The impact of conflicting information on consumers' attitudes toward medical cannabis and the moderating role of consumers' socio-demographics and opinions

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1 INTRODUCTION

The legalization of medical cannabis in many countries has been spurring the pharmaceutical industry worldwide in recent years. In 2019, the global medical cannabis market reached $16.6 billion in sales, and this amount is expected to triple 2025 (IMARC, 2020). In Brazil, a collegiate board resolution by ANVISA (Brazilian Health Regulatory Agency) regulating medical cannabis came into force in March 2020 (ANVISA, 2019). One month later, the very first medical cannabis product was approved by ANVISA to be marketed (Escobar, 2020).

In Brazil, as medical cannabis products are prescription drugs, they must be prescribed by a physician, they cannot be sold over the counter, and neither can they be advertised to consumers (ANVISA, 2008). Thus, media messages are the main source of information available to consumers. However, some of the medical cannabis information consumers find on the media is conflicting, hence negatively affecting their well-being (Kees, Fitzgerald, Dorsey, & Hill, 2020).

The effects of conflicting health information that the media disseminates go beyond the confusion it causes among consumers. Conflicting information adversely affects consumers' attitudes toward products, brands, or categories, and encourages less healthy behaviors (Nagler, 2014). The attitude-to-behavior process is both relevant and well-studied among consumer behavior researchers since in general a change in behavior occurs as a result of a change in attitude (Bagozzi, 1981). Regarding medical cannabis, the negative attitude associated with it tends to cause consumers to look for potentially more harmful treatment options (Gittins & Sessa, 2020).

Having been illegal until recently, cannabis products also carry a negative stigma, making acceptance difficult on the part of consumers (Simkins & Allen, 2020). This occurs even with the increasing number of studies attesting the benefits of medical cannabis (Gittins & Sessa, 2020). The fact that only medical cannabis is legal in Brazil as opposed to its recreational use also confuses consumers, with a negative impact on their well-being (Geiger-Oneto, Gelb, & Simkins, 2020; Kees et al., 2020).

The shift from illicit to legal has spurred considerable debate in society about the legalization of cannabis and its social acceptance, which has led consumers to form beliefs and opinions about the issue (Simkins & Allen, 2020). Ipsos (2019) shows that Brazilians are more conservative about cannabis use for both medical and recreational purposes than the global mean. According to DataSenado (2019), while 87% of Brazilians are aware that cannabis can be used for medical purposes and 75% support its legalization, this support varies with socio-demographic variables such as religion, age-range, and education level. These differences should be taken into account when discussing consumers' attitudes toward medical cannabis.

Given the context above, the research question guiding this study is: what are the impacts of conflicting information on consumers' attitudes toward medical cannabis? Medical cannabis was chosen as the subject of this study since it is a market that represents a natural laboratory for marketing and consumer behavior research (Olsen & Smith, 2019). Gender, age-range, education level, household income, and religion were the socio-demographic variables tested as moderators of the relationship. Consumers' opinion about the legalization of medical cannabis was also included as a potential moderator variable. The focus of the discussion

aforementioned is on enhancing consumer well-being, thus contributing to the Transformative Consumer Research (TCR) movement.

2 BACKGROUND

In this section, we provide grounds for the hypothesis tested in the experiment we conducted. We also present both socio-demographic and opinion variables that might influence the relationship between information and attitude. Thus, we will present the theoretical background of both the impact of conflicting information on consumers' attitudes and the moderating role of consumers' socio-demographics and opinions.

2.1 The impact of conflicting information on consumers' attitudes

Attitudes may be described as predispositions that guide behaviors, and they have a fundamental role in the understanding of consumers' behavior (Cohen & Reed II, 2006). Consumers' attitudes vary in terms of intensity during their formation process (Kwon & Nayakankuppam, 2015), and this intensity is reflected on consumers' attitude accessibility when they make their decisions (Fazio, Powell, & Williams, 1989).

The information consumers obtain is a central element of the attitude formation process toward products, brands, or categories (Ajzen, 2001; Cohen & Reed II, 2006). However, there are mixed findings in consumer behavior literature regarding whether conflicting information leads to positive, negative, or inconclusive consumers' attitudes (Hwang, Choi, & Mattila, 2018).

Despite the debatable effects of conflicting information on consumers' attitudes, it is demonstrated it unsettles consumers, which negatively affects their psychological well-being (Rucker & Petty, 2004; Spencer-Rodgers, Peng, Wang, & Hou, 2004; Wang, Batra, & Chen, 2016). Conflicting media information also affects consumers' attitudes toward the media itself since it makes them more skeptical (Cozzens & Contractor, 1987).

In this sense, health researchers argue that the impact of conflicting information on consumers' attitude is worrying since it might result in harmful behaviors to their health and well-being (Nagler & Hornik, 2012; Nagler, 2014; Urala & Lähteenmäki, 2004). Accordingly, we hypothesize that conflicting information will lead to inconclusive attitudes toward medical cannabis while congruous information (positive or negative) will lead to convergent attitudes (positive or negative).

2.2 The moderating role of consumers' socio-demographics and opinions

Consumers' socio-demographics are heavily used as variables for market segmentation because they are proven to be impactful on consumers' behavior (Heckman, Sherry, & De Mejia, 2010; Lin, 2002; Papadopoulos, Martín, Cleveland, & Laroche, 2011). These variables also affect both consumers' attitudes (Jackson, Jackson, & Newmiller Jr., 1992) and consumers' psychological well-being (La Barbera & Gürhan, 1997).

Socio-demographic variables along with cultural variables are the most commonly used in order to compare consumers' opinions on the legalization of cannabis. As to medical cannabis, only 14% of the Japanese agree that it should be made legal in their country whereas in the USA and Chile this amount reaches 76% (Ipsos, 2019). According to the same study, 54% of the Brazilians are for the legalization of medical cannabis.

DataSenado (2019) revealed the role of consumers' socio-demographics in their opinion on the legalization of medical cannabis in Brazil. Regarding gender, the study shows that men are more favorable to legalization than women are (79% vs. 71%). As to age-range, it was revealed that the younger an individual is, the more in favor of legalization they are. Education level is also shown to be relevant, as better educated people are more favorable to legalization. The same trend is observed in household income: the higher the income, the stronger the support for legalization. Finally, as regards religion, Evangelicals are less favorable to legalization than Catholics (67% vs. 75%), but the non-religious are the most supportive group of legalization (91%).

Despite not showing any statistical tests to support comparisons among different socio-demographic groups, the DataSenado (2019) study points to the differences we intended to test in the experiments conducted. Moreover, we were not able to find any studies comparing the effects of consumers' socio-demographics and opinions on their attitude toward cannabis. Thus, we posit that consumers' socio-demographic variables (gender, age-range, education level, household income, and religion) and opinions will influence the relationship between information (conflicting or congruous) and attitude toward medical cannabis.

3 METHOD

The experiment was designed to test the hypothesis that conflicting information will lead to inconclusive attitudes toward medical cannabis while congruous information (positive or negative) will lead to convergent attitudes (positive or negative). Furthermore, the study was implemented so as to examine the moderating role of both socio-demographic variables (gender, age-range, education level, household income, and religion) and consumer opinions in the relationship above mentioned.

3.1 Participants and variables

The study was conducted online using Google Forms as a data collection tool. The initial sample for the experiment consisted of 378 voluntary respondents. Due to failure in the manipulation check, 88 participants were not included in the analyses. This resulted in a final sample of 290 individuals whose socio-demographic profiles are available in the results section.

The information about medical cannabis presented to the respondents (independent variable) was adapted from true news stories available in the media. We have pretested seven adapted news stories with 17 undergraduate students to check their understanding of the information. Based on their feedback, we made a few adjustments to get to the six adapted news stories used as the manipulated variables in the experiment (two with positive information about medical cannabis, two with negative information about it, and two not related to medical cannabis).

Consumers' attitude toward medical cannabis (dependent variable) was measured based on a scale adapted from the instrument used by Aschemann-Witzel e Grunert (2015) as in Figure 1. Socio-demographic data (gender, age-range, education level, household income, and religion) were collected based on similar data collected by DataSenado (2019).

Figure 1 – Attitude Measurement Scale

Taking medical cannabis is...
1 = Extremely bad
7 = Extremely good

I am (strongly against/strongly for) taking medical cannabis.
1 = Strongly against
7 = Strongly for

I (would not like/would like) to take medical cannabis.
1 = Would not like
7 = Would like

Source: Adapted from Aschemann-Witzel & Grunert (2015).

3.2 Procedure

The opening page of the data collection platform was used to inform the individuals about the details of the study in which they were about to participate. To prevent response bias, the study was presented as a study on general medical treatments. On that page, the participants were also informed their participation would be anonymous and they were free to quit the study at any time.

In the second section of the study, the participants answered the socio-demographic questions about their gender, age-range, education level, household income, and religion. We also included one closed-ended question to gather participants' opinion about the legalization of medical cannabis with the following set of possible responses: "in favor", "against", and "do not know".

Subsequently, the participants were randomly assigned to one of the following five conditions, each one with two news stories about medical cannabis: both positive (n = 81), both negative (n = 42), positive-negative (n = 51), negative-positive (n = 70), and not related to medical cannabis (n = 46). We applied two scenarios (positive-negative and negative-positive) to the "conflicting news stories" condition to avoid the anchoring effect (Tversky & Kahneman, 1974). The one-way ANOVA performed revealed differences among the five scenarios concerning their attitudes toward medical cannabis: $F(4,285) = 6,710$; $p = 0.000$. However, the DMS post hoc test showed that the means of the two conflicting information scenarios were not significantly different ($p = 0.423$). Thus, we have grouped the two scenarios as the "conflicting" condition (n = 121) to analyze the data.

After clicking the button declaring that they had read both news stories, the participants answered the three questions from the attitude measurement scale adapted from Aschemann-Witzel e Grunert (2015), as in Figure 1. The answers to all three questions consisted of a seven-point Likert scale.

The manipulation check consisted of a question asking research participants to categorize the two previously read news stories into one of the following five options: "both positive", "both negative", "one positive and one negative", "not related to medical cannabis", or "I do not remember". The 88 individuals who failed in the manipulation check were not included in the analyses. Lastly, the debriefing section revealed the actual purpose of the study and thanked the respondents for their participation.

4 RESULTS

Responses from 290 participants were considered valid to be analyzed. 204 (70.3 %) of the respondents were female and 86 (29.7 %) were male. Regarding the age-range, the majority of the individuals (n = 123; 42.4%) were aged 30-39 years old. 44 (15.2%) participants were aged 20-29 years old, 80 (27.6%) were aged 40-49 years old, 28 (9.7%) were aged 50-59 years old, and 15 (5.2%) were more than 60 years old. The other respondents' socio-demographic data (education level, household income, and religion) as well as their opinion about the legalization of medical cannabis are shown in Table 1.

Table 1 – Socio-Demographic Data and Opinions

		Frequency	*Percent*
Education Level	Elementary	2	0,8%
	High School	15	5,2%
	Undergraduate Degree	111	38,3%
	Graduate Degree	162	55,9%
	Total	*290*	*100%*
Household Income	No wage	5	1,7%
	< 2MW	14	4,8%
	2MW to 4MW	41	14,1%
	4MW to 10MW	102	35,2%
	10MW to 20MW	84	29%
	> 20MW	44	15,2%
	Total	*290*	*100%*
Religion	No religion	43	14,8%
	Catholic	107	36,9%
	Spiritist	50	17,2%
	Evangelical	46	15,9%
	Others	44	15,2%
	Total	*290*	*100%*
Opinion	In favor	235	81%
	Against	10	3,5%
	Do not know	45	15,5%
	Total	*290*	*100%*

Source: Created by the authors.

Table 2 shows the means, standard deviations, multicollinearity analyses (VIF), outer loadings, and T statistics of the items measuring respondents' attitudes toward medical cannabis. Statistical analyses were conducted using both IBM® SPSS® Statistics version 24 and SmartPLS 2.0. Cronbach's alpha = 0.88, average variance extracted (AVE) = 0.81, composite reliability = 0.93. These analyses confirm that the three-item scale consistently reflects the "attitude" construct (Valentini & Damásio, 2016). VIF, outer loadings, and T statistics of each item shown in Table 2 also reinforce scale validity.

We also ran an exploratory factor analysis to check the "attitude" construct consistency. The extraction revealed all the three items above 0.7, with KMO = 0.702 and 80.8% of the total variance explained by the principal component. Hence, the exploratory factor analysis result was saved as the "attitude" variable.

Table 2 – Attitude Measurement

Construct	Variables	N	Mean	Std. Deviation	VIF	Outer Loadings	T Statistics (|O/STERR|)
Attitude	ATT1	290	5,32	1,40	3,7	0,94	15,12
α = 0,88	ATT2	290	5,63	1,41	3,5	0,94	14,17
AVE = 0,81 Composite Realiability = 0,93	ATT3	290	4,82	2,08	1,8	0,81	7,58
	Valid N (listwise)	*290*					

Source: Created by the authors.

4.1 The impact of conflicting information on consumers' attitudes

In order to test the hypothesis that conflicting information will lead to inconclusive attitudes toward medical cannabis while congruous information (positive or negative) will lead to convergent attitudes (positive or negative), we conducted a one-way ANOVA and two post hoc tests.

The one-way ANOVA comparing four conditions revealed a more significant result than the abovementioned one comparing five conditions: $F(3,286) = 8,743$; $p = 0,000$. This analysis confirms that there are statistical differences among the respondents' means of attitude grouped by the condition they were assigned to, as in Figure 2.

Figure 2 – ANOVA (Means of Attitude vs. Conditions)
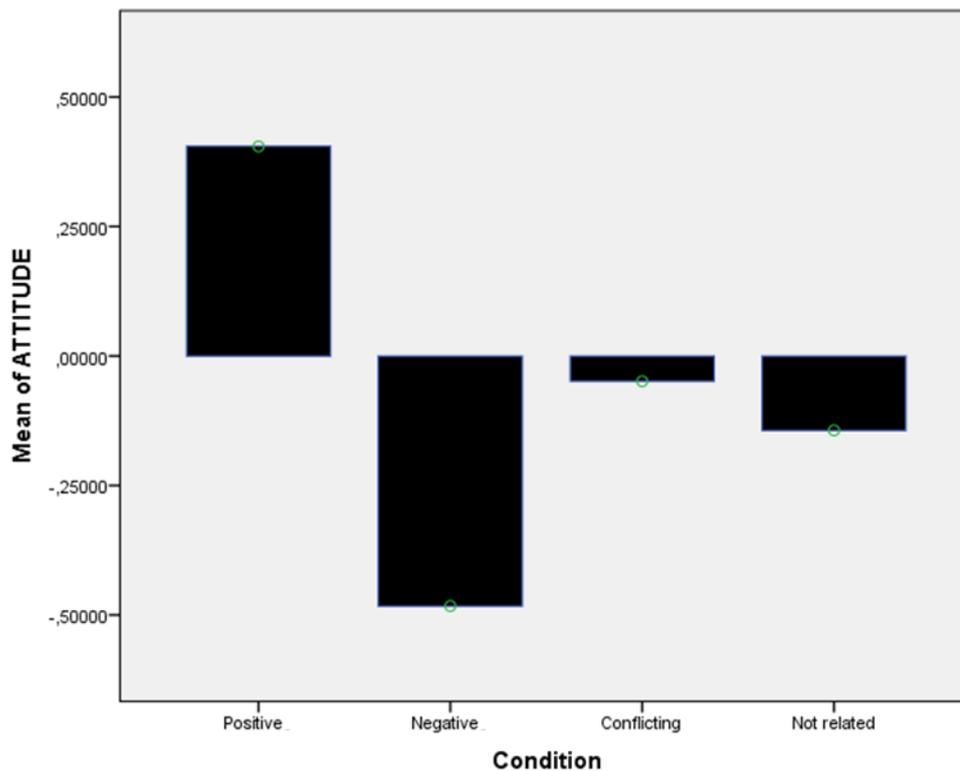
Source: Created by the authors.

The DMS post hoc test showed that the respondents in the "positive" condition have different means of attitude compared to the respondents in the other three conditions (all ps < 0.01). The test also revealed that the participants in the "negative" condition have statistically different means of attitude from the individuals in both "positive" and "conflicting" conditions (both ps < 0.01), but not from the individuals in the "not related" condition (p = 0.1). Finally, the DMS post hoc test demonstrated that the respondents in the "conflicting" condition have statistically different means of attitude from the subjects in both "positive" and "negative" conditions (both ps < 0.01), but not from those in the "not related" condition (p = 0.57).

Table 3 presents Duncan's post hoc test, confirming the results from the DMS post hoc test. These results partially support the hypothesis that conflicting information would lead to inconclusive attitudes toward medical cannabis while congruous information would lead to convergent attitudes.

Table 3 – Duncan's Post Hoc Test

			ATTITUDE		
			Subset for alpha = 0.05		
	Condition	**N**	**1**	**2**	**3**
Duncan	Negative	42	-,4826829		
	Not related	46	-,1435731	-,1435731	
	Conflicting	121		-,0487073	
	Positive	81			,4045757
	Sig.		*,054*	*,588*	*1,000*

Source: Created by the authors.

4.2 The moderating role of consumers' socio-demographics and opinions

In order to test the hypothesis that consumers' socio-demographic variables (gender, age-range, education level, household income, and religion) and opinions will influence the relationship between information (conflicting or congruous) and attitude toward medical cannabis we ran an ANCOVA focusing on controlling these external variables. We analyzed the homogeneity of the regression parameters with "attitude" as the dependent variable, and both socio-demographics and opinions as the co-variables. The p = 0.3 attests to the interaction homogeneity and supports the use of ANCOVA to assess the moderating role of consumers' socio-demographics and opinions.

The age-range was the only socio-demographic variable affecting the relationship between the nature of the information that the respondents were assigned to (condition) and their attitudes toward medical cannabis (p = 0.03). ANCOVA also demonstrated that the individuals' opinions about the legalization of medical cannabis significantly affects the relationship between information and their attitudes toward medical cannabis (p = 0.000). Table 4 shows these results that partially support the hypothesis that consumers' socio-demographic variables and opinions would influence the relationship between information and attitude toward medical cannabis.

Table 4 – Tests of Between-Subjects Effects (Dependent Variable: Attitude)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	85,113	8	10,639	14,663	,000
Intercept	6,698	1	6,698	9,232	,003
Age_Range	3,468	1	3,468	4,780	,030
Education_Level	,011	1	,011	,015	,904
Household	,019	1	,019	,026	,872
Religion	1,219	1	1,219	1,681	,196
Opinion	43,462	1	43,462	59,899	,000
Condition	20,417	3	6,806	9,380	,000
Error	203,887	281	,726		
Total	289	290			
Corrected Total	289	289			

Source: Created by the authors.

Following ANCOVA, we conducted a new one-way ANOVA that revealed a more robust result: $F_{(3,281)} = 9,380$; $p=0,000$. This result counts in favor of the moderating role of consumers' socio-demographics and opinions in the relationship between information and attitudes. Table 5 presents the means of attitude before ANCOVA and the adjusted means after ANCOVA.

Table 5 – Means of Attitude vs. Condition before and after ANCOVA

Before ANCOVA				After ANCOVA		
Condition	Mean	Std. Deviation		Condition	Mean	Std. Deviation
Positive	0,40	0,84		Positive	0,38	0,10
Negative	-0,48	1,03		Negative	-0,45	0,13
Conflicting	-0,05	1,00		Conflicting	-0,08	0,08
Not related	-0,14	0,99		Not related	-0,06	0,13

Source: Created by the authors.

A new DMS post hoc test showed relevant changes regarding the differences between the conditions that the respondents were assigned to and their means of attitude toward medical cannabis. The individuals in both "positive" and "negative" conditions were found to have different means of attitude compared to the respondents in the other conditions (all ps < 0.01). On the other hand, the subjects in both "conflicting" and "not related" conditions were demonstrated to have no significant statistical difference between their means of attitude ($p = 0.908$). These results support the hypothesis that conflicting information leads to inconclusive attitudes toward medical cannabis while congruous information leads to convergent attitudes when socio-demographic variables and opinions are controlled.

5 CONCLUSIONS

The results of the experiment we conducted indicate that conflicting information affects consumers' attitudes toward medical cannabis by leading them to inconclusive attitudes. Conflicting information was shown to have the same impact on consumers' attitudes toward medical cannabis as information not related to it. Thus, the results confirm that conflicting

information unsettles consumers and hence negatively affects their psychological well-being (Rucker & Petty, 2004; Spencer-Rodgers et al., 2004; Wang et al., 2016).

Our findings are even more robust when the participants' socio-demographics and opinions on the legalization of medical cannabis are included as moderators of the relationship between information and attitude. Among the socio-demographic variables analyzed (gender, age-range, education level, household income, and religion), the age-range was the only one significantly affecting the abovementioned relationship. This result confirms DataSenado's (2019) data suggesting that the younger an individual is, the more in favor of legalization they are.

The fact that we unable to achieve a balance among the individuals in some of the socio-demographic variables can be seen as one of the shortcomings of our study. This limitation may have influenced the moderation analyses regarding consumers' socio-demographics. Further research could replicate our experiment with a more balanced sample in order to check whether the differences among distinct socio-demographic groups suggested by DataSenado (2019) can be statistically confirmed.

Conversely, the respondents' opinions about the legalization of medical cannabis showed a significant impact on the relationship between the nature of the information and consumers' attitudes toward medical cannabis. This finding suggests that as regards stigmatized products, as medical cannabis is (Simkins & Allen, 2020), consumers' opinions play a central role in the attitude formation process. Further research could extend this finding to other stigmatized products such as genetically modified food, alcohol, and gambling.

As to consumer well-being, this study contributes by showing that conflicting information has negative effects on individuals since it is likely to result in harmful behaviors to their health, in agreement with what was suggested by Nagler & Hornik (2012), Nagler (2014), and Urala & Lähteenmäki (2004). In this sense, our study also indicates that opinions about medical cannabis might be stronger than attitudes toward it. Thus, informing consumers about the benefits of medical cannabis does not mean that their attitude toward it will change, moving them away from a potentially healthier choice.

REFERENCES

ANVISA - Brazilian Health Regulatory Agency. (2008). *Resolução da Diretoria Colegiada n° 96, de 17 de dezembro de 2008*. http://www.in.gov.br/materia/-/asset_publisher/Kujrw0TZC2Mb/content/id/23374142/do1-2016-08-01-resolucao-rdc-n-96-de-29-de-julho-de-2016-23374056.

ANVISA - Brazilian Health Regulatory Agency. (2019). *Resolução da Diretoria Colegiada n° 327, de 9 de dezembro de 2019*. Retrieved from http://www.in.gov.br/en/web/dou/-/resolucao-da-diretoria-colegiada-rdc-n-327-de-9-de-dezembro-de-2019-232669072.

Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology*, 52(1), 27-58.

Aschemann-Witzel, J., & Grunert, K. G. (2015). Influence of 'soft' versus 'scientific' health information framing and contradictory information on consumers' health inferences and attitudes towards a food supplement. *Food Quality and Preference*, 42, 90-99.

Bagozzi, R. P. (1981). Attitudes, intentions, and behavior: a test of some key hypotheses. *Journal of Personality and Social Psychology*, 41(4), 607-627.

Cohen, J. B., & Reed II, A. (2006). A multiple pathway anchoring and adjustment (MPAA) model of attitude generation and recruitment. *Journal of Consumer Research*, 33(1), 1-15.

Cozzens, M. D., & Contractor, N. S. (1987). The effect of conflicting information on media skepticism. *Communication Research*, 14(4), 437-451.

DataSenado (2019). *Uso medicinal da Cannabis*. Retrieved from https://www12.senado.leg.br/institucional/datasenado/arquivos/tres-em-cada-quatro-brasileiros-apoiam-a-producao-de-medicamentos-a-base-de-cannabis.

Escobar, H. (2020). *Canabidiol desenvolvido na USP chega às farmácias*. Retrieved from https://jornal.usp.br/ciencias/canabidiol-desenvolvido-na-usp-chega-as-farmacias.

Fazio, R. H., Powell, M. C., & Williams, C. J. (1989). The role of attitude accessibility in the attitude-to-behavior process. *Journal of Consumer Research*, 16, December, 280-288.

Geiger-Oneto, S., Gelb, B. D., & Simkins, T. (2020). Stigmatized products: how conflicting laws can influence decisions to proceed. *Journal of Business Strategy*. https://doi.org/10.1108/JBS-10-2019-0191

Gittins, R., & Sessa, B. (2020). Can prescribed medical cannabis use reduce the use of other more harmful drugs? *Drug Science, Policy and Law*. https://doi.org/10.1177/2050324519900067.

Heckman, M. A., Sherry, K., & De Mejia, E. G. (2010). Energy drinks: an assessment of their market size, consumer socio-demographics, ingredient profile, functionality, and regulations in the United States. *Comprehensive Reviews in Food Science and Food Safety*, 9(3), 303-317.

Hwang, Y., Choi, S., & Mattila, A. S. (2018). The role of dialecticism and reviewer expertise in consumer responses to mixed reviews. *International Journal of Hospitality Management*, 69, 49-55.

IMARC (2020). *Medical cannabis market: global industry trends, share, size, growth, opportunity and forecast 2020-2025*. Retrieved from https://www.imarcgroup.com/medical-cannabis-market.

Ipsos (2019). *Global view on vices*. Retrieved from https://www.ipsos.com/sites/default/files/ct/news/documents/2019-05/global-advisor-vice-2019.pdf

Jackson, G. B., Jackson, R. W., & Newmiller Jr, C. E. (1992). Consumer socio-demographics and reaction to product tampering. *Psychology & Marketing*, 9(1), 45-57.

Kees, J., Fitzgerald, P., Dorsey, J. D., & Hill, R. P. (2020). Evidence-based cannabis policy: a framework to guide marketing and public policy research. *Journal of Public Policy & Marketing*, 39(1), 76-92.

Kwon, J., & Nayakankuppam, D. (2015). Strength without elaboration: the role of implicit self theories in forming and accessing attitudes. *Journal of Consumer Research*, 33, June, 1-15.

La Barbera, P. A., & Gürhan, Z. (1997). The role of materialism, religiosity, and socio-demographics in subjective well-being. *Psychology & Marketing*, 14(1), 71-97.

Lin, C. F. (2002). Segmenting customer brand preference: socio-demographic or psychographic. *Journal of Product & Brand Management*, 11(4), 249-268.

Nagler, R. H., & Hornik, R. C. (2012). Measuring media exposure to contradictory health information: a comparative analysis of four potential measures. *Communication Methods and Measures*, 6(1), 56-75.

Nagler, R. H. (2014). Adverse outcomes associated with media exposure to contradictory nutrition messages. *Journal of Health Communication*, 19(1), 24-40.

Olsen, M. C., & Smith, K. M. (2020). The cannabis industry: a natural laboratory for marketing strategy research. *Marketing Letters*, 31(1), 7-12.

Papadopoulos, N., Martín, O. M., Cleveland, M., & Laroche, M. (2011). Identity, socio-demographics, and consumer behaviors. *International Marketing Review*, 28(3), 244-266.

Rucker, D. D., & Petty, R. E. (2004). When resistance is futile: consequences of failed counterarguing for attitude certainty. *Journal of Personality and Social Psychology*, 86(2), 219-235.

Simkins, T. J., & Allen, B. J. (2020). Illicit to legal: marijuana as a de-stigmatising product and the role of social acceptability in new product adoption. *Innovation*, 1-22.

Spencer-Rodgers, J., Peng, K., Wang, L., & Hou, Y. (2004). Dialectical self-esteem and East-West differences in psychological well-being. *Personality and Social Psychology Bulletin*, 30(11), 1416-1432.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: heuristics and biases. *Science*, 185(4157), 1124-1131.

Urala, N., & Lähteenmäki, L. (2004). Attitudes behind consumers' willingness to use functional foods. *Food Quality and Preference*, 15(7-8), 793-803.

Valentini, F., & Damásio, B. F. (2016). Variância média extraída e confiabilidade composta: indicadores de precisão. *Psicologia: Teoria e Pesquisa*, 32(2), 1-7.

Wang, H., Batra, R., & Chen, Z. (2016). The moderating role of dialecticism in consumer responses to product information. *Journal of Consumer Psychology*, 26(3), 381-394.