IMPACT OF PACKAGING CHARACTERISTICS ON CONSUMER PURCHASE INTENTION: INSTANT COFFEE IN REFILL PACKS AND GLASS JARS

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ABSTRACT

The study of food packaging is important as packaging represents the first contact between consumer and product. Attributes of interest in the study of instant coffee were initially determined by a focus group study. Subsequently, eight images of instant coffee packages were developed for the quantitative study, separately, for glass jars and refill packs (2^{4-1} design, eight images, each). The package images were evaluated by a total of 206 coffee consumers for purchase intention. Two main groups of consumers were formed and characterized for each study in the conjoint analysis. For refill packs, purchase intention increased with the presence of photo depicting coffee cup with foam and coffee beans and additional information; for glass jars, lower price and shape. Brand was not emphasized as impacting in purchase intent of instant coffees, a positive finding for manufacturers of lesser known brands: improving packaging attributes may encourage product sales.

PRACTICAL APPLICATIONS

These results are relevant to sensory scientists and instant coffee manufacturers interested in how packaging characteristics can impact on the purchase intention by consumers. Although coffee represents a significant source of income worldwide, there is less information in the literature about the effect of nonsensory parameters, such as packaging characteristics, in consumers' acceptance and purchase of instant coffee. The study showed that brand was less important than price and packaging attributes, such as additional information, adequate illustration (for refill packs) and package shape (for glass jars). Therefore, these results should hopefully help coffee manufacturers develop their packages and improve their sales, mainly those of lesser known brands, new brands or brands less associated with instant coffee.

INTRODUCTION

Coffee represents a significant source of income for the Brazilian economy. Currently, Brazil is the largest producer of green coffee, accounting for more than 35% of the international market. Brazil is also the second largest market for coffee consumers, behind only the U.S.A. In Brazil's coffee production chain, the instant coffee industry is the main revenue generator for the export of products with higher added value. Although most countries show preference for roasted coffee, some European countries (Greece, the U.K., Turkey, Ukraine and Russia) consume more than 50% of their coffee in instant form (International Coffee Organization (ICO) 2012). It is estimated that by 2015, approximately half of the world's consumed coffee may be instant coffee (Associação Brasileira da Indústria de Café Solúvel (ABICS) 2013). Instant coffee provides some advantages over roasted and ground coffee, such as convenience and being easier to consume. Instant coffee is manufactured from roasted and granulated coffee beans. It involves the preparation of an extract from which the water is removed, either by heat (spray drying) or by freezing, resulting in

powdered, granulated or freeze-dried products that can be packaged in individual sachets, glass jars or refill packages (International Coffee Organization (ICO) 2013).

There are various motives underlying coffee consumption and purchase, such as sensory aspects of coffee, elicitation of energy or focused mental state emotions, optimizing work-related psychological states and performance, traditional habit in the family and health benefits (Napolitano *et al.* 2007; Associação Brasileira da Indústria de Café (ABIC) 2010; Bryan *et al.* 2012; Jervis *et al.* 2012). Bhumiratana *et al.* (2014) demonstrated that coffee drinkers not only had varying preferences for coffees but they also sought different emotion experiences from the beverage.

In general, consumers are constantly confronted with a wide variety of product information, supplied through packaging, branding, advertising and other channels. The information used by consumers to form preferences and purchase decisions also elicits emotions, feelings, imagery and fantasies (Verlegh and Steenkamp 1999; Oyatoye *et al.* 2013). Consumer intention to purchase depends on the degree to which consumers expect that the product can satisfy their expectations about its use (Kupiec and Revell 2001). It is estimated that 73% of purchase decisions are made at the point of sale (Connolly and Davidson 1996). Therefore, package becomes a critical factor in the consumer decision-making process because it communicates to consumers at the moment of purchase (Carneiro *et al.* 2005). How they perceive the subjective entity of products, as presented through communication elements in the package, influences choice, and this is the key to success for many food products marketing strategies (Silayoi and Speece 2007).

During the development of new food products, companies should try to understand consumer preferences, as well as consumers' perception of sensory and nonsensory characteristics of food, to assure product success (Moskowitz and Hartmann 2008; Tuorila and Monteleone 2009; Torres-Moreno *et al.* 2012). Some extrinsic product aspects, such as information and price, also play an important role in food choice process (Guerrero *et al.* 2000; du Plessis and du Rand 2012). Moreover, it is noteworthy that purchase intent (and, more importantly, repurchase of the product) depends on price, concept, positioning, promotions, advertising, package information, consumer awareness, nutritional characteristics and many other factors (Garber *et al.* 2003; Lawless and Heymann 2010).

The study of food acceptance requires not only the identification of essential sensory characteristics for consumers but also the attributes of the product package or label. Several studies demonstrated that attributes of product package, label information and other extrinsic factors can influence food consumption or purchase of soybean oil, extra virgin olive oil, wine, local apple juice and other food

(Carneiro *et al.* 2005; Silayoi and Speece 2007; Chrea *et al.* 2011; Delgado *et al.* 2013; Stolzenbach *et al.* 2013). In this context, it is possible to study and quantify the effect of each feature of the packaging on consumers' purchase intention, using conjoint analysis (Deliza *et al.* 2003; Carneiro *et al.* 2005; Boudreaux and Palmer 2007; Mueller and Lockshin 2008). This methodology can estimate the relative importance of different package attributes on consumers' perceptions of food products (Ares and Deliza 2010).

Although there are some consumer studies focusing on the purchase intention for coffee products (Deliza *et al.* 2000; Hsu and Hung 2005; Shih *et al.* 2008), there are few updated information in the literature about the effect of nonsensory parameters, such as packing characteristics, on the acceptance and purchase intent of instant coffee. Thus, the present study investigates the impact of packaging characteristics of instant coffee in refill packages and glass jars on the purchase intentions of consumers.

MATERIALS AND METHODS

Qualitative Research on Purchase Intention Factors

Focus Group Profiles. The research on packaging attributes that can influence consumers' purchase decisions for instant coffee was conducted using the Focus Group technique. The study was conducted in the city of Londrina (Brazil), where participants were recruited at university campuses and residential places through a questionnaire aiming at selecting those who frequently consumed coffee, came regularly to supermarkets and read food labels. Five focus groups sessions were carried out with a total of 24 consumers. They were divided into five focus groups based on main characteristics they had in common (age, occupation and purchase habits) so that they represented varied types of consumers. The criterion for grouping is presented in Table 1.

Consumers were predominantly women (71%), young (50% were between 18 and 24 years of age and 25% were between 25 and 40 years of age), with high educational attainment (71% had graduated from college) and had incomes between one and five times the Brazilian minimum wage (74%). The majority of the participants (92%) were the responsible for purchasing food for their homes, and 62% of participants frequently read product labels. All participants were coffee consumers and reported consuming both ground and roasted coffee (53% of responses) and instant coffee (44%). Consumers' behavior was variable with regard to the amount of coffee consumed per day. Twenty-five percent of consumers drank less than one cup

TABLE 1. MAIN CHARACTERISTICS OF THE FIVE GROUPS OF CONSUMERS IN THE FOCUS GROUP SESSIONS

Group	Female	Male	Age (years)	Occupation	Responsibility for purchasing food for their homes (%)
1	6	–	23–30	Postgraduate students	83
2	–	5	25–50	Postgraduate students and postgraduate professor	100
3	3	2	<25	Graduation students	80
4	4	–	40–60	University staffs and postgraduate professors	100
5	4	–	23–50	Housewives	100

of coffee per day, 33% drank one cup per day, 21% drank two cups per day and 21% drank three to five cups per day.

When participants were asked to report on questionnaires what they observed while purchasing a product, price was highlighted (25% of responses), followed by brand (21%) and expiration date (21%). Information about ingredients, nutritional information, methods of preparation, roast degree and origin were also mentioned.

Focus Group Sessions. The focus group sessions were conducted indoor, in a roundtable discussion, and were driven by a moderator. Two assistants registered all of the information provided by the consumers. Each session lasted from 45 to 70 min.

The six instant coffee packages (described in Table 2) presented to consumers in the focus group sessions were selected based on diversity of color, shape, material, label information, price and brand, in order to provide varied elements for the discussions (Dantas *et al*. 2004; Lawless and Heymann 2010). The products had tags with their real market price (average product price from at least two

different supermarkets) so that the session simulated a real instant coffee purchase. Considering the diversity of instant coffee packages, both glass jars (50 and 100 g) and laminated refill (50 g) packages were evaluated to investigate the possibility of different opinions by consumers due to the package material.

Each package was evaluated individually by all of the consumers, and the order of product presentation was randomized for each session. The moderator used a guideline presenting issues to be discussed, such as visual characteristics and the information on packaging label, encouraging consumers to express their opinions. Questions were raised according to group dynamic and context, rather than a specific order, so that no induction occurred by the moderator during the session. At the end of each session, consumers ranked the packages in descending order of preference, using their own evaluation criteria; this information was used in the discussion to emphasize reasons for preference/acceptance. The opinions expressed by the consumers were transcribed and evaluated, along with the questionnaires, by the focus group moderator and assistants. The data

TABLE 2. DESCRIPTION OF THE COMMERCIAL PACKAGES (CP) USED IN THE FOCUS GROUP SESSIONS

CP	Description
A	Granulated instant coffee, brand 1, in square-shaped glass jar, fully covered with plastic label in pale reddish and brown colors, large reddish plastic lid. Illustration of white coffee cup with foam, steam and coffee beans. Main information: brand, 100% Brazilian coffee, illustrated preparation instructions for coffee milk, product visualization scale, 100 g. Price: $2.19.
B	Freeze-dried instant coffee, brand 2, in hourglass-shaped glass jar, gold plastic lid, gold and brown laminated label on front and back panel. Illustration of workers with coffee sieve, burlap texture background. Main information: brand, gourmet, special coffees, 100% Arabica, freeze dried, makes up to 100 cups, 100 g. Price: $3.36.
C	Powdered instant coffee, brand 3, in laminated refill pack in brown gradient color. Illustration of hands holding a white coffee cup full with light foam and steam. Main information: brand, creamy, 100% pure coffee, naturally rich in antioxidants, coffee shake recipe, 50 g. Price: $1.02.
D	Granulated instant coffee, brand 4, in yellow/red laminated refill pack. Illustration of white coffee cup with foam. Main information: refill, brand, traditional, your day-to-day coffee, makes up to 50 cups, illustrated preparation instructions for coffee and coffee milk, 50 g. Price: $0.86.
E	Granulated instant coffee, brand 5, in dark brown laminated refill pack. Illustration of white coffee milk mug and white coffee cup with foam and steam, bright green field in the background. Main information: brand, 100% Brazilian coffee, illustrated preparation instructions for coffee and coffee milk, nutritional information, 50 g. Price: $0.82.
F	Powdered instant coffee, brand 6, in cylindrical shaped glass jar, reddish plastic lid, red label around the jar. Illustration of white coffee cup with foam, golden spoon, round cookie on source. Main information in Portuguese, English and Spanish: brand, 100% pure coffee, traditional, importing countries, nutritional information, 50 g. Price: $1.28.

obtained from the focus group's questionnaires and opinions were analyzed and discussed, with special attention given to the consumer vocabulary, the context of the question, and response specificity, which were represented by percentages whenever possible.

Experimental Design of the Packages

Based on the qualitative results from the focus groups, some packaging attributes were selected for the development of the coffee packages images, which would then be studied quantitatively. Once different and, sometimes, widely divergent opinions about glass and refill packages were recorded, the impact of each packaging factor was studied separately for refill packages and glass jars, defining factors (attributes) and the levels of each design. Images (in slides) of each packaging material were created based on the combined levels of each attribute. The images corresponded to fractional factorial designs with four factors and two levels (2^{4-1}, with resolution IV), totaling eight refill packaging images and eight glass jar images (Fig. 1).

The factors defined for the study of refill packages were brand, color, illustration and information. The factors' corresponding levels were as follows: well-known (leading brand) and lesser known (traditional brand for roasted coffee, but lesser known for instant coffee); brown and red colors; full illustration (cup of coffee with foam, steam and coffee beans) and simple illustration (cup of coffee); with additional information (containing the product yield, the terms "traditional" and "refill") and without additional information.

The factors defined for the study of glass jars were brand, price, shape and color. The factors' corresponding levels were as follows: well-known (leading brand) and lesser known (traditional brand for roasted coffee, lesser known for instant coffee); high price ($3.36) and low price ($2.19); hourglass-shaped jar (allowing a broad view of the instant coffee on two sides) and cylindrical jar (with few product visualization); red and brown colors.

Commercial packages were photographed with color film. The images were then edited and transferred to slides using Paint (Microsoft Paint, Microsoft Corporation, 1985–2007) and PowerPoint (Microsoft PowerPoint, Microsoft Corporation, 1987–2007) programs. For refill packaging, only the front panel image was elaborated. Considering the focus group discussions about the importance of product (instant coffee) visualization, both front and side view images were elaborated for glass packaging (Fig. 1).

FIG. 1. EXAMPLES OF ELABORATED IMAGES OF INSTANT COFFEE PACKAGES IN REFILL PACK (A, B) AND GLASS JAR (C; FRONT VIEW, D; SIDE VIEW)

Evaluation of Refill Packages and Glass Jars

Profile of Consumers. Each part of the work (focus group, evaluation of refill packages and glass jars) was conducted with different participants from the cities of Londrina and São José do Rio Preto (Brazil), randomly recruited at university campuses, commercial and residential places. Participants were recruited based on their willingness to participate and their coffee consumption frequency. Refill package acceptance was conducted with 108 consumers. The glass jars were evaluated by 98 consumers who had not participated in the refill packaging analysis, neither in the focus group sessions. The total group of 206 consumers (characterized in Table 3) was mostly female (70%) and young (60% between 18 and 24 years of age, and 31% between 25 and 40 years of age). Sixty-four percent of the participants were the responsible for purchasing the food for their homes (Table 3). This is an appropriate profile because, according to continuous research of the Brazilian Coffee Industry Association (ABIC), Brazilian women have been cited to be the primary coffee purchasers (77%) and coffee preparers for their homes. Furthermore, the age groups that presented the highest increase in coffee consumption from 2003 to 2010 were the ones between 15 and 26 years of age (from 84 to 90%) and between 27 and 35 years of age (from 86 to 94%). This is an important profile because it presents substantial growth potential for coffee industries (Associação Brasileira da Indústria de Café (ABIC) 2010). The group had diverse educational attainment and incomes. Most of the participants consumed ground and roasted coffee (64%) and/or instant coffee (35%). In general, the participants consumed one cup of coffee (40%) or more (49% drank two to five cups) per day (Table 3).

Purchase Intention Evaluation. The images were shown to the participants using a multimedia projector. Participants were instructed to behave as if they were in a supermarket and needed to buy instant coffee. They were asked to register the sample number and their purchase intention for each displayed image. Initially, the eight packages were presented on the same slide for 15 s so that the consumers could have an overview of the products, as in a supermarket shelf. Thereafter, each package image (coded with three-digit numbers) was sequentially presented for 30 s, followed by a 10-s white slide, which functioned as an interval between each image. The presentation order of images was randomized for each session, both the initial slide as for the subsequent slides. A 7-point structured purchase intention scale, anchored by verbal terms at the extremes ("I would definitively not buy it"; "I would definitively buy it"), was used in the evaluation.

Conjoint Analysis. Statistical analysis was performed by transreg and cluster procedures using SAS software (SAS Institute, Inc. 1996) according to the method suggested by Carneiro *et al.* (2005). For purchase intent analysis, results for each packaging were scored from 1 to 7 and tabulated within a double-entry frame of consumers versus packaging. The additive model was used as a composition rule. It predicts that the overall evaluation of preference (purchase intent) is formed by the sum of the factor level contributions (packaging attributes). The general additive model for n factors, each with m levels, can be viewed in Eq. (1):

TABLE 3. CHARACTERIZATION OF THE 206 CONSUMERS FROM THE EVALUATION OF REFILL PACKAGES AND GLASS JARS

Characteristic/Response	Description	Frequency (%)
Gender	Female	70
	Male	30
Age (years)	18–24	60
	25–40	31
	>40	9
Level of instruction	Basic education/high school	6
	Graduate (complete or incomplete)	59
	Postgraduate	35
Income (Brazilian minimal wages, R$)	Up to 5	41
	6–10	38
	Above 10	20
Responsibility for purchasing food for their homes (%)		64
Type of coffee consumption	Ground and roasted coffee	64
	Instant coffee	35
Coffee consumption/day	1 cup	40
	2–5 cups	49

$$Y = \sum_{i=1}^{n} \sum_{j=1}^{mi} \upsilon ij Xij \qquad (1)$$

where Y is the overall evaluation of a certain product, υij is the coefficient of preference combined with the j-th level of the i-th factor ($i = 1, 2,\ldots, n$ and $j = 1, 2,\ldots, mi$) and Xij is the dummy variable ($Xij = 0$ or $Xij = 1$) that indicates the presence of the j-th level of the i-th factor on the evaluated treatment (Steenkamp 1987). The results were analyzed according to a cluster-segmentation model (Moore 1980). Initially, the part-worths were obtained for each consumer. They were estimated using multiple linear regressions with dummy variables, using the ordinary least square method. Next, hierarchical clustering analysis was performed using the average distance between groups and the Euclidean distance as a measure of dissimilarity. The consumers were then grouped by similarity into part-worths, i.e., similar purchase intent. An aggregate analysis was conducted for each consumer group. The part-worths and their relative importance were estimated per group using the estimated means from the individual models. The statistical analysis followed the transreg and cluster procedures of the SAS software. The differences between groups' characteristics were evaluated using the chi-square statistical test.

RESULTS AND DISCUSSION

Qualitative Research

The most frequent responses in the five focus group sessions were summarized and grouped into categories in Table 4. In general, consumers demonstrated preference for packages composed of bright colors, summarized additional information, modern glass jars, coffee cup illustration and low prices.

Concerning the glass jars, it was observed that the cylindrical shape was associated with an outdated jar, while the square and hourglass shapes were considered modern. Most consumers showed considerable interest in the shape of glass packaging because it seemed to influence consumers' decision on their willingness to pay higher prices and on their intention to reuse the jars (Table 4).

The importance of the real product visualization (in glass jars) was dependent on the type of instant coffee. Most consumers would like to see a dark and granulated instant coffee, but they preferred that powdered instant coffees were not on display in glass packaging. The lyophilized product appearance also displeased some consumers, mainly those under 40 years of age, because they stated that the coffee color was too light. Nevertheless, half of the participants judged sample B (Table 2) as the first or second preferred coffee package, suggesting that other packaging factors are

TABLE 4. MOST FREQUENTLY RESPONSES TO THE GLASS AND REFILL PACKAGES PRESENTED IN THE FOCUS GROUP SESSIONS

Item	Product					
	A	B	C	D	E	F
Shape/Product view (glass)						
Package design	++	++				–
Real product preview	+	++				–
Color (label/lid)						
Brightness/Contrast	–	++	–	–	++	–
Color	++	++	++	–	++	–
Illustration						
Format as photo/drawing	++	–	++	–	++	–
Illustration	++	–	+	–	++	–
Freshly prepared product impression	++	–	++	–	++	–
Brand						
Well known/Popularity	–	++	++	+	–	++
Loyalty	–	+	++	–	–	–
Price						
Value	++	+	++	++	+	–
Information						
Amount	–		++		++	–
Letters size	–	–	++		++	–
Claims			++	++		
Preparation instructions		–		++	++	–

++, well suited; +, suitable; –, unsuitable.

likely to have a greater impact on preference than instant coffee appearance.

With regard to the color of both types of packaging (jar and refill), the golden color evoked sophistication according to the consumers, while the colors red and brown reminded them of coffee. In a study on the visual characteristics of packaged ground and roasted coffee, 75% of Brazilian consumers reported preference for packages composed of reddish and brown colors (Della Lucia *et al.* 2009). This finding is strengthened by the results of the present study.

Most consumers did not approve packages with one predominant color, such as yellow or a low-contrast background color (light brown). Thus, there seemed to be a preference for at least two bright background colors on the front panel of both refill and glass packaging. A product whose front panel was bright brown with a bright green illustration (sample E, Table 2) pleased consumers (Table 4). However, consumers' preference for coffee package did not seem to be influenced by color as a single factor among other packaging attributes (Table 4).

Concerning the illustrations, it was observed a general preference for images of coffee cups with steam emanating from them, since consumers associated this image with a freshly prepared product (Table 4). Most of the groups were pleased to see foam on the edge of the coffee cup and coffee beans, as seen in some of the products presented (Table 4). Nearly all of these consumers disapproved these elements in

the form of a drawing, preferring to see these elements in an actual photograph. Nevertheless, illustrations might not necessarily determine consumer preference for a product, since even a coffee package with displeasing illustration (sample B) (Tables 2 and 4) was cited as the most preferred by all focus group participants.

Among all of the evaluated factors in the qualitative research, brand was considered a determining factor in instant coffee preference, as also observed in studies of other food products, such as functional yoghurts (Ares *et al.* 2010b), functional milk desserts (Ares *et al.* 2010a), enriched biscuits (Carrillo *et al.* 2012), Riesling wine (Mueller and Szolnoki 2010), dark chocolate (Torres-Moreno *et al.* 2012), mate tea products (Godoy *et al.* 2013), ginseng food products (Chung *et al.* 2011) and olive oil (Chaniotakis *et al.* 2010). According to a Brazilian survey, a consumer's usual brand was the top-ranking determinant of his or her coffee purchases, followed by quality and label information (Associação Brasileira da Indústria de Café (ABIC) 2010). In general, well-known brand products were cited by the participants as their favorite coffees. However, it is important to observe that brand itself does not define the purchase intention. Sample F (Table 2), for example, was a well-known brand and traditionally known for ground and roasted coffee, but it was not appreciated by the focus group participants due to its shape, color, illustration, price and label information (Table 4). Thus, it can be concluded that brand loyalty exists as long as product packages do not contain a set of undesired characteristics.

Although price was the most cited factor in the participants' responses about what they most frequently observed at the moment of purchase (data obtained by questionnaire), product price did not seem to be as decisive in product preference as other packaging factors. The most expensive product was considered the favorite to nearly all focus group participants. It is worth noting that most participants declared having lower-middle income, and only a few presented high income. It was also observed that coffees in glass jars were severely judged whether they were worth paying (Table 4), but only a few consumers mentioned the prices of the products in refill packs, even those of lesser known brands or less appreciated packages. There were also greater expectations as to the visual quality of the glass jars compared with that of the refill packs, likely due to the jars' higher prices and reutilization possibility.

With regard to the additional information on packages, participants appreciated labels that were composed of summarized information neatly placed and that it was written in suitably sized letters whose color contrasted with the background (Table 4). Most participants noticed the lack of preparation instructions on the packaging, and they required such instructions to be as didactic and colorful as

possible. The "Traditional" term (Table 2) had a positive effect on many consumers because it referred to day-to-day coffee and/or to a suitable roasting degree. In a Brazilian survey (Associação Brasileira da Indústria de Café (ABIC) 2010), 10% of respondents defined a good coffee as one that had been roasted "at the right degree."

Evaluation of Refill Packages

Considering the purchase intention of the instant coffees in refill packs, two main consumer groups with different behaviors were observed (Table 5). Good fit was observed for the models of the two clusters ($P < 0.0001$). For better discussion, the characteristics of these consumers are presented according to the respective group (Table 6).

In general, packaging with full illustrations (with coffee beans, and a coffee cup with foam and steam), additional information on the front panel (about yield, and containing the terms "traditional" and "refill") and red color, as well as hailing from a well-known brand, increased purchase intent (Table 5).

The presence of red color in the package background, additional information and full illustration significantly affected the purchase intention of group A ($P < 0.05$). It was evidenced that this group of consumers gave greater importance to additional information such as "traditional," "refill,"

TABLE 5. AGGREGATED ANALYSIS RESULTS FOR EACH CONSUMER GROUP IN THE STUDY OF REFILL PACKAGES

Attributes/Levels	Group A (n = 81) Part-worths	Group B (n = 27) Part-worths
Brand		
1 – Well known	0.03[a]	−0.24[a]
2 – Less known	−0.03[a]	0.24[b]
Relative importance	2.4%	12.4%
Color		
1 – Brown	−0.11[a]	−0.13[a]
2 – Red	0.11[b]	0.13[a]
Relative importance	8.6%	7.0%
Illustration		
1 – Full*	0.44[a]	1.27[a]
2 – Simple	−0.44[b]	−1.27[b]
Relative importance	34.4%	66.8%
Information		
1 – With†	0.70[a]	0.26[a]
2 – Without	−0.70[b]	−0.26[b]
Relative importance	54.6%	13.8%

Note: Different superscript letters in the same column for the same attribute and group denote a significant difference ($P < 0.05$) according to the Fisher's least significant difference test. Negative symbols mean a negative impact on consumers' intention to purchase.
* Presence of steam, foam in the coffee cup and coffee beans.
† Information about yield, presence of the terms "traditional" and "refill" on the front panel of the package.

TABLE 6. CHARACTERIZATION OF GROUPS FROM THE EVALUATION OF REFILL PACKAGES

Characteristic/Response	Description	Frequency (%)			
		Group A	Group B	χ^2	P
Gender	Female	67	63	0.68	0.407
	Male	33	37		
Age (years)	18–24	58	61	1.45	0.483
	25–40	36	31		
	>40	6	8		
Level of instruction	Basic education/high school	7	4	28.44	<0.001
	Graduate (complete or incomplete)	58	35		
	Postgraduate	35	61		
Income (Brazilian minimal wages, R$)	Up to 5	39	44	1.26	0.531
	6 to 10	41	36		
	Above 10	20	20		
Responsibility for purchasing food for their homes (%)	Yes	68	85	22.67	<0.001
	No	32	15		
Type of coffee consumption	Ground and roasted coffee	68	57	4.94	0.026
	Instant coffee	32	43		
Coffee consumption/day	1 cup	35	19	13.78	<0.001
	2–5 cups	48	52		
Frequency of reading labels	Always/Frequently	58	56	0.43	0.806
	Sometimes/Occasionally	40	41		
	Never	2	3		
Item observed in labels at the moment of purchase	Color	16	23	5.49	0.139
	Illustrations	18	20		
	Brand	10	6		
	Information*	56	51		

* Nutritional information, ingredients, preparation instructions, expiration date, origin and yield.

yield of coffee cups (54.6%) and more elaborate illustration on the package (34.4%) (Table 5). Brand did not significantly affect the purchase intent of this group of consumers ($P > 0.05$) (Table 5), suggesting that the improvement of packaging attributes contributes to increase the purchase intent of instant coffees, whether of a well-known or a less-known brand. Group A, consisting of approximately 75% of the participants (Table 5), was mainly composed of women under 40 years of age, with a family income between 1 and 10 times the Brazilian minimum wage. Consumers in this group had already reported on questionnaire that they considered relevant the presence of information (56%) and the appearance of the packaging (34%) (Table 6). In line with these findings, several studies about purchase intention have also reported that consumers assign importance to additional information on packages of other types of food, such as "homemade" for ready-to-drink orange juices (Gadioli *et al.* 2013), "natural" for passion fruit juices (Deliza *et al.* 2003), and to nutritional claims, such as "with vitamin C" for powdered orange flavored soft drinks (Caleguer *et al.* 2007) and "rich in vitamin A" for passion fruit juices (Deliza *et al.* 2003).

Group B (25% of consumers) (Table 5) was composed of younger consumers (61% were between 18 and 24 years of

age), highly educated (61% held postgraduate degrees), with the highest coffee consumption (52% at two to five cups per day) and a high consumption of instant coffee (43%) (Table 6). Despite the smaller number of consumers, this group could represent different potential profile of consumers of instant coffees in refill packages, which assign greater importance to packaging illustration (relative importance of 66.8%) (Table 5). Some other studies have also showed that images on packages present great importance to food choice and product impressions. A research about the influence of package images on flavor perception for orange juice found that products presented together with pleasant images were rated fresher than the same orange juice presented with unpleasant images (Mizutani *et al.* 2010). In the present study, it is possible that the full image of coffee cup with coffee beans and steam might have had greatest impact on purchase intention for group B because of its connotation of freshly brewed coffee, previously described in the focus group (Table 4).

Evaluation of Glass Jars

The evaluation of purchase intention of instant coffees in glass jars indicated two main groups of consumers with

TABLE 7. AGGREGATED ANALYSIS RESULTS FOR EACH CONSUMER GROUP IN THE STUDY OF GLASS JARS

Attributes/Levels	Group C ($n = 72$)	Group D ($n = 26$)
Relative importance	Part-worths	Part-worths
Brand		
1 – Well known	0.15[a]	0.66[a]
2 – Less known	−0.15[b]	−0.66[b]
Relative importance	10.1%	40.1%
Price		
1 – High ($3.36)	−0.62[a]	−0.80[a]
2 – Low ($2.19)	0.62[b]	0.80[b]
Relative importance	42.0%	48.3%
Shape		
1 – Hourglass	0.55[a]	−0.20[a]
2 – Cylindrical	−0.55[b]	0.20[a]
Relative importance	37.1%	11.6%
Color		
1 – Brown	0.16[a]	0.00[a]
2 – Red	−0.16[b]	−0.00[a]
Relative importance	10.8%	0.0%

Note: Different superscript letters in the same column for the same attribute and group denote a significant difference ($P < 0.05$) according to the Fisher's least significant difference test. Negative symbols mean a negative impact on consumers' intention to purchase.

distinct purchase behavior for instant coffees in glass jar packages (Table 7), whose characteristics are detailed in Table 8. Good fit was observed for the models of the two clusters ($P < 0.0001$).

In general, it is possible to state that, for most of consumers, low price, brown color, well-known brand and the possibility of seeing the real product inside the package significantly increased purchase intention ($P < 0.05$) (Table 7).

For the major consumer group, group C (74% of participants), the hourglass shape, which allowed for better visualization of the product, and the low price were more relevant for purchase intent (37.1 and 42%, respectively) (Table 7). Several studies have presented that, for most consumers, price has a high impact on the purchase intention of products such as soybean oil (Carneiro *et al*. 2005), Australian wines (Chrea *et al*. 2011), ready-to-drink orange juices (Gadioli *et al*. 2013), Karoo lamb (du Plessis and du Rand 2012) and sweet cherries (Koutsimanis *et al*. 2012). Considering the relevance of package shape, it is interesting to report that Becker *et al*. (2011) found that consumers expected a higher price for lemon yoghurts packed with angular shaped containers because their appearances

TABLE 8. CHARACTERIZATION OF GROUPS FROM THE EVALUATION OF GLASS PACKAGES

Characteristic/Response	Description	Frequency (%)		χ^2	P
		Group C	Group D		
Gender	Female	79	61	13.62	<0.001
	Male	21	39		
Age (years)	18–24	67	44	27.92	<0.001
	25–40	26	28		
	>40	7	28		
Level of instruction	Graduate (complete or incomplete)	70	83	11.98	<0.001
	Postgraduate	30	17		
Income (Brazilian minimal wages, R$)	Up to 5	45	31	10.58	0.005
	6–10	32	46		
	Above 10	23	23		
Responsibility for purchasing food for their homes (%)	Yes	53	62	3.44	0.064
	No	47	38		
Type of coffee consumption	Ground and roasted coffee	64	66	0.18	0.673
	Instant coffee	36	34		
Coffee consumption/day	1 cup	54	44	4.06	0.044
	2–5 cups	46	56		
Frequency of reading labels	Always/Frequently	61	62	0.38	0.825
	Sometimes/Occasionally	36	34		
	Never	3	4		
Item observed in labels at the moment of purchase	Package appearance*	27	27	5.03	0.169
	Brand	13	21		
	Price	14	10		
	Information†	46	42		

* Color, illustration and packaging material.

† Nutritional information, ingredients, preparation instructions, expiration date, origin and yield.

conveyed a more potent impression than the round-shaped containers.

Most of the group C consumers were young women with high educational attainment and less income (Table 8) than other participants, which may have contributed to the preference for cheaper coffees. However, it was observed in the questionnaires that they considered relevant the presence of information (46%) and the appearance of the packaging (27%) (Table 8). It is possible that these criteria had been already attended at the moment of the evaluation of packages because all glass jars had a more elaborate illustration (already defined as relevant in the refill packages study) (Fig. 1). Therefore, price may have acquired greater importance (Table 7).

In addition, the hourglass shape significantly affected the purchase intent ($P < 0.05$) of consumers in group C, providing a high positive impact on the purchase intention (37.1%). The preference of glass jar shape may be related to how much of the real product consumers can actually see inside the package. The hourglass shape, in fact, allowed for better visualization of the instant coffee than did the cylindrical shape (Fig. 1), previously described in the focus group (Table 4).

Brand and price were the only factors that significantly affected the purchase intention of group D ($P < 0.05$). These consumers mainly appreciated instant coffees hailing from a well-known brand (40.1% of importance) with low price (48.3%) (Table 7), corroborating their questionnaire responses about what they usually observed at the time of purchase: higher frequency of citation of brand than group C (Table 8). Although price was not mentioned on questionnaire as a primary factor observed at the moment of purchase, in this group, price had the greatest impact on the purchase intention. It is worth noting to observe that the majority of these consumers had incomes 6–10 times the minimum wage and also that more than 20%, incomes 10 times the minimum wage, i.e., high income (Table 8). In spite of being a smaller group of consumers, group D could also represent different profile of consumers of instant coffees in glass jars, whose purchase intent is most affected by price and brand popularity.

Brand and color were factors studied for both refill and glass packaging. Comparing the largest group of consumers of each design, it was found that well-known brands had a greater impact on purchase intention for glass jars (10.1%) than they did for refill packages (2.4%) (Tables 5 and 7). Since products in glass packaging are usually more expensive, consumers might consider more advantageous buying well-known brands. Furthermore, it was found that brown was more important for glass jars, while red was more important for refill packages. This was likely due to the greater contrast of colors, which was mentioned in the focus group.

CONCLUSIONS

In general, the inclusion of photos depicting coffee cups foam, steam and coffee beans, additional information on yield, and the presence of the terms "traditional" and "refill" (for refill packages) on the front panel were desirable characteristics of instant coffee packaging.

Additionally, it was observed that consumers' criteria for purchase depended on the material of the package. For glass packaging, purchase intention depended more on the price and increased with the use of modern shapes, which allowed for better visualization of the real product. Both brown and red were found to be suitable colors for coffee packages, with consumers preferring brown for glass jars and red for refill packages.

Although the factor of well-known brands was highlighted on the qualitative research, it was not considered the factor of greatest importance on purchase intention for most consumers. This is a positive finding for instant coffee manufacturers of lesser known brands, new brands or brands less associated with their products: improving other attributes of their packages may encourage product sales.

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