7], the expression “modes of eating” includes procedures related to the eating practices of human groups (what, how much, how, when, where, and with whom one eats), the selection of foods, and aspects related to the acquisition and preparation of foods that are associated with socio-cultural attributes.

Didactically, we can say that the second edition of the DGBP wants to show that there are positive or negative modes of eating, which positively or negatively impacts

people's health. For example, the negative modes of eating associated with a higher risk of obesity include the following: eating large amounts of ultra-processed foods [8,9], maintaining irregular meal patterns [10], and watching television or using the computer or cell phone during meals [11]. However, whether people are aware of the positive and negative modes of eating that impact health positively or negatively is unknown. Therefore, the questions "what modes of eating do you see as positive for health?" and "what modes of eating do you see as negative for health?" also deserve to be investigated.

To answer these questions, it is essential to investigate the representations of individuals [12]. Qualitative research, which aims to gather a deep understanding of what people think, how and why they act [13], constitutes an adequate methodological option for this investigation. In the field of nutrition, as previously mentioned, the holistic approach has been increasingly recognized and applied; hence, qualitative research is increasingly necessary. Quantitative research in its analytical approaches does not account for this understanding, which is so widely systemic.

In qualitative research, an important consideration to be made concerns "how" to ask what is desired, and this is a central discussion as to what type of method is more appropriate for elucidating the investigator's question [14].

Among the various methods, the interview is the most used for acquiring qualitative data in health research [15]. In individual face-to-face interviews (FI), the interviewer's attention is directed to only one person and, with that, much richer details can be obtained regarding personal experiences, decisions, beliefs, opinions, and particular circumstances [14]. However, a difficulty in using this method, for example, may be scheduling the interview at a place, day, and time compatible between the interviewer and interviewee. Using an online questionnaire (OQ) with open-ended questions may be an alternative option; however, it also has its disadvantages. In an OQ, the participant can fill the questionnaire at a convenient time [16], but may end up answering the questions with loose and disconnected words, which might impact the ability of the researcher to meet the research objectives.

Regarding the research questions posed so far, both methods have their advantages and disadvantages. Therefore, this study aimed to analyse the meaning of what the act of eating is and which modes of eating are seen as positive or negative for health, among a sample of Brazilian adults, employing both methods.

## 2. Methods

### 2.1. Study Design and Setting

The cross-sectional, exploratory, and qualitative research was conducted at the Federal University of Grande Dourados, Brazil.

### 2.2. Participant Selection

We used purposive sample and established the following inclusion criteria: 1) being Brazilian, 2) being a member

of the academic community of Federal University of Grande Dourados (i.e., students, teachers, and administrative technicians), and 3) aged 18-60 years. Individuals belonging to a traditional community (e.g. indigenous people) were excluded due to specific ethical issues that were not considered at the time of proposal submission to the Research Ethics Committee.

An invitation to participate in the study was sent to a list of email addresses of students, teachers, and administrative technicians. The email list included 3557 email addresses registered at Federal University of Grande Dourados. Each participant replied to the email indicating their preferred method of data collection (OQ or FI).

### 2.3. Data Collection

Based on the objectives of the study, the researchers developed a script with five open-ended questions. The same questions were applied in both data collection instruments: OQ or FI. The questionnaire was designed following the recommendations of Regmi et al. [16], and submitted to six researchers, who are experts in qualitative research, for the assessment of clarity and relevance [17]. Adjustments to the questions were made, and the script was pre-tested in a population with similar characteristics to the target population in a pilot study to determine the clarity of interview questions for the target population [16]. More adjustments were made after the pilot study to rectify problems with the interpretation of some questions by the respondents. The final script of questions used in this study is shown in Box 1.

#### Box 1. Script of Questions Used in This Study

1. Initially, what does act of eating mean to you?
2. Now, give examples of modes of eating.
3. Which of these modes of eating do you see as positive for health?
4. Finally, which of these modes of eating do you see as negative for health?

An email with a link to the OQ, created using Google Forms®, was sent to the participants who chose to participate in this way. Therefore, this was a self-administered questionnaire. For participants who chosen to participate through FI, an interview was scheduled with each participant within the premises of Federal University of Grande Dourados. Adequate conditions regarding comfort and privacy were ensured. All the interviews, with an average duration of 10 minutes, were recorded. As the interview followed a script, it was a semi-structured interview.

Age, gender, and occupation of each participant (if student, teacher, or administrative technician) were collected at the end of both data collection methods used in this study.

The interviews were transcribed, while the responses typed by the participants in the OQ were exported to Microsoft Excel, and then copied in Microsoft word. Data obtained from both methods constituted the corpus for analysis and were generically called "participants' responses".

Data collection was performed from July to November 2019.

## 2.4. Data Analyses

Data analyses were performed using exploratory content analysis, which involves the application of an inductive approach for the identification of emerging themes [18]. We read the participants' responses several times to identify themes relating to each question of the study. Then, we highlighted quotes that seemed crucial and grouped them into themes using the cutting and sorting method described by Bernard and Ryan [18]. These authors described this approach as a process which 'involves identifying quotes or expressions that seem somehow important – these are called exemplars – and then arranging the quotes/expressions into piles of things that go together'. Similarities that each exemplar shared with the others in its group were identified, and this common essence helped in nominating the themes. The list of themes that emerged from this analysis was discussed and refined by the researchers until a consensus was reached. The themes appear in italic in the results and discussion sections.

A codebook was developed in conformance to the practices described by Bernard and Ryan [18] and MacQueen et al. [19]. Following the criteria described in the codebook, we coded the participants' responses.

When necessary, in the results section, we present the participants' responses in direct quote (between quotation marks) followed by fictitious names. This was done to maintain the participants' anonymity. The representations of the participants of the study were discussed considering the features of eating practices associated with foods (i.e., price, flavour, variety, nutritional value), and with the individuals (i.e., biological, sociologic, cultural, psychological, historical).

## 2.5. Ethical Considerations

This study was conducted according to the guidelines laid down in the Declaration of Helsinki and was approved by the Research Ethics Committee of the Federal University of Grande Dourados (approval number: 3.006.244/2018). Written informed consent was obtained from all participants that participated through the FI. All participants that participated through the OQ had access to the informed consent form, which was presented before

the questions, and they only had access to the study questions if they clicked on the 'agree' button for the informed consent statement.

## 3. Results

### 3.1. Characterization of Participants

Table 1 and Table 2 present the baseline characteristics of the study participants in both groups. The two groups were comparable in mean age and sex.

**Table 1. Data of Study Participants by OQ (N = 25)**

	Students (n = 11)	Teachers (n = 9)	Administrative technicians (n = 5)
Gender			
Female	5	4	3
Male	6	5	2
Age (years), average (SD)	25 (5.2)	41 (9.7)	37 (11.0)

**Table 2. Data of Study Participants by FI (N = 10)**

	Students (n = 3)	Teachers (n = 4)	Administrative technicians (n = 3)
Gender			
Female	2	2	2
Male	1	2	1
Age (years), average (SD)	23 (4.5)	38 (3.1)	35 (7.1)

### 3.2. Themes Obtained in Content Analysis

In this study, we investigated and analysed the representations of what the act of eating means to the study participants, and what modes of eating they see as positive and negative for health. We compared two methods of data collection (OQ and FI), and the results obtained in the analysis of the participants' responses regarding the most evident themes were similar. However, the number of themes obtained were different between the methods. Both methods of data collection identified the act of eating as primarily a *basic need*, the most evident positive mode of eating was *eating healthily*, and the negative mode was *eating unhealthily*.

**Table 3. Definition of the Themes Identified in the Content Analysis of the Participants' Responses to the Question "What Does The Act of Eating Mean to You?"**

Online Questionnaire (OQ)		Face-to-face Interview (FI)	
Theme	Theme definition	Theme	Theme definition
<i>Basic need</i>	Basic (also organic, human) need to satisfy hunger and feed the body; need to provide nutrients and energy to nourish the body.	<i>Basic need</i>	Basic (also physiological, biological) need to satisfy hunger and feed the body; need to provide nutrients and energy to nourish the body.
<i>Pleasurable activity</i>	Activity that generates satisfaction and a sense of well-being. It is a time to relax and enjoy food. It satisfies internal desires. It reflects anxiety; it is escape and reward.	<i>Time for sharing</i>	Moment of sharing food with the family; moment of meeting (also of celebration, integration, communication); time to sit and talk.
		<i>Pleasurable activity</i>	Pleasurable and joyful activity. Time to enjoy food. It is an escape valve for anxiety.
		<i>Sociocultural activity</i>	Activity influenced by people, groups, customs, beliefs, religions. It obeys rules of etiquette. It involves choices.
		<i>Laborious activity</i>	Activity that is hard work and requires dedication.

**Table 4. Definition of the Themes Identified in the Content Analysis of the Participants' Responses to the Question "Which Modes of Eating do You See as Positive for Health?"**

Online questionnaire (OQ)		Face-to-face interview (FI)	
Theme	Theme definition	Theme	Theme definition
<i>Eating healthily</i>	Eating in a balanced and diverse way, opting for foods with high nutritional value such as grains, fruits, vegetables. Prioritizing fresh, raw, roasted, grilled, cooked, sautéed foods and avoid frying. Consuming natural, minimally processed, or non-processed foods. Worrying about the origin of the food; eating home-made food. Not substituting main meals for sandwiches.	<i>Eating healthily</i>	Eating quality foods such as meats, fruits, vegetables; watching for their preparation. Consuming natural, minimally processed, and non-industrialized foods.
<i>Eating proper amounts</i>	Eating without exaggeration, in moderate amounts. Thinking about what the body needs and respecting hunger; eating salad before. Not eating in a compensatory or compulsive way. Eating when you are hungry; without waste.	<i>Sharing meals</i>	Sitting at the table, getting together with family or close people, and enjoying the moment.
<i>Eating slowly</i>	Eating calmly, without haste, chewing well. Enjoying the moment; without nutritional paranoia. Eating without worry. Paying attention to food.	<i>Eating carefully</i>	Enjoying the food, savouring the food; no television or other devices on.
<i>Having a specific time to eat</i>	Respecting mealtimes; eating at the right times.	<i>Sparing some time to eat</i>	Sparing a special time to eat; having a right time to eat.
<i>Eating with family</i>	Eating with family or in the company of close people.		
<i>Eating in a pleasant environment</i>	Eating in a calm, peaceful and clean environment so that meals are peaceful, pleasant, and so that you can enjoy the moment.		

**Table 5. Definition of the Themes Identified in the Content Analysis of the Participants' Responses to the Question "Which Modes of Eating do You See as Negative for Health?"**

Online questionnaire (OQ)		Face-to-face interview (FI)	
Theme	Theme definition	Theme	Theme definition
<i>Eating unhealthily</i>	Eating food without nutritional quality; poor-quality food; with lots of carbohydrates, fat, salt, and sugar (for example, sauces, mayonnaise, creams, fried foods, soft drinks, sweets). Eating processed (also multi-processed, ultra-processed), industrialized food. Eating ready, fast, practical foods. Eating snacks instead of food.	<i>Eating unhealthily</i>	Eating poor-quality food; with a lot of fat and sugar (for example, pizza, filled biscuits, sweets). Eating processed, industrialized food. Eating ready, fast foods. Eating snacks instead of food.
<i>Eating fast</i>	Eating in a hurry, quickly, hurriedly; swallowing food.	<i>Eating automatically</i>	Not having time to cook and, therefore, preparing food on the go, buying ready-made food, or eating fast food. Eating as if it were something automatic, without knowing what you are eating or without feeling the food and, consequently, eating more than necessary and not realizing that you are satiated.
<i>Eating in a disturbing environment</i>	Eating in noisy, busy, or dirty environments; eating out.		
<i>Emotional eating</i>	Using food as a refuge for a problem; eating out of nervousness or worry, out of mania, addiction, or compulsion.		
<i>Overeating</i>	Eating excessive amounts of food; exaggerating; eating much more than the body needs to stay active. Greediness.		
<i>Eating out of time</i>	Eating out of time; eating disorderly, at no right times, without adequate regularity. Not paying due attention to mealtimes.		

The themes obtained in the exploratory content analysis are presented in Table 3 to Table 5. Each table presents the themes obtained from the study questions (comparing OQ with FI). Both the names of the themes and their definitions were established using words and expressions of the study participants themselves. Thus, although there are equal themes obtained in the analysis of the participants' responses by both methods of data collection, their definitions are different. In each table, the themes are presented in order of relevance (i.e. from the most evident to the least evident). The results of the answers to question 2 were not presented since it was only used as a trigger for questions 3 and 4.

## 4. Discussion

For the first question (what does the act of eating mean to you?), we observed a duality between *basic need* and *pleasurable activity*. In fact, the analysis of the participants' responses by OQ showed only these two themes. In the participants' responses by FI, despite the presence of duality between these two, another theme was strongly highlighted, *a time for sharing*. It was even more evident than pleasurable activity. The themes *sociocultural activity* and *laborious activity* were also highlighted in the analysis of the participants' responses by FI. The following is a brief discussion on these topics.

Franco [20], in his book says “eating, the instinct that awakens earlier, is the basis of animal life” (Franco, p.22). The survival of a human group requires that its diet satisfies its nutritional needs. For this reason, it was expected that for the participants, the act of eating would primarily mean a *basic need*. In our analysis, necessity and pleasure are opposed, but they are also intricately linked. Thus, responses such as “an energetic and replenishing activity” find their place alongside “a pleasurable activity”.

Historically, it is impossible to specify when eating was related to pleasure [20], but this relationship seems to have appeared together with our origin and accompanied our evolution. Biologically, this relationship has been demonstrated in experiments carried out on facial reactions to taste stimuli [21]. In early life, human newborns show different facial reactions, indicating a positive effect for sweet solutions that fall on their tongues [22,23]; and this has also been seen in other animals [24]. This is due to the production of hormones by the body, resulting from the consumption of certain foods [25]. Therefore, eating is related to emotions; it simultaneously satiates and satisfies. In the words of the participants, eating “satisfies internal desires”. Such desires are much more related to will and appetite than to hunger. Unlike hunger, appetite is fundamentally a mental state, a feeling that is much more psychological than physiological [20]. Sociologically, studies show that pleasures related to eating are a common phenomenon among people and are influenced by the social context [21]. This may explain why we identified that the act of eating also meant a *time for sharing* in participants’ responses by FI.

In Brazil, sharing meals is still frequent [4]. Nevertheless, currently, numerous factors that make it difficult to eat at the table in the company of other people, family, or friends exist [26]. That is why the second edition of the DGBP, in its fourth chapter, devoted attention to commensality, to emphasize the significance of sharing meals on human eating habits, and to encourage its adoption in society.

For Brazilians, the meal is a social act, not a private act, and culturally, the act of eating together is a meal. People are happiest when they are sharing a meal, which is more pleasant than eating alone [27]. Here we see a link between eating in company and the pleasure of eating. This would allow us to combine the theme *time for sharing* with the theme *pleasurable activity* in the analysis of the participants’ responses by FI. However, we did not combine the two themes because we identified words such as family, friends, meeting, and meal, which resulted in a specific theme. In the participants’ responses by OQ, we did not identify these words.

When analysing the participants’ responses by FI, we were pleasantly surprised to identify the themes *time for sharing* and *sociocultural activity*, because it indicates that a holistic view on the act of eating exists among the study participants.

The last theme identified for the first question was *laborious activity*. The labour to which the participants’ referred to concerns the act of cooking, providing food for themselves or for the family. The evidence of this theme, however, seemed to be an outburst from the participants. It seemed like since they do not have time to cook, they

would have liked to transform this laborious activity into a more pleasant one.

The themes that emerged in the analysis of participants’ responses to the first question of the study correspond to their representations about the act of eating. Such representations are related to biological, psychological, social, and cultural aspects intrinsic to the act of eating [28]. However, the act of eating expresses great complexity [29], and its understanding still requires attention to historical, economic, ecological, religious, moral, and political aspects, among others. The conjugation of the verb to eat requires transdisciplinary views, and in line with contemporary social debates. It is no wonder that FAO recommends that each country’s food guide be updated to present a holistic view [2], as previously mentioned.

In the analysis of the responses to the third question (which modes of eating do you see as positive for health?), we identified that the theme *eating healthily* was the most evident, both for data collection by OQ and FI. Other themes also emerged in the analysis of the responses obtained by both collection methods and, for the most part, they are equivalent in both methods. For example, the themes *eating slowly* and *having time to eat* identified in the analysis of responses by OQ are equivalent, respectively, to the themes *eating carefully* and *sparing time to eat*, identified in the analysis of responses by FI. Also, the theme *eating with family*, identified in the analysis of responses using OQ, is equivalent to the theme *sharing meals*, identified in the analysis of responses using FI. The theme *eating in a pleasant environment* is related to the theme *eating carefully*. The mode of eating *in adequate amounts* was identified only in the analysis of responses by OQ.

The biological, psychological, and social aspects that appeared in the first question of the study reappear in the third one, confirming that both the act of eating itself and the modes of eating are seen by the participants from various angles. However, the biological aspects were more strongly highlighted, same as in the first question. In the first question, the act of eating is related primarily to the basic need, and in the third question the modes of eating that are seen as positive are those related to eating healthily.

The meaning of eating healthily can vary from person to person depending on several factors (for example, culture, socioeconomic status, education level). However, in our analysis we identified a lot of similarity in the words and expressions used by the participants when they talked about it. For the participants, eating healthily was described in terms of both types of food and cooking techniques considered healthy. Both fruits and vegetables, as well as cooked and grilled preparation forms were highly cited as healthy by the participants. It was interesting to note that participants referred to food groups in the traditional food pyramid (for example, fruits, vegetables, grains, meats) [30], and to food groups in the NOVA food classification system, which classifies food according to the degree of its industrial processing (for example, fresh, processed, ultra-processed foods) [31]. The food pyramid was used in the first edition of the DGBP [32] and the NOVA classification in the second edition, published in 2014 [4]. These results may reflect the appropriation of the content of this second edition of the guide by the participants.

The meanings of eating healthily in this current study were very similar to those identified in other studies included in the systematic review by Bisogni et al. [33]

Since the beginning of Nutrition science, society has recognized the relationship between diet and health. The concepts of balanced diet and good nutrition began to be spread in 1935 when Pedro Escudero proposed the four laws of nutrition (laws of quality, quantity, harmony, and adequacy) [34]. For many years, these laws have been confirmed by several scientific studies and have become dietary norms related to healthy eating. These rules were widely disseminated or imposed by nutritionists and by society itself and became a life goal for people. Hence it seems people have internalized that eating healthily is good for health. This may explain why this theme was the most evident in our analysis in both methods of data collection.

Along with *eating healthily*, the theme *eating in adequate amounts* established the duality, which is strongly present, between what and how much to eat in the participants' responses by OQ. These results show that the modes of eating seen as positive for health by these participants are based primarily on biological aspects, represented by food and its quantities. This dynamic may be the result of nutritional guidelines given for many years by nutritionists to the Brazilian population, that were based on the daily portions of each food group in the food pyramid to be eaten [35]. Historically, this ability may reflect the emergence of gastronomy in the Modern Age, which with refinement and moderation, calls into question the gluttony of the Middle Age.

Gastronomy has changed the way people eat. Despite living with movements that are valued or become fast, it persists to the present day seeking to value meals, as it should be: with good food, good company and with time set aside for eating. The current gastronomy does not value eating alone, and no longer values sumptuous eating; it values the relationships between the people and their food. We see gastronomy translated into movements such as Slow Food, which has been gaining ground in several countries since the 1990s, and in Brazil, since the 2000s [36]. This may explain the identification of the themes *eating slowly*, *having time to eat*, *eating with family* and *eating in a pleasant environment* in the participants' responses by OQ; and the themes *sharing meals*, *eating carefully* and *sparing time to eat* in the participants' responses by FI. The second edition of the DGBP may also have played a key role in these results. The themes that we identified in the analysis of the responses to the question on positive modes of eating for health are very similar to the recommendations in the fourth chapter of this guideline: eating regularly and carefully, eating in appropriate environments and eating in company.

In the analysis of the responses to the fourth and last question (which modes of eating do you see as negative for health?), we identified that the theme of *eating unhealthily* was the most evident in participants' responses, both by OQ and FI. Other themes also emerged from the analysis; five more for the participants' responses by OQ and one more for the participants' responses by FI. This considerable difference made us reflect on the reasons why this may have happened.

We observed that, in the case of FI, when they had to talk about negative modes of eating, the participants

simply answered that they would be all those contrary to the positive modes of eating, mentioned above. For this reason, we identified a small number of topics in the analysis of their responses. Obviously, we tried to stimulate the participants to speak more, as this is possible in face-to-face interview. However, in most cases, the interview was interrupted or silenced with a "that's it". In the case of OQ, since the participants answered the questions by writing, they would have been concerned about leaving a question blank, hence compelled to answer. Hence, even though the sentences were short and words loose, the number of identified themes were higher.

Again, we noticed that the biological aspects stood out in the participants' representations about negative modes of eating. Food reappears as protagonists and, for the participants, *eating unhealthily* has a great weight among the modes of eating seen as negative for health. In the analysis of the participants' (OQ) responses to the last question, we identified themes with meanings opposite to those obtained in the previous answer. Thus, we identified the following opposing themes between the fourth and third questions: *eating unhealthily* versus *eating healthily*; *eating fast* versus *eating slowly*; *eating in a disturbing environment* versus *eating in a pleasant environment*; *overeating* versus *eating in adequate amounts*; *eating out of time* versus *having a specific time to eat*.

In addition to these, another mode of eating was identified in the participants' responses by OQ as negative for health: *emotional eating*. In a study by Scherwitz and Kesten [37], emotional eating (eating to manage feelings) was identified as an eating style related to obesity, that is, a state of illness. In a way, our results are similar to the results of this study, which was also carried out using an online questionnaire, but with a much larger number of participants. This is because these authors also identified other eating styles related to obesity, which concern food, commensality, and the food environment.

The theme of *eating automatically* identified in the participants' responses by FI has a great relationship with the food environment. Here, the participants talk much more about their eating routines, considering the environment where they eat, and how they think these routines affect their health. They comment that they eat without realizing that they are eating, they eat in loud restaurants, they eat watching television or giving food to their child. Therefore, we understand that, for them, these are modes of eating which are negative for health. It seems like an outburst, an attempt to justify their daily practices that do not correspond to their representations, mentioned in the answer to the previous question. They do not provide a very concrete definition like "I think that negative modes of eating are such and such". Therefore, in naming this theme, we consider the numerous eating practices that were being declared by the participants and that we managed to pick up.

According to Cohen and Farley [38], a revised view of eating as an automatic behaviour, as opposed to that that humans can self-regulate, has profound implications to the obesity epidemic; and the food environment plays a fundamental role in this.

Finally, we realized that when the participants use spoken language (that is, in FI), in addition to their opinions about the question being asked, norms, values, symbolic systems and even their attitudes are also present

(examples from everyday life of how they act in relation to the question); and all, together, comprise their representations. In addition, in FI the data was obtained in a much more contextual way than in OQ. In the latter, it seems that the participants answered the questions with the idea that they were formulated to obtain only their opinions, such as the typical opinion polls. Perhaps this is why the answers obtained were more straightforward than those by FI. The number of words obtained from the corpus of this study shows that. We obtained 2415 words by OQ and 10847 by FI.

## 5. Limitations and Difficulties

The responses of the study participants varied according to their age, sex, and occupation. We collected and presented this data; however, it was not possible for us to make an in-depth analysis of how these participants' characteristics influenced the results obtained.

Because the interviewers were all from the nutrition field (professor and undergraduate students), and the participants knew this, the answers obtained may have suffered in social desirability bias. Below we present what we consider the difficulties encountered.

In this study, the response rate was approximately 1%, with 35 individuals out of the 3,557 emails participating in the study. Initially, 63 individuals showed interest (52 by OQ and 11 by FI), but in the end, 25 participated by OQ and 10 by FI. This equates to a completion rate of approximately 50% for the first and 90% for the second. We even sent the questionnaire three times to those who were interested in participating in the study using this collection method; but we still did not get answers from everyone. This highlights the difficulty in getting study participants, which may be important for researchers who want to conduct research with themes and methodology like those of this study.

The difficulties were not only experienced when enrolling study participants, but also when selecting judges to assess the questions used in the study. Initially, we sent the script to 20 researchers experienced in qualitative research and received responses from only three. In the second round, we sent the scripts to ten more researchers and got responses from three an additional three.

The sample size was limited to 35 Brazilian adults living in Dourados, MS. However, using appropriate methodology, the study objectives were achieved. Usually a sample size of between 10 and 30 individuals is recommended in qualitative research carried out with semi-structured interviews or questionnaires with open-ended questions [14].

## 6. Conclusions

There is no consensus on when one data collection method is likely to be more effective than another, and will depend on the nature of the research topic, the objectives, the types of respondents, and to some extent on the researcher's personal skills and preferences [14]. We showed that the two methods of data collection used in

this study achieved similar results. This presents an opportunity for researchers who want to study similar themes in the area of food and nutrition, using qualitative research, to assess the advantages and disadvantages of each method and choose one that suits them best.

The themes identified in the responses of the participants in this study, both by OQ and by FI, show that the responses about the act of eating by the population represented in this study primarily reflect biological, psychological, and social aspects of eating. However, it is still necessary for individuals to recognize that many other aspects, such as environmental and economic, are also related to the act of eating. Furthermore, it is necessary to recognize that eating is a political act.

Also, this study showed that participants understand that there are modes of eating which are positive or negative for health, and that the ways they see them are in line with the content of the fourth chapter of the DGBP and its recommendations.

These results may be considered as providing an initial insight, suggesting that the sample representing Brazilians interpret the act of eating and modes of eating in line with the DGBP and its holistic approach; and that this publication may be playing a fundamental role in this. This is an important finding for public food and nutrition policies in Brazil, which see the DGBP as a key tool for promoting healthy eating, as well as adequate, pleasant, and sustainable.

Our results are relevant to the national and international agenda, as several countries in the world are updating their food guides according to FAO recommendations, some of which are mirroring the second edition of the DGBP, which was internationally recognized for its innovative content and approach.

This study can be replicated in these countries, so they can understand what the act of eating means to individuals before and/or after new editions of their dietary guidelines are published. As a diagnosis, it is important to know whether the representations of individuals follow the changes in dietary paradigms, which the most recent food guides have proposed to present.

## Statement of Competing Interests

The authors have no competing interests.

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