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ARTICLE

HEALTHY EATING IN THE PRESS:
using Morin-Chartier's content analysis in a Brazilian newspaper

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ABSTRACT – This paper evaluates if Morin-Chartier's content analysis, when adapted to Portuguese, can successfully be applied to texts on health and diet published in a Brazilian newspaper. This is a cross-section study. The texts were collected from the Brazilian newspaper *O Dia* between January 2014 and July 2015. Texts written on the subject of health and diet were analyzed, and specific software was used to evaluate how often they appeared in various categories. The method demonstrably categorizes and classifies different subjects within a single text, and thus helping to minimize any errors. A total of 1.668 information units were extracted from a collection of 341 journalistic texts. These information units focused on the effects foods have on the body and recommendations for which foods to consume. Most of these foods were *in natura* but there were some ultra-processed as well. The texts are taken from the Brazilian press, and the sources, when identified, are specialists on the subject. The texts are written with the intent to promote health.
Key words: Health and communication. Health in mass media. Journalism. Methodology. Content analysis.

ALIMENTAÇÃO SAUDÁVEL NA IMPRENSA:
uso da metodologia de análise de conteúdo de Morin-Chartier em um jornal brasileiro

RESUMO – A pesquisa avalia a aplicabilidade do método canadense de análise de conteúdo de Morin-Chartier em textos sobre saúde e alimentação, apresentados pelo jornal popular brasileiro *O Dia*, entre janeiro de 2014 e julho de 2015. A análise se baseia no registro das unidades da informação na imprensa que tratam sobre o tema alimentação, e avaliação de sua frequência em diferentes categorias com produção e uso de software específico. O método possibilitou que diferentes assuntos no mesmo texto fossem categorizados e classificados distintamente, minimizando falhas. Dos 341 textos jornalísticos coletados, extraiu-se 1.668 unidades da informação, observando enfoque em recomendações e efeitos dos alimentos, com maior presença dos in natura em detrimento dos ultraprocessados. A origem dos textos é nacional e as fontes, quando identificadas, são especializadas, em sua maioria. O engajamento dos textos é favorável à saúde.
Palavras-chave: Comunicação e saúde. Saúde na comunicação de massa. Jornalismo. Metodologia. Análise de conteúdo.

ALIMENTACIÓN SALUDABLE EN LA PRENSA:
el uso de la metodología de análisis de contenido de Morin-Chartier en un periódico brasileño

RESUMEN – La investigación adapta al português y evalua la aplicabilide de um método canadiense de análisis de contenido de Morin Chartier, en textos sobre salud y alimentación presentados por um periódico popular brasileño, *O Dia*, entre enero de 2014 y julio de 2015. La análisis es basada en el registro de las unidades de información que hablan del tema alimentación, y evaluación de su frecuencia de diferentes categorías con producción y uso de software específico. La metodología posibilita que diferentes temas en un mesmo texto sean categorizados y clasificados distintamente, minimizando fallas. De los 341 artículos, se observó 1.668 unidades de la información, observando el foco en las recomendaciones y efectos de los alimentos, com más frecuencia de los alimentos naturales. La origen de los textos es brasileña, y las fuentes identificadas son en gran parte, especializadas; el engajamento de los textos es favorable a la salud.
Palabras clave: Comunicación y salud. Medios de comunicación. Periodismo. Metodología. Análisis de contenido.

1 Introduction

The media can have an influence on an individual's decisions and attitudes toward health, as they are often a person's primary source of information (Seale, 2003; Renaud, 2010).

The press can be a strategy for promoting health because it has more visibility, credibility and popularity than other social spheres like schools, industries, NGOs, and the government. Health communication is not only informative, it also increases awareness

and considers the different realities of people, communities and organizations (Caron-Bouchard & Renaud, 2010).

This means that a norm which is collectively accepted could also be collectively rejected, using media arguments which would prioritize public health over social and economic aspects, including the construction of public policies (Lagacé & Renaud, 2010; Desrochers & Renaud, 2010; Renaud, 2007).

Thus, there is a need to constantly assess what the press publishes in regard to health, and one of the methodological proposals used to do that is content analysis. This type of study has become more popular in the scientific community as of 1985 due to the need to understand how messages from the press can benefit public health and make sense of how the public understand health and disease (Manganello & Blake, 2010).

One of the most frequently used methodologies is the one developed by Laurence Bardin (2011), which classifies a text according to the frequency of items distributed in analysis categories. By systematizing and describing these categories, inferences can be made about the production of certain content. Another widely used approach is that of Krippendorf (1980), who suggests that the analyst determines the objects of study, their definition, universe, context delimitations, and the goal of inferences.

Morin-Chartier's content analysis (Leray, 2008), developed in Canada and used in this study, is also based on the frequency of items in different categories. The texts are organized into information units (IU), not just according to the theme of a text, but to each time that research theme is raised in said text. The underlying difference of this analysis is that it calculates the level of engagement the text has on a particular theme, in other words, it calculates whether the approach used in the text is favorable, unfavorable, or neutral in relation to its research object. This method of analysis has already been used in Canada, but no study in Brazil has yet been identified as using it.

Since no publication has been found in Brazil using Morin-Chartier's content analysis, we have decided to use this paper to present this method and apply it to a sample of texts from a Brazilian newspaper. As this is a relevant topic, and there is a scarcity of works using said methodology in national literature, we believe it important to be able to disseminate a methodology that can be combined with pre-established methodologies from Brazil so that journalists, health professionals and researchers can appropriate and make use of it.

Thus, the objective of this study is to present the Morin-Chartier method and its applicability in texts on health and diet, taken from a Brazilian newspaper. More importantly, what are the benefits of using this methodology to analyze health information in the press?

2 Framing and news values

The theory of framing gets its beginnings from Erving Goffman's (1974) studies of psychology and sociology, and helps toward understanding the production of social meaning in the media. Framing is an interpretation constructed by the press that produces meaning about an event; journalists select aspects of reality to include in a text based on a particular perspective. This news perspective highlights certain elements and overlooks others either by selecting particular sources over others, or by giving more exposure to one theme while making another invisible (Porto, 2004). It is a way of constructing news discourse or a characteristic of discourse itself (Pan & Kosicki, 1993).

In order for a fact to make the press agenda it must correspond to a set of news values. This helps communication professionals decide whether said fact will be printed or not, as it generally represents something that the public should think about or debate on. These values have been previously described in categories that comprise the importance and interest of a fact or the individuals involved, the proximity or access to the event, its ability to entertain, broadcasting time, information exclusivity, among others (Hohlfeldt, 2015).

It is through news values that the media decide what the public should think or debate about. So the information that journalism presents does not always coincide with what people need to know about their health. In general, news values are not in line with the health information the population needs, particularly those considered underpriveleged (Epstein, 2008). Nutrition-related topics are covered according to lifestyle, placing a great amount of accountability on the individual, without taking into account social, economic, or political factors that can change one's diet (Wells, 2017). When the news provides solid recommendations for a healthy lifestyle, people are more likely to adopt this behavior (Chang, 2016).

Considering that the press is the people's main source of information on health, we must consider the factors that influence

the production of information and how journalists present them to the public. When thinking about how health issues are covered, we need to look at the assumptions and logic of media culture, which are not a supplement to society, but a reference to it (Fausto-Neto, 2008).

A systematic review was performed of 441 articles from 182 scientific journals analyzing health content in the media over a twenty-year period (1985–2005). This review showed that health and diet is one of the most frequently researched subjects (Manganello & Blake, 2010). However, the information in those articles is often more confusing than it is informative.

A lot of research on food and health risks associated to food is conducted in Canada. Scientific content appears to be less important than other sources, with a predominance of negative news on diet. Almost half of the content on *CBC Television* cites a source, but only 22% of these sources are scientific, while only 23% of texts in *La Presse* have scientific foundations (Maisonneuvve, 2010). We analyzed texts on health from a Canadian newspaper. Our analysis showed there was an average of more than three texts per month focusing on health and diet (Chartier & Leray, 2005).

A five-year analysis of coverage from Spain's leading newspapers, including the online version of the *New York Times,* showed that diet was the fourth most-widely reported topic during that timeframe (Revuelta et al., 2004; Revuelta, 2012). In 2015, Spanish newspapers had more than 20,000 information pieces on health, more than half of which were food-related topics (Aranceta, 2016).

In Brazil, we have already seen how health and diet has received less coverage in the media; most of the coverage is based on the biomedical aspect of health, which itself tends to focus primarily on the nutritional aspect of food without understanding how this food relates to culture and life. It ignores the economic, social, political and cultural elements that pertain to health and diet (Villagelim, 2012).

3 Methods

This is a descriptive and exploratory study (Sampieri et al., 2006) which intends to test the Canadian methodology of content analysis. It is composed of journalistic texts from the Brazilian newspaper *O Dia,* from the state of Rio de Janeiro. These texts were

based on health and diet, and were published over an 18-month period (January 2014 to June 2015) in the newspaper's Health section. The *O Dia* newspaper was selected because it had a column dedicated to Health, and a specific team to cover health-related topics. The newspaper has a mostly B (58%) and C (33%) class readership, with an average reader age of 15-29 (64%). Fifty-six percent of these readers are women and only 9% of the newspaper's readers are higher income earners (*O Dia*, 2015). The newspaper features an online edition which is identical to its printed one, and has an average of five million visitors and 50 million page views. Including its regional editions, the newspaper was once considered as the largest-selling paper in the country.

At the time of the survey, *O Dia* was ranked the 24th newspaper publication in Brazil with an average of 34,766 daily copies, according to the IVC, Brazilian Audit Bureau of Circulation. It is noteworthy that the C class now reads more newspapers, not only because of the increase in number of printed copies, but due to the lower price. To give you an idea, the major Brazilian newspaper *Folha de S. Paulo* costs four reais, while *O Dia* costs less than half that: 1.50 reais. There was a 25% increase in class C readers from 2002 to 2008 (18%). Popular newspapers provide a direct channel to new consumer information; they seek credibility, use simple language, are educational, and provide a service. They understand news values like service provision and citizenship (Novo, 2012). The press realized that "serving the citizen is more than a social function, it is also a lucrative activity" (Amaral, 2006, p. 37). In order for the news to have value its editorial language must be adapted to these classes. "Popular journalism has the same fundamentals as reference newspapers, but uses simpler and more didactic language [...] and favors sports, crime, leisure (gossip) and services in its coverage, themes that differentiate it from reference newspapers". It is well known that local press can be used to raise people's awareness of programs that promote health (Nothwehr, 2014).

The texts were first collected from the Media Observatory on Health, a Brazilian project developed at the Oswaldo Cruz Foundation that monitors and identifies how the media builds meaning about health. The texts were subsequently collected from the newspaper's online collection. After reading each edition of the newspaper, all the information was manually extracted from all the pages from the section on Health that referred to the theme of health and diet.

A content analysis form was created (Leray, 2008) for data collection containing variables for describing what topics are mentioned, the geographical region of the information and what the partiality is of the texts; if they are favorable, unfavorable or neutral to health according to the Brazilian Food Guide, among other variables.

The Canadian methodology, developed by researchers Lise Chartier and Violette Morin in the 1980s, is a qualitative and quantitative method which organizes the texts into Information Units (IUs). Their frequency is recorded and their engagement is assessed based on a keyword used for the text samples. Each IU represents an idea or subject to be evaluated by the coder and may consist of a word, a sentence, or several paragraphs. On average, each text has 6.2 information units, and is evaluated on a one-by-one basis according to different criteria listed for the research object and its objectives. The object must be specific enough to precisely delimit the focus of the analysis and minimize any potential partiality which may influence the selection of information units.

Once the sample has been selected, each text is read and the IUs are verified. Every time a theme, subtheme or any other category on the content analysis form is detected, a new IU was delimited. This unit ends when any one of the elements needing to be coded changes, thus creating a new unit which must then be analyzed. The advantage of this method with various IUs in the same text, similar to Bardin's (2011), is that several subjects are handled in different ways and are able to be classified and categorized individually.

Morin-Chartier's analysis is based on the frequency results for the variables and their weight tendency, taking into account each IU engagement on the subject of diet and health. For this study, engagement was analyzed based on the following question: is the information on health in this information unit favorable, unfavorable or neutral? Information about food which was listed in the Brazilian Food Guide was considered as favorable (Brasil, 2014), information which contradicted that which is listed in the Guide was considered unfavorable, and when there was no information in the Guide, or that information had no qualifying elements, it was considered neutral.

The content analysis form was created using Google Form, the data was then input into the q-Health application, an application which was developed specifically for the purpose of making the collection and visualization of data more efficient on the Bluemix platform, which is in turn connected to the IBM Watson question-

answering computer system (IBM, 2017). Q-Health organizes and optimizes data collection, minimizing errors at this stage and enabling different researchers to work on the same project, or perform works simultaneously. The Canadian methodology was adapted in q-Health at two different stages. In the first collection stage, only the general information from the journalistic text which repeated in all information units was collected, such as title, date, newspaper, page, type of image, journalistic genre of the text, and author.

In the second stage of collection, each information unit was selected and analyzed according to different categories. Once having selected the information unit in q-Health, a new dialog box opens, allowing the researcher to focus on the information in that information unit. The 'Theme' category deals with the main subjects in the information unit. These subjects are organized into specific subthemes. These subthemes narrow down and specify the theme, ultimately helping with the analysis. In addition to the theme and subtheme, the information units were categorized according to the type of sources consulted by the journalist, the types of foods according to the Brazilian Food Guide, and engagement.

Based on results from the 'Engagement' category, we worked with rates for partiality and tendency (weight tendency). Partiality is determined by first classifying the units as favorable, unfavorable or neutral. All the information units in the texts which were not classified as neutral were then separated, thus revealing the neutrality (or not) of the texts in relation to the research object. A 30% partiality rate means that 70% of the content is neither for nor against a particular theme, and is thereby classified as neutral. In Canada, most analyses registered a 40% partiality; if the coefficient is below 30%, we can assume that the subject does not provoke much social debate. You can verify if sources in the text are partially biased towards a certain theme by using the following calculation: {[sum IU+] + [sum IU-]/ IU total x 100. Tendency determines the particular importance each category has in relation to the content (weight tendency). This weight tendency is measured by the decrease between the total number of favorable units on a particular subject and the total number of unfavorable ones. This is then divided by the sum of the positive and negative ones. It is then multiplied by 100. This specifies the influence each category has on all content.

The pre-test was carried out in Montreal starting with a spreadsheet based on Laurence Bardin's content analysis and ending with

a fourth version by the Morin-Chartier method. For coding standardization purposes, five texts were analyzed by the main researcher and two researchers from the University of Quebec in Montreal. This process was repeated in Brazil, where the main researcher and three scientific initiation undergraduate students tested the first and last versions built in Montreal. Any uncertainties were discussed as a group during the collection process, and any particularities found in the information units were recorded and used to support the analysis, and to also make sure they adopted the same pattern. The Morin-Chartier method presumes that if there is any inaccuracy in the analysis, it is not harmful to the sample since each text is made up of dozens of information units which will be collected individually, but analyzed together, and not one by one. In order to ensure continuity in the work, regular meetings were held with the research team responsible for analyzing all texts, and random samples were given to correct any trends.

4 Results

The purpose of this paper is to present the use of Canadian content analysis methodology in a sample of Brazilian media texts. The q-Health software organized the data into two parts: the first part shows the information needing to be classified on all the journalistic texts; and the second part analyzes each information unit and its different variables.

Figure 1 – Data inserted into journalistic text.

Source: Q-Health (2017)

The data collection found 439 content pieces on health and diet in the Health section. 70 of these pieces were excluded due to being classified as advertising. Also excluded were those pieces which were written about diet, but for non-dietary purposes. In all, the sample contained 341 texts, 110 notes, 29 news pieces, 141 reports, 50 reader letters and 11 tests which were analyzed. We identified 1.668 IUs with content focusing specifically on health and diet. Most of the themes found in the IUs were classified as Effects (45%), followed by Recommendations (26%). These effects, described in more than half of the IUs, focus on the effects food has on body nutrition and metabolism (66%), and on disease prevention (14%). Most of the effects are described in the title of the text: "vitamins help against Alzheimer's"; "roast beef: brain damage"; "tomatoes help against infertility". The effects food has on the body would have news value as this information helps guide people's decisions about food consumption. Their attitudes towards it are shaped by the information the media releases (Seale, 2003).

The second most frequent theme in the IUs analyzed for this paper was Recommendations. Half of these recommendations advise consuming *in natura* foods (50%) and using a minimum amount of oils, fats, salt and sugar (9%), including the need to avoid ultra-processed foods (9%). Many journalistic texts had recommendations similar to those found in the Brazilian Food Guide. It is important to note that the frequency of recommendations coincides with that of the Guide as the press can both tell you what health behavior is beneficial well as what conduct is not (Renaud, 2007). Talking about health is good for business because people want to know how to maintain their health, and there is a need for health prevention and promotion (Oliveira, 2014).

In natura foods (present in 714 IUs) and general foods (present in 408 IUs) were the most frequent food types in the sample, while ultra-processed foods appeared in only 154 IUs.

The more articles the newspaper prints about *in natura* foods, the more they affect people's consumption habits, not to mention the fact that these food types reach a wider audience. It is important to consume less ultra-processed foods (Louzada, 2015), and if there are less articles about these food types and more about *in natura* foods, the newspaper can be seen as actually promoting health. In terms of sources for the texts, most units were classified

as unidentified (53%). Out of those which were possible to identify, health professionals were found in 27% of the units, science in 11%, government in 5%, and media and private sector in less than 1%. The public appeared in only 2% of texts.

If we look at only the units with identified sources, we can see that most of the information comes from science and health professionals, while the public is rarely referenced. We must recognize the strength of specialized knowledge and scientific discourse for legitimizing health information. Health professionals, specialists, scientific journals and research institutions have an authority on scientific topics (Tabakman, 2013).

However, when the public appears in texts, their voice is more often connected with dietary changes for aesthetic purposes, as we can see from this excerpt: "Now when my children make drawings of me, I'm beautiful and thin; I'm not a chubby mom anymore". This finding was confirmed in a recent study on diets, the information contained within tended to reflect the interests of science, the medical-pharmaceutical industries, food and nutrition, and health professionals, while regular people appeared much less, presenting them as examples that should not be followed (Oliveira-Costa et al., 2016). This framework, while giving credibility to information, can distance the public from actually recognizing the role they play achieving their own health as it disregards popular knowledge; makes it invisible.

When it comes to notes, most information comes from international sources (39%), while the southeastern region of the country gets its information mainly from reader letters (81%), respecting the news value of information proximity and verification.

The highlight of the Morin-Chartier method is its accuracy of engagement analysis, which allows us to infer whether the information presented by the journalist is favorable to a particular topic or not. In order for each study to be conducted effectively, this engagement must focus on one, and only one, research object; there must be a clear definition of the criteria for this engagement. For our study, we asked the question "Is what is said in this information unit favorable to, unfavorable to, or neutral to health?" This question makes for a more objective analysis as it minimizes any doubts the analyst may have. If the information unit contradicts the analyst's reference document, it will always be classified as unfavorable.

Analyzing the engagement in this sample, we saw that 53% wrote favorably about diet, 24% unfavorably, and 23% were neutral. These data represent a partiality percentage of 77%. This means that the theme health and diet stimulates social debate and biased reports (either favorable or unfavorable), with little stance of neutrality. The analyses from Canada showed an average of 40% partiality. All themes had a more favorable approach to health and diet, with the exception of the theme behaviors and attitudes, which registered a negative value (-3), revealing a higher number of IUs being unfavorable rather than favorable to health, as detailed in the table below. The weight tendency index indicates the influence that each category has on all content, yet despite the negative value, this category had little influence on the overall evaluation of the sample.

Table 1 – The frequency and weight tendency of themes taken from the sample, listed by engagement.

Theme	Engagement			Overall Total	Frequency (%)	Weight Tendency
	Positive	Negative	Neutral			
Recommendations	322	41	63	426	26	21.8
Effects	391	193	169	753	45	15.4
Heritage Cuisine	43	10	27	80	5	2.5
Behaviours and Attitudes	68	107	72	247	15	-3.0
Food and Health Nutrition	56	40	40	136	8	1.2
Politics and Government	3	1	4	8	< 1	0.1
Economy	1	2	1	4	<1	-0.07
Others	5	2	7	14	< 1	0.2
Overall Total	889	396	383	1668	100	38.3

Source: author's own (2017)

Thus, one can conclude that journalism can play an important role in promoting health, which itself has priority themes and a specific agenda. The press actually neglects health when it prioritizes routine topics rather than important information on public health; working only with news values which overlook epidemiological issues, social vulnerability, individual, collective, contextual and environmental issues (Cavaca & Vasconcellos-Silva, 2015).

The media needs to have an agenda which considers health and takes into account its costs, resources, local morbidity and mortality rates, and demographics, and strive for a disease-free society, as outlined in the health model. The space the media invests in health should not be done in the name of news value (Epstein, 2015).

5 Final considerations

This article used a Canadian methodology of content analysis for the press and applied it to a sample from Brazil. We observed that the content in the samples written about health and diet predominantly focused on the effects of food and recommendations, preferencing *in natura* foods over ultra-processed. The texts are of national origin and the sources, where identified, are mostly from specialized sources. The engagement of the texts is favorable to health.

The Q-health software, developed to collect data according to the Canadian methodology, was integrated with the IBM Watson Alchemy API Language service to automatically extract information (such as the names of people and institutions, information on health and disease, analysis of feeling, concepts, keywords, and other functions) which is automatically classified according to statistic models, in addition to manual classification by the researchers.

This study did not delve into the analysis of these entities, but emphasized the importance of the instrument for future studies. In terms of research limitations, we recognized the fact that we were unable to compare the study with information units evaluated by the Brazilian press, so we based the weight tendency analysis

according to Canadian parameters. Another point to consider is the delimitation of the information unit. Our suggestion is that future studies work with fewer variables and, when it comes to analyzing journalistic sources, to consider the sources in all the units that correspond to that statement, and not only the ones that correspond the closest to it. Given the importance of studies on health in the media, further research using this methodology would be recommended. Online platforms and social media are also important future research spaces to talk about health due to their level of growth and audience reach.

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