

# CONSUMER BEHAVIOR IN SHORT AGRIFOOD CHAINS IN THE REGION OF COREDE RIO DA VÁRZEA/RS/BRAZIL

## *COMPORTAMENTO DO CONSUMIDOR EM CADEIAS AGROALIMENTARES CURTAS NA REGIÃO DO COREDE RIO DA VÁRZEA/RS/BRASIL*

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Carolina de Mattos Nogueira<sup>1</sup>

Paloma de Mattos Fagundes<sup>1</sup>

*1 Universidade Federal do Rio Grande do Sul/UFRGS, Porto Alegre, Rio Grande do Sul, Brazil.*

*2 Universidade Federal de Santa Maria/UFSM, campus Palmeira das Missões, Palmeira das Missões, Rio Grande do Sul, Brazil.*

### ABSTRACT

**Purpose** – To analyze consumer purchase intentions at open fairs in the region of Regional Development Council (COREDE) Rio da Várzea/Rio Grande do Sul in the light of the Theory of Planned Behavior and the influencing factors in the decision-making process.

**Design/methodology/approach** - The scope of the research requires an analysis involving the interaction of TPB, the decision-making process and the factors that influence consumer behavior, making it possible, based on statistical inferences, to analyze multiple variables simultaneously through the use of the Modeling technique of Structural Equations. The questionnaire was applied to 195 consumers of open markets using the non-probabilistic convenience sampling technique.

**Findings** – The model of causal relationships of the three beliefs and four influencing factors allowed testing whether the seven constructs are correlated. The correlation between all indicators was significant and positive and the model that obtained greater significance was the construct model referring to Personal Factors. In this model, the concern with health and quality of life were the most relevant variables, allowing us to conclude that the search for a healthy life makes consumers worry about looking for natural foods, which are found in open markets.

**Originality/value** – Studies that address this entire context have not been carried out in the region of the COREDE Rio da Várzea.

**Keywords:** Consumer behavior; Short agri-food chains; Influencing factors; Theory of planned behavior.

## RESUMO

**Objetivo** – Analisar as intenções de compra do consumidor em feiras livres na região do Conselho Regional de Desenvolvimento (COREDE) Rio da Várzea/Rio Grande do Sul à luz da Teoria do Comportamento Planejado e dos fatores influenciadores no processo decisório.

**Design/metodologia/abordagem** – O escopo da pesquisa requer uma análise envolvendo a interação da TPB, do processo de tomada de decisão e dos fatores que influenciam o comportamento do consumidor, possibilitando a partir das inferências estatísticas analisar simultaneamente múltiplas variáveis através do uso da técnica de Modelagem de Equações Estruturais. O questionário foi aplicado a 195 consumidores das feiras livres utilizando a técnica de amostragem não-probabilística por conveniência.

**Resultados** – O modelo das relações causais das três crenças e dos quatro fatores influenciadores permitiu testar se os sete constructos se correlacionam. A correlação entre todos os indicadores foi significativa e positiva e o modelo que obteve maior significância foi o modelo do constructo referente aos Fatores Pessoais. Nesse modelo a preocupação com a saúde e a qualidade de vida foram as variáveis mais relevantes, permitindo concluir que a busca por uma vida saudável faz com que os consumidores se preocupem em procurar alimentos naturais, que são encontrados nas feiras livres.

**Originalidade/valor** – Estudos que abordam todo este contexto não foram realizados na região do COREDE Rio da Várzea.

**Palavras-chave:** Comportamento do consumidor; Cadeias agroalimentares curtas; Fatores influenciadores; Teoria do comportamento planejado.

## 1 INTRODUCTION

In the last decades, there have been major changes in production and quality of food. The industrialization process was intensified in order to increase productivity in sufficient quantities to supply the demand coming from intense urbanization. Therefore, quantity has surpassed quality, changing the entire food production system, as well as its raw materials to make food cheaper and more durable. For a long time, the traditional agrifood chains have gained emphasis, however, over the years the debate about food risks has been growing, due to successive cases of food contamination related to large-scale industry production, use of preservatives, dyes and others products that spread the costumer's distrust towards this type of production.

The need to diversify local economies arises from the identification that there are others productions models and that there is demand for these new market niches. In this context, alternative agrifoods networks and short supply chains emerge, bringing producers and consumers close together and creating a link between them. The short agrifood chains are directly related to family farming market, to the process of production and marketing agricultural products, whose logic is to allow a connection of greater interactivity with the consumer, based on mutual trust relationships (Nogueira, Fagundes, Christofari, Velho & Oliveira, 2021).

The growing demand of products from those chains is also strongly related to the increase of consumer's requirement, especially with regard to concerns about food quality and the impacts of agriculture on the environment. Understanding the behavior of these costumers is relevant for produces to be aware of their costumer's desires thus offer what they want, identifying their needs so that they can be satisfied with solutions that are in line with these changing habits.

Assuming that the costumer is the final and most important link in any agrifood chain it is known that there are often changes in the consumption habits, especially in the food field. These changes reflect in the profile of costumers, who are increasly demanding about the nutritional aspects, by the possibility of prevention of serious diseases and concerned about the aesthetics and

obesity, which ends up influencing the purchase decision of the population, who opt for places that offer more comfort, practicality, cleanliness, safety, schedule flexibility, suitable to their daily lives, such as open market that are considered the oldest and most traditional ways of marketing agricultural and livestock products and horticultural products (Souza, 2005). The horticulture is the activity most performed by family farmers, where the olericulture and fruit farming show have a higher percentage of production (Silva, Cecconello, Altemburg, Silva, & Becker, 2017).

The producers need to understand how their current and potential consumers think, structuring their decision to the best product and also developing new products in the market, where it becomes more increasingly important to know their different profiles. Investigate the influencing factors in the purchase process, exploring the knowledge about short food chains, as well as the beliefs and attitudes that guide the consumer purchase decision process becomes an important task to define strategies for the producer within this market.

However, in the country, researches conducted recently privilege mainly the study and analysis of processes that generate new ways of insertion of farmers in local products, where the focus of the studies concentrates on the analysis of practices of social actors of short chains, aiming at the social construction of them, showing relations with local developing processes (Schneider & Ferrari, 2015; Scarabelot & Schneider, 2012), not considering in the studies the opinions of consumers in relation to short chains.

The verified studies in open market address the consumer's profile and consumer's behavior in several regions (Padilha, Rosa, Souza, & Lanes, 2016; Cazane, Machado & Sampaio, 2014; Silva et al., 2017; Silva & Costa, 2011; Zamberlan, Büttenbender & Sparemberger, 2006), but none uses the application of TPB and SEM statistical interference techniques. However, the use of TPB has not been explored in this sector nationally, only the use of TPB focusing on beliefs, perception and costumer's attitudes towards organic products. (Magnusson, Arvola, Hursti, Aberg, & Sjoden, 2001; Robinson & Smith, 2002; Tarkiainen & Sundqvist, 2005; Chen, 2007; Arvola et al., 2008; Gracia & Magistris, 2008). Giampietri et al. (2017) conducted a TPB survey on Italy to investigate the role of trust in consumer purchasing decision related to short food chains, where the influencing factors of the decision-making process were not addressed either.

Because of this, studies that address this whole context have not been carried out in the region of Conselho Regional de Desenvolvimento [COREDE] Rio da Várzea, which is located in the state of Rio Grande do Sul and was the region chosen for the research. It is intended to reveal which attributes, beliefs and behavioral intentions related to TPB and which decision-making factors in the purchase have influence on consumers.

Therefore, this study proposes the following research questions: what leads the consumer to decide to buy at existing open market in the municipalities of Rio Grande do Sul in the region of Conselho Regional de Desenvolvimento [COREDE] Rio da Várzea/RS? From the three beliefs of Theory of Planned Behavior [TPB] and the influential factors in the purchase decision-making process, analyzing the constructs simultaneously through the Structural Equations Modeling [SEM], which ones contributes the most to explain the behavior?

In this context, this study aim to analyze the consumer's purchasing intentions in open markets in the region of COREDE Rio da Várzea/RS in the light of the TPB and the influential factors in the decision-making process. Based in these two theories, it will be possible to explore elements of behavioral relations of the consumers of open markets, inserted in the short agrifood chains by spatial proximity. The scope of this research requires an analysis involving the interaction of these two theoretical aspects, enabling from the statistical interferences to analyze multiple variables simultaneously through the use of the Structural Equations Modeling technique.



According to information from Sociedade Brasileira de Sistemas de Produção [SBSP] (2017), the stimulus for this type of production and commercialization in short chain began outside Brazil. In the United States, this market has had a space for almost two decades. In the European Union, this system has been worked on for ten years and, in 2013, they instituted the project as a development policy. In Brazil many of the pioneers emerged in the late 1970s and more recent movements have emerged in the country with the institucionalization of organic agriculture and agroecology, formed by initiatives of groups of family farmers and organized consumers with the support of non-governmental organizations [NGOS] and public institutions (Ministério do Desenvolvimento Agrário, research institutions, rural extension, among others) (Darolt, Lamine, Bradenburg, Alencar & Abreu, 2016).

In Rio Grande do Sul [RS], the family farmer is fundamental to the production basic foodstuff for the Brazilian population. According to IBGE (2017), RS is the fourth Brazilian state with the highest number of people employed in family farming. In all, there are more than 365.094 agricultural establishments, 80.5% of which are classified as family farms.

The family farming is present throughout the Rio Grande do Sul territory, but it is possible to identify higher concentrations in the Northwest region, which the present work is inserted. (FEE data, 2018). There is a lack of studies related to consumers and a gap in the segment of short agrifood chains in the region, as perceived in bases such as Science AAAs, Nature, Web of Science, Elsevier and Emerald. The definition of the region is due to its expressive connection with agriculture, being formed of 20 municipalities in the north of the state, where its population has more than 134.000 inhabitants. Palmeira das Missões is the largest of these municipalities and has about 1.200 family farmers (FEE data, 2018). Currently, the economy of these municipalities is mostly based on agriculture and livestock (Fagundes, Andreatta, Sarturi, & Zuzatto, 2015).

## 2 SHORT AGRIFOOD CHAINS AND OPEN MARKETS

The short agrifood chains represent the interaction of a family farming with the local dynamics of development and refer to forms of marketing that express proximity between producers and consumers, not necessarily in the spatial aspect, but a kind of connection that allows to provoke interactivity, facilitating that both know each other's purposes (Scarabelot & Schneider, 2012). In other words, proximity not only in the physical sense, but in a set of values and meanings that link and connect them (Matte, Neske, Borba, Waquil, & Schneider, 2016).

Kawecka and Gebarowski (2015) state that a definition of "short supply chain" is missing, pointing out that in a small supply chain it has a maximum of one intermediary between the producer and final consumer. Marsden, Banks and Bristow (2000) present a more remote concept, characterizing it in a direct connection between producers and consumers. Where one of the main aspects is their ability to re-socialize or re-specialize a given food from the local scope, allowing the consumer to associate value judgments based on their own knowledge and experience (Marsden et al., 2000; Renting, Marsden, & Banks 2003).

According to Scheneider and Ferrari (2015), these are the key characteristics that give identity to short chains. This process of eliminating intermediation along the chain is part of the logic, which producers seek to regain some control about their sales and retain a full selling price, and consumers can somehow participate in the qualification of the food they are buying. According to Goodman (2003), the debates around these chains represent a critical response to the large production circuits and to food crises and scandals themselves. Thus, their construction is strongly related to the mode of food production, consisting in a specific source of quality food (Matte et al., 2016).



In addition to the quality criterion, they can be considered in regional/artisanal and ecological/natural and, also, classified into three typologies, the face to face, the spatial proximity and the spatially extended (Marsden et al., 2000). Schneider and Ferrari (2015), corroborate with the authors mentioned and clarify that the short chain present themselves as options with different dimensions: (i) spatial, by shortening the distances that food travels between production and consumption; (ii) social, by generating face-to-face contact between producers and consumers, that results in trust and integration in the food chain; and, (iii) economic, by creating local market for production.

One of the central and decisive aspect in the organization of short chain refers to the re-definition and even the construction of relations with markets. There is no short chain without narrowing the distance and contact between producers and consumers. Therefore, the analysis of consumer behavior in this process is essential for the affirmation and strengthening of short chains (Goodman, 2003). In this sense, the open market have proved to be strategically promising for the purpose of effective disposal of the production of many family farmers (Pierri & Valente, 2015). The family farming is primarily responsible for marketing of products at the local level, where the most prominent roles continues to be adding value to agricultural production and transforming it into services that circulate at the local level (Scarabelot & Schneider, 2012).

According to Padilha et al. (2016), the open markets have as an advantage the shortening between the links in the productive chain since the beginning, with the finalization of the process in the sales consummated in the final consumer. They are characterized by occurring in public spaces and periodically, they are places where goods are exchanged between producers, and provide the flow of local agricultural production. In open markets, there is proximity in trade relations, direct contact between the producer and consumer, experience, tradition and culture (Pierri & Valente, 2015).

### 3 PURCHASING BEHAVIOR: DECISION-MAKING AND INFLUENCING FACTORS

The starting point for every marketing action is the consumer. In this sense, Costa, Peres, Prado and Silva (2010) state that the correct understanding of consumer's behavior is configured as an important tool in the marketing actions management. According to Solomon (2017, p. 24), the consumer's behavior is "the study of processes involved when individual or group select, purchase, use or dispose of products, services, ideas or experiences to satisfy needs and desires".

However, understanding the consumer's behavior is not a simple task. Luiz (2011) argues that every organization needs to use various resources such as material, financial, human resources to understand this behavior that embraces a set of activities that precede and accompany the people's buying decision. For Martins (2013) the consumer's buying process ends when their needs are satisfied, which are taken by their emotional side or rational side.

The purchase decision making integrates the broad field of organizational studies and theories. Thus, the decision-making has been the subject of study of several authors. According to Dalcin (2013, p. 27), "the decision making process is present in everyday life of people, and they learn by trial and error or by a set of decision-making skills, which include the search for relevant information". In this context, there are different reasons why people buy. Having as purpose to analyze how individuals sort the facts and influences to make decisions that are logical and consistent to them, authors such as Mowen and Minor (2001), Solomon (2017), Schiffman and Kanuk (2010), Engel, Blackwell and Miniard (1995) and Kotler and Keller (2016) present similar approaches to explain the consumer decision making process. Thus, different stages are experienced by individuals in the



consumption experience.

In order to understand the referred stages, this study, however, adopted the approach of Engel et al. (1995), which involves seven stages: recognition of the need (i); information search (ii); analysis of alternatives (iii); purchase (iv); consumption (v); post-consumption evaluation (vi); and disposal (vii). It is known that the consumer goes through all the mentioned stages until they make their choices, however, depending on the product that they will buy, they can skip or reverse some steps. Each step has several factors – cultural, social, personal, psychological – that influence the consumer's attitude, which were analyzed in this study specially in the buying and behavior stage.

There are several internal and external factors that influence the consumer's purchase decision making process. According to Solomon's approach (2017) and Kotler and Keller (2016), consumer behavior is influenced by cultural, social, personal and psychological. Whereas Blackwell et al. (2011) consider that the variables that influence the purchase decision making process are divided between environmental influences, individual differences and personal factors. This study was chosen by the structure described by the authors Kotler and Keller (2016), whose variables associated with each one of the identified external factors served as support for the construction of the research instrument.

## 4 THEORY OF PLANNED BEHAVIOR (TPB)

Described for the first time in 1985, TPB is today one of the most popular socio-psychological model to understand and predict human behavior. It is based on the assumption that individuals make their decisions in an eminently rational way and systematically use the information that is available to them, considering the implication of their actions before deciding whether or not to behave in a certain way (Baudrillard, 2017).

The TPB considers behavioral intentions as mediators of attitude-behavior relationship. This theory is based on the premise that by maintaining a constant intention, a greater perceived control will increase the probability that the purchase behavior will be successfully carried out when opportunities arise. In this sense, according to Ajzen (2002), human behavior is guided by three types of beliefs: behavioral, normative and control. It is worth stating that behavioral beliefs produce a favorable or unfavorable attitude toward the behavior. Normative beliefs result from social pressure. Whereas control beliefs may facilitate or impede the performance of a behavior.

Attitude toward the behavior, subjective norm and perception drive the formation of behavioral intention. Generally, the more favorable the attitude and subjective norm and the greater perceived control, the greater should be the personal intention to perform the behavior. As such, given a sufficient degree of control over behavior, people tend to carry out their intentions when opportunities arise. In addition, cultural, social, personal and psychological factors can influence in human action.

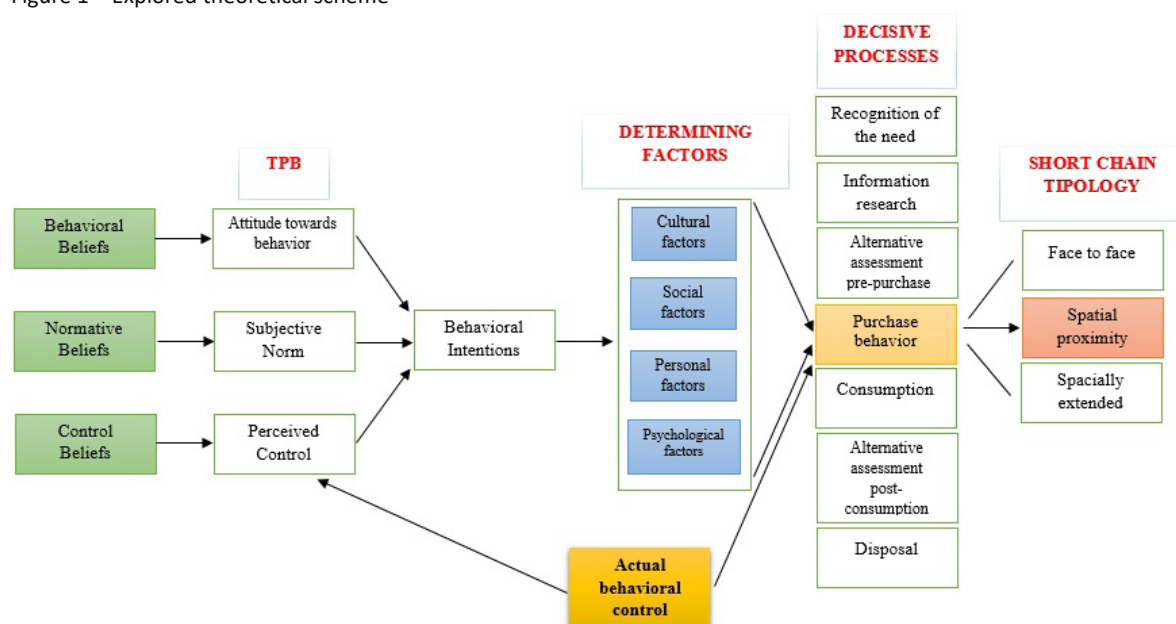
According to Ajzen (1991) attitude toward a behavior are assumed to be based in behavioral beliefs, which are a person's beliefs about the likely consequences of performing the behavior. Subjective norm represents the perceived social pressure when initiating or avoiding a certain behavior and it is based on perceived normative expectations in important references (Zemore & Ajzen, 2014). Perceived control, on the other hand, is an outcome of control beliefs, which are perceptions about the presence of factors that facilitate or impede the adoption of a particular behavior (Leeuw, Ajzen, Schmidt, & Valois, 2015).

Based on the Theory of Planned Behavior and on the Influencing Factors corresponding to Consumer's Decision Making Process, it will be possible to explore elements of the behavioral



relationships of open markets' costumers, inserted in short agrifood chains by spatial proximity. The scope of this research requires a analysis involving the interaction between these two theoretical aspects (Figure 1). This will enable a better understanding of how the analysis will be made, from the statistical inferences, of the consumer's behavior and the reflections of their choices regarding this type of product.

Figure 1 – Explored theoretical scheme

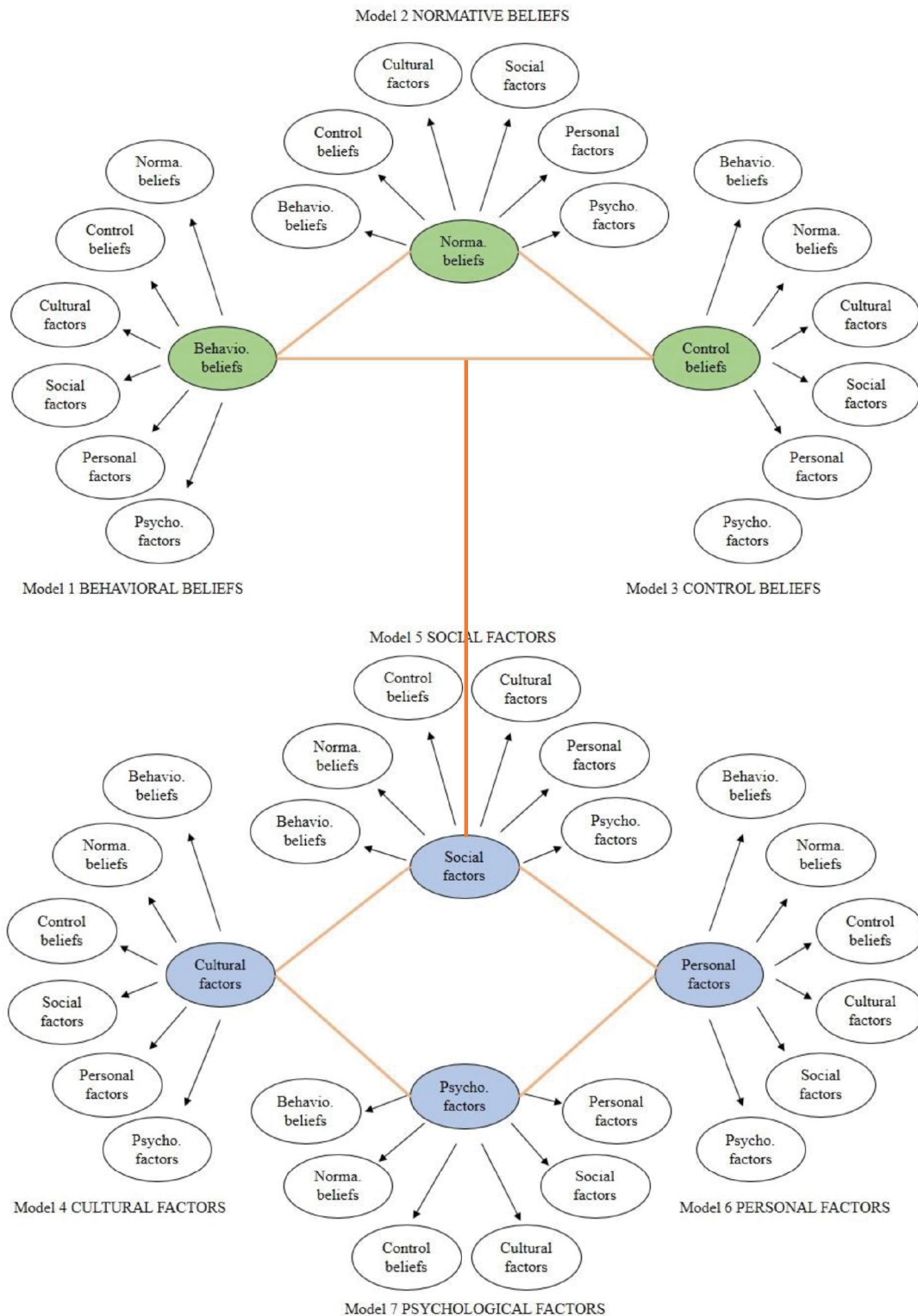


Source: drafted by the authors (2018), based on Ajzen (1991); Kotler and Keller (2016); Engel, Blackwell and Miniard (1995) and Renting, Marsden and Banks (2003).

Figure 1 highlights the path of the constructs that were analyzed in the research through the SEM. The beliefs of the TPB and the factors influencing the purchase process represent cause-effect relationships between several variables observed for a hypothesis composition about the true consumer behavior in open markets, which fit into the typology of short agrifood chain by spatial proximity.

The casual relations model aims to test wether the constructs correlate, based on the set of sections of the questionnaire, with seven hypothetical models, represented in Figure 2.

Figure 2 – Representation of the seven tested causal models



Source: drafted by the authors

The model has 7 latent variables and 42 observable variables, in other words, that are observed by the latent variable. All of them were significant, making it unnecessary to perform any



withdrawal of the model. For example, Model 1 indicates that the construct Behavioral Beliefs generates the observable variables (Normative Beliefs, Control Beliefs, Cultural Factors, Social Factors, Personal Factors and Psychological Factors) and so on in the others, following the same logic of interpretation.

In this sense, considering the proposed objective, which is analyze the consumer purchase intentions in open markets in the region of COREDE Rio da Várzea/RS in the light of TPB and the influential factors in the decision-making process, considering their evaluations on the observable variables, it was performed a Likert-type scale in a non-probabilistic questionnaire, with individuals who attend to open market to evaluate the following hypothesis:

- H1: Behavioral Beliefs are determinants of positive and negative consequences;
- H2: Normative Beliefs are determinants of perceived social pressure;
- H3: Control Beliefs are determinants of perceptual ability to perform the behavior;
- H4: Cultural Factors are determinants of culture, subculture and social class;
- H5: Social Factors are determinants of reference groups, family and social roles and positions;
- H6: Personal Factors are determinants of age and life cycle stage, occupation, economic conditions, lifestyle and personality;
- H7: Psychological Factors are determinants of motivation, perception, learning and beliefs and attitudes.

## 5 METHODOLOGICAL PROCEDURES

This study was classified as exploratory-descriptive and inferential. To test the hypothetical models of the inferential multivariate phase, it was necessary to use the technique of Structural Equation Modeling [SEM], which allowed the simultaneous analysis of multiple variables, which normally represent measurements obtained through surveys or observations that are used to collect primary data, associated with individuals, companies, situations, etc.

The research was carried out in two moments. First, a script was prepared with questions that helped in the characterization of the types of short chains existing in the region of COREDE Rio da Várzea/RS, and also, questions that pointed out as answers the locations of these municipalities where the open markets take place. This information was obtained through a telephone conversation with the responsible subjects in the sectors of the Departments of Agriculture, Municipalities or Technical Assistance and Rural Extension Companies [EMATER] of the 20 municipalities that are part of the region COREDE Rio da Várzea/RS. After the first contact, the prepared script was sent via e-mail. The open markets were chosen as a cutout of the types of short agrifood chains, as they are held in public spaces, weekly and with easy access to the consumer.

In a second moment, the data collection process took place through a questionnaire, consisting of 9 pre-determined questions that were responsible to characterize the profile of respondents, followed by 35 questions that intended to diagnose their perceptions in relation to a series of variables related to TPB beliefs and influencing factors in the decision-making process, adapted from Hoppe (2010) and Gomide (2014).

It is noteworthy that the initial questionnaire had 9 categorical variables and 40 numerical variables, after conducting the pre-test with 30 consumers in the city of Palmeira das Missões, quantity guided by Malhotra (2006), 5 numerical variables were removed for presenting redundancy or were difficult to understand by the respondent. For the analysis of these variables, a Likert-type scale was used.

Regarding the sample, the non-probabilistic convenience sample technique was used (sample members who are more accessible), with the target population being all consumers of open markets that take place in the 20 cities that belong to the region of COREDE Rio da Várzea/RS and who volunteered to answer the questionnaire after completing the purchase process.

The COREDE Rio da Várzea is compunha by the municipalities of Barra Funda, Boa Vista das Missões, Cerro Grande, Chapada, Constantina, Engenho Velho, Jaboticaba, Lajeado do Bugre, Liberto Salzano, Nova Boa Vista, Novo Barreiro, Novo Xingu, Palmeira das Missões, Ronda Alta, Rondinha, Sagrada Família, São José das Missões, São Pedro das Missões, Sarandi and Três Palmeiras. Of these municipalities, only four (Constantina, Palmeira das Missões, Ronda Alta and Sarandi) have 10,001 to 50,000 inhabitants, the others have less than 10,000 inhabitants (Fagundes et al., 2015), totaling 134,316 inhabitants in the 20 municipalities in 2017 (FEE data, 2018).

Of the 20 municipalities, only 10 have open markets. Thus, to determine the sample size, the suggestion proposed by Hair, Babin, Money and Samouel (2015) was considered, where, to proceed with the SEM, a minimum of five cases for each item of the questionnaire should be considered. As there are 35 questions in the total of the original questionnaire, the minimum number of cases must be 175 respondents. The sample reached was 195 respondents and the data collection period was carried out from March 12th to April 27th, 2019.

SEM was the tool used in data analysis. The concern in this technique is with the order of the variables. One of the basic characteristics of SEM is that a causal theory can be tested among a set of variables, in this case TPB. Thus, after collection, the data were tabulated and statistically analyzed using the R software (version 3.5.2), allowing the application of descriptive and inferential tests. In the descriptive analysis of the categorical variables of interest, absolute and relative frequencies were used, while in the description of the numerical variables measures of position (mean), central tendency and dispersion (standard deviation) were used. Tests were also performed: Simulated Chi-Square, Fisher's Exact for the case of categorical variables and Kruskal-Wallis for the case of numerical variables. In the univariate analysis, Spearman's correlation was used, which is a limited measure between -1 and 1, the closer the coefficient is to -1, the greater the negative correlation and the closer the coefficient is to 1, the greater the correlation positive (Hollander & Wolfe, 1999).

## 6 PROFILE OF CONSUMERS OF OPEN MARKETS IN THE REGION OF COREDE RIO DA VÁRZEA

COREDE Rio da Várzea is made up of twenty municipalities, of which only ten have an open market arising from family farming in the region. Each municipality has its particularity in offering products to the consumer, producers have municipal incentives and always seek to be within quality standards to satisfy their customers. Next, the results of the descriptive analysis of the profile of respondent consumers who attend open markets in the cities studied in the region of COREDE Rio da Várzea will be elucidated. Table 1 is composed of the variables and their respective category that presented the highest frequency, showing the absolute frequency and relative frequency of each.



Table 1 – Profile of consumers at open markets

VARIABLES	CATEGORIES	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY
Gender	Female	128	65,64%
Age	31 to 40 years old	49	25,13%
Marital status	Married	129	66,15%
Number of children	Average (S.D.)	1,85 (1,27)	
Schooling	Complete higher education	65	33,50%
Family income	3 to 4 minimum wage	76	38,97%
City	Palmeira das Missões	59	30,26%
How often goes to the open market	Once	74	37,95%

Source: survey data

The results referring to the “gender” of the respondents showed that there is a greater participation of female consumers (65.64%) in open markets in all the cities surveyed. The age group between 31 and 40 years old was the one with the highest frequency (25.13%). The variable “marital status” shows a large participation of married respondents, with a relative frequency of 66.15% of the total sample studied. In this context, the average number of children in the entire sample was 1.85. The fifth item analyzed in the profile was “schooling”, where most individuals have completed higher education (33.50%). However, one of the main variables studied when it comes to consumer behavior is “family income”. In this sense, the results showed that most respondents (38.97%) have an income of 3 to 4 minimum wages. The municipality of Palmeira das Missões has the largest number of respondents (30.26%), however this municipality has the largest population of all, requiring a larger sample size. The last variable analyzed in the profile was the frequency of going to the open market and refers to the days when consumers usually make their purchases. The frequency of going to the open market “once a week” was 37.95%, followed by “every day it takes place” with 34.36%. Thus, most consumers show a level of loyalty with the open market, maintaining the regularity of their purchases.

## 7 DESCRIPTIVE ANALYSIS OF THE NUMERICAL VARIABLES OF CONSUMERS AT OPEN MARKET IN THE REGION OF COREDE RIO DA VÁRZEA

The variables in Table 2 show the result that obtained the highest average in each section of the research instrument, where each of the seven sections have five or more variables, but only the most relevant is highlighted. The “N” represents the population parameter, the mean shows where the data is concentrated as a balance point and the standard deviation is one of the main measures of data dispersion, that is, its measure represents how far the data deviate from the average.

Table 2 - Descriptive analysis of numerical variables of the seven sections

SECTIONS	VARIABLES	N	AVERAGE	S.D.
1: Behavioral Beliefs	Purchasing products at open markets contribute with the farmers	195	4,58	0,53
2: Normative Beliefs	Family members would advise buying at open markets	195	3,85	0,93
3: Control Beliefs	If you think the quality does not match your expectations, it will be difficult to purchase	195	4,37	0,78
4: Cultural factors	People would advise consuming products from open markets	195	3,95	0,86
5: Social factors	People, whose opinions matter, would advise to always consume	195	3,96	0,81
6: Personal factors	Consuming these products would improve the quality of life	195	4,55	0,6
7: Psychological factors	The quality of the market's products motivates people to consume	195	4,47	0,58

Source: survey data

Regarding Behavioral Beliefs, the variable “Purchasing products at open markets whenever possible means contributing to the farmer” had the highest average (4.58) with a standard deviation of 0.53, and established behavioral beliefs were associated with objects and attributes, from which attitudes are built in relation to the researched variables, in other words, attitudes towards a behavior that the consumer will perform, it is common to expect positive attributes.

Given the results obtained in the Normative Beliefs, it is understood that the opinion arising from a certain social pressure does not prevail in the consumer’s choice when purchasing products from open markets. In this sense, the perception of an individual regarding the social pressure exerted on him to perform or not a certain behavior refers to subjective norms and is related to the individuals who normally commit this social pressure: family, friends, colleagues of work and teachers among others. However, in view of the research results, the variable “My family would advise me buying at open markets whenever possible” had an average of 3.85, being the closest to the “agree” scale.

Taking into consideration that, by having full control of a situation, the consumer can make the decision whether or not to carry out an action/purchase, and facing the consumer’s perception of behavior control, higher will be the success of completing the purchase, in this case, valuing the attributes of quality and price for performance. Thus, it stands out as an important variable in the Control Beliefs “If I think the quality does not match my expectations, it will be difficult to purchase”, with an average of 4.37 and a standard deviation of 0.78.

Cultural Factors can practice the broadest influence on consumer behavior, where taking into account people’s opinions means that lifestyles mainly influence the type and form of consumption. It is inferred that the highest average (3.95) corresponds to the variable “People, whose opinions matter to me, would advise consuming products from open markets”, which is the closest to the “agree” opinion.

In the Social Factors construct, the variable with the highest average, approaching 4 (agree), was “People whose opinions matter to me would advise consuming these products whenever possible” (3.96). A reference group can be anyone who serves as a point of comparison, usually the family practices the main influence on the purchase decision because, according to Kotler and Keller (2016), consumers rely more on personal sources when evaluating services or products before of the purchase.



It is highlighted in Personal Factors that the most important variable referred to health and quality of life issues, that is, 4.55 (between I agree and I totally agree) was the average of “For me, consuming these products whenever possible would improve my quality of life” and the standard deviation was 0.30. At each stage of life, desires and needs are changed, transforming consumption habits and the demands of certain products into lifestyles. The economic condition of the interviewed consumers, for the most part, allows them to choose products from family farming as a way of creating new expectations and habits that generate a better quality of life.

Allusive to Psychological Factors, quality appears again as a determining factor, with the highest average for “The quality of the open market’s products motivates people to consume” was 4.47 (I agree). Several elements influence the purchase decision, the perception of some attributes, such as those mentioned in the section on psychological factors, determines the attitude for the consumer to make the purchase, based on elements that involve quality, taste and that arouse a motivation related to consumption.

Table 3 shows the comparison of numerical and ordinal variables by frequency (go to open market) using the Kruskal-Wallis Test, which allows for a comparison between three or more groups in independent samples.

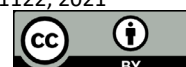
Table 3 - Comparison of numerical and ordinal variables by frequency (going to the open market)

Variables	Frequency (going to the open market)	N	Average	S.E.	p-value
Age	Everyday	67	4,06	0,15	0,084
	Once	74	3,92	0,15	
	Twice	7	4,43	0,37	
	When passing by	12	3,58	0,45	
	Sporadically	32	3,47	0,24	
	First time	3	2,67	0,67	
Number of children	Everyday	67	2,39	0,15	<0,001
	Once	74	1,78	0,14	
	Twice	7	1,43	0,48	
	When passing by	12	1,17	0,3	
	Sporadically	32	1,38	0,24	
	First time	3	0,33	0,33	
Schooling	Everyday	67	5,46	0,17	0,44
	Once	74	5,34	0,18	
	Twice	7	6	0,66	
	When passing by	12	4,5	0,54	
	Sporadically	32	5,5	0,24	
	First time	2	5,5	1,5	
Family income	Everyday	67	3,45	0,1	0,16
	Once	74	3,3	0,11	
	Twice	7	3,14	0,46	
	When passing by	12	3,08	0,36	
	Sporadically	32	2,94	0,26	
	First time	3	2,67	0,33	

Source: Kruskal-Wallis test.

\*significance level adopted: 5%; p-value < 0.001.

The first column shows 4 categorical variables of the profile related to the frequency of going to the open market (second column). Followed by the “N” which represents the population pa-



parameter, the Mean which shows where the data is concentrated as a balance point and the Standard Error which is a measure of the precision of the sample mean. The last column represents the p-value, thus it can be said that there was a significant difference ( $p\text{-value} < 0.001$ ) between the number of children and the frequency of going to the open market, with the average number of children attending the open market daily is 2.39 with a standard deviation of 0.15. The null hypothesis that the number of children influences the frequency of going to the market is rejected.

Table 4 shows the comparison of the characterization variables by the frequency of going to the open market using the Chi-Square test, thus, the farther the observed values are from the expected values, the greater the association between the variables. Fisher's exact test was also performed, which is used when the chi-square test is not adequate.

Table 4 - Comparison of characterization variables by frequency (going to the open market)

Variables	Categories	Everyday %	Once %	Twice %	Passing by %	Sporadically %	First time %	p-value
Sex	Male	29,85%	22,97%	42,86%	58,33%	62,50%	0,00%	<0,0011
	Female	70,15%	77,03%	57,14%	41,67%	37,50%	100,00%	
Marital status	Single	2,99%	14,86%	0,00%	8,33%	28,13%	33,33%	<0,0012
	Married	73,13%	74,32%	57,14%	58,33%	43,75%	0,00%	
	Divorced	2,99%	1,35%	28,57%	25,00%	9,38%	66,67%	
	Widowed	13,43%	1,35%	0,00%	0,00%	3,13%	0,00%	
	Common-law marriage	7,46%	8,11%	14,29%	8,33%	15,63%	0,00%	

Source: Simulated Chi-Square Test and Fisher's Exact Test.

There was a significant association ( $p\text{-value} < 0.001$ ) between gender and frequency of going to the open market, with most people going to the open market every day (70.15%) and once a week (77.03 %) are female. Furthermore, there was a significant association ( $p\text{-value} < 0.001$ ) between marital status and frequency of going to the open market, thus most people who went to the open market every day (73.13%) and once a week (74.32%) are married. These results establish relationships with those obtained in the descriptive analysis of categorical variables, where the profile of consumers was previously observed.

## 8 UNIVARIATED ANALYSIS OF CONSUMERS OF OPEN MARKET IN THE REGION OF COREDE RIO DA VÁRZEA

To compare the indicators with the ordinal and numerical variables, Spearman's Correlation was used, where the closer the coefficient is to -1, the higher the negative correlation and the closer the coefficient is to 1, higher the positive correlation. Table 5 shows Spearman's correlation between indicators (constructs), representing the results of the seven causal models tested. Values in bold indicate a significant correlation.

Table 5 - Correlation between indicators

INDICATORS	BELIEFS			FACTORS			
	Behavio.	Normat.	Control.	Cultural	Social	Personal	Psych.
Behavioral Beliefs	1						
Normative Beliefs	<b>0,29</b>	1					
Control Beliefs	<b>0,15</b>	<b>0,43</b>	1				
Cultural Factors	<b>0,34</b>	<b>0,41</b>	<b>0,3</b>	1			
Social Factors	<b>0,27</b>	<b>0,46</b>	<b>0,4</b>	<b>0,63</b>	1		
Personal Factors	<b>0,37*</b>	<b>0,34*</b>	<b>0,34*</b>	<b>0,71*</b>	<b>0,63*</b>	1	
Psychological Factors	<b>0,26</b>	<b>0,35</b>	<b>0,48</b>	<b>0,56</b>	<b>0,56</b>	<b>0,74**</b>	1

Source: Spearman Correlation.

\*significance level adopted: 5%; p-value < 0.05.

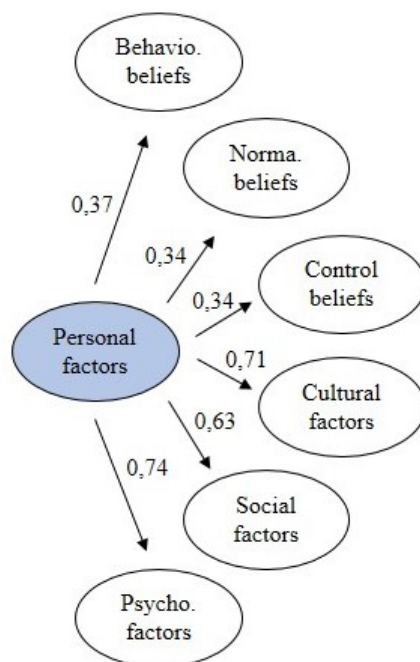
\*\*strongest correlation observed: coefficient closer to 1 (highest positive correlation).

It is observed that all indicators are significantly ( $p\text{-value} < 0.05$ ) and positively ( $r > 0$ ) correlated with each other, that is, the higher one indicator, the higher the other tends to be. The indicator that positively obtained greater significance was the Personal Factors construct, therefore, the hypothesis is confirmed - H6: Personal Factors are determinants of age and stage of the life cycle, occupation, economic conditions, lifestyle and personality, and ensures that the most robust model is the 6 PERSONAL FACTORS Model. Furthermore, the strongest correlation observed ( $r=0.74$ ) in this model was between the Personal Factors and Psychological Factors indicators

Once the best adjusted model is determined, it is understood that the consumer of open markets considers that, among all the variables exposed in the research in relation to purchasing behavior, their decisions are mainly based on a selective habit to live with greater quality of life, benefiting his health, as his financial condition allows him to carry out such purchasing behavior.

These factors consequently tend to enhance the others, so that the higher your attitude and decision about them, the higher will be the perception of the other verified constructs. Since the strongest correlation observed was between the Psychological Factors indicator, the greater the attitude towards the Personal Factors already mentioned, the greater will be the motivation to consume open market products, as they also represent quality, freshness and flavor. Figure 3 illustrates the graphical representation of the adjusted causal model.

Figure 3 - Representation of the adjusted causal model - Personal Factors



Source: survey data

The Model 6 Personal Factors indicates that the Personal Factors construct generates the observable variables (Behavioral Beliefs, Normative Beliefs, Control Beliefs, Cultural Factors, Social Factors and Psychological Factors) and presents the values of the correlation observed in each indicator.

Consumer needs and the ability to meet those needs change with influences, but despite these influencing factors, the personal lifecycle is a useful starting point for identifying how needs change. The profile of the survey respondents points to a more conscious consumption, where they are increasingly seeking a healthy diet that benefits their quality of life. This profile is strongly linked to consumers of organic products, although these foods were not mentioned in the survey, the results point to similarities with several surveys where it was found that they are consumed precisely because they are perceived as healthier, with greater nutritional value, bring well-being and quality of life, depending on taste or even because they are free of pesticides and do not harm the environment (Zamberlan et al., 2006; Hoefkens, Verbeke, Aertsens, Mondelaers, & Camp, 2009; Morais, Silveira, Oliveira, Camargo, & Caliari, 2012; Lima & Silva, 2012; Silva, Cardoso, Souza, & Almeida, 2013; Terra & Costa, 2017).

The influence of consumers' education and income is significantly greater among people who consume organic products. This behavior can be related to greater demand and because they have more access to information about the harmful effects of pesticides on health and about the attributes of the product itself, which shows that the higher the population's income, the more positive is their perception of these characteristics (Suszek, 2006; Trevizan & Casemiro, 2009).

In view of these studies, it was identified that health is the most relevant issue for the consumption of these products and that organic products are preferred and better evaluated as the level of education and income of respondents increases, which can be related to the results shown in this research, where it is also possible to identify the choice of healthier products from open markets by a remarkably similar public in terms of their profile.



## 9 FINAL CONSIDERATIONS

Knowing the role of attitudes as a factor of influencing consumer behavior in the process of choosing products from family farming in open markets provided the use of the planned behavior model developed by Ajzen (1991) and the decision-making factors influencing the purchase process described by Kotler and Keller (2016). Thus, theories related to the models that were intended to be studied were presented, as well as the research concepts on short agrifood chains, namely open markets, in order to position the method used.

The Structural Equation Modeling technique was chosen to statistically infer the results considered below: the correlation between all indicators was significant and positive and the most robust model, that is, the construct that obtained the greatest significance was Model 6 regarding the Personal Factors. That said, the higher this indicator, the higher the other six tend to be. Due to these reasons, the two proposed theories were suitable for the study, as they allowed a connection between them and portrayed the real purchase intentions of consumers who attend open markets in the COREDE Rio da Várzea region.

Since the concern with health and quality of life were the most relevant variables of the construct that gave rise to the best model, it can be inferred that these factors positively influence the choice of the place of purchase, and may be a way to propose actions of producers, aiming at higher levels of satisfaction, investing more in organic food and thus bringing more consumers to fairs.

In the search for a healthier life, consumers are concerned about looking for natural foods, free of pesticides and other components that are used in processing and industrialization. The relationship between healthy eating influences changes in the population's habits, which are increasingly looking for diversified foods, increasing the demand for fruits, vegetables, baked goods, dairy products, among other products originating from family farming.

The study was conducted in a very particular sector and geographic region, with a rural culture. The accessibility and the short time that the fairs remain on the established days made it difficult to get in touch with the total population that attends them, as in most municipalities there was only one visit. The open market sector is directly linked to family farming and the sale of the same products can currently be found in supermarkets, fruit trees and grocery stores, pointing to another limitation.

The study carried out also has important limitations regarding its population and sample, as the non-probabilistic convenience sampling method presents difficulties in finding buyers who are available to answer the questionnaires, the receptivity of consumers invited to participate in the survey often demonstrated distrust and lack of intellectual knowledge. The lack of studies that contemplate the proposed theories and with the same analysis of statistical inferences also became a limitation for the final considerations.

As new studies, it is suggested to carry out a qualitative research with family farmers and farmers, aiming primarily to understand what they think, expect and what their sales perspectives and understanding of the sector would help in better communication with the consumer. Another suggestion would be to apply the survey to other distribution channels, not only in open fairs, but in retail intermediaries, supermarkets, grocery stores, fruit companies, to compare opinions and try to understand why customers choose these channels and not value the fairs of the municipalities. Thus, it would be possible to compare whether the same influencing factors in the purchase decision would be decisive. The model used and the method can also be used in other areas of agribusiness, with other products sold in different distribution channels that allow direct contact with the consumer.



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# AUTHORS

## 1. Carolina de Mattos Nogueira

Graduated in Administration from the Universidade Federal de Santa Maria / UFSM, MBA in Strategic Marketing from the Universidade de Passo Fundo/UPF, master in Agribusiness from the Postgraduate Program in Agribusiness/PPGAGR at UFSM. Currently a PhD student in the Postgraduate Program in Agribusiness/PPGAgro at CEPAN/UFRGS.

E-mail: carolina.m.nogueira@hotmail.com

ORCID: <https://orcid.org/0000-0001-9463-2014>

## 2. Paloma de Mattos Fagundes

Graduated in Administration-Habilitation in Business Management from Universidade Potiguar/UNP, MBA in Agribusiness from Universidade de Passo Fundo/UPF, Master and Doctorate in Agribusiness from Universidade Federal do Rio Grande do Sul/UFRGS. She is currently an Adjunct Professor and Researcher at the Department of Administration and at the Postgraduate Program in Agribusiness/PPGAGR at the Universidade Federal de Santa Maria/UFSM, at the Palmeira das Missões campus.

E-mail: palomattos@gmail.com

ORCID: <https://orcid.org/0000-0003-0150-4422>

### Contribution of authors.

Contribution	[Author 1]	[Author 2]
1. Definition of research problem	√	√
2. Development of hypotheses or research questions (empirical studies)	√	√
3. Development of theoretical propositions (theoretical work)	√	√
4. Theoretical foundation / Literature review	√	
5. Definition of methodological procedures	√	√
6. Data collection	√	
7. Statistical analysis	√	√
8. Analysis and interpretation of data	√	
9. Critical revision of the manuscript		√
10. Manuscript writing	√	

