Multivariate Statistics and Typology: Consuming Aesthetic Services in Brazil

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MULTIVARIATESTATISTICSANDTYPOLOGYCONSUMINGAESTHETICSERVICESINBRAZIL

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I. Introduction

The female body gives rise to reflections in different areas of knowledge. Nutritional discourses, public health policies and studies on the sociocultural constructions of the body, according to ethnic, religious and regional influences, are some examples of the approaches found on such a theme. In this study, we intended to contribute to this discussion by presenting a typology of consumption behavior with respect to body aesthetic services that might be of interest mainly to marketing.

According to data from the Brazilian Society of Plastic Surgery - BSPS (2009)[1], 73% of plastic surgeries performed between 2007 and 2008 were aesthetic and, of this total, 88% were performed in women. Most commonly performed procedures were breast augmentation, liposuction and abdominal reduction. Only behind the United States, Brazil occupies a prominent position in the number of plastic surgeries performed and consumption of less invasive body aesthetic services. Still, according to the BSPS, aesthetic surgeries performed in people aged between 19 and 30 years increased from 37,740 in 2008 to 91,000 in 2012. The number of surgeries performed in young people grew 3.5 times compared to procedures performed in the adult population.

Considerable increases in demand for aesthetic services can point to the emergence of specific market niches, requiring strategic definitions to agents of the public and private powers. However, considering the proposition of these actions, it is necessary to understand which feelings and motivations lead people to seek such services, which beauty standards are in evidence and which thoughts are shared in the social culture of appearance.

According to Solomon (2012) and Filser and McLaughlin (2012), variables determining human behavior are numerous with regard to choices of products and services. Sociodemographic and economic variables can influence such decisions. However, in order to conduct a more explanatory and less descriptive study on those behaviors, the authors highlight the importance of taking into account the influence of sociocultural variables on consumers' actions.

In order to understand the ways in which a specific group perceives the body and shaping through body aesthetics services, so that similarities and differences of points of view could categorize the clusters of the typology proposed, this study assessed the representations of the female body and the definitions of 'ugly' and 'beautiful' that explain these terms. Thus, issues such as the perception of the body, social standards of female beauty and gender vulnerability were considered important variables in a study on behaviors of aesthetic services consumption according to young women of the city of Campo Grande, capital of the State of Mato Grosso do Sul, Brazil. The identification of behavior patterns of the group studied—a total of 215 undergraduate young students aged between 18 and 23 years—enabled us to construct a typology related to the perception and use of aesthetic services and body care. For the field study, we conducted a survey using a questionnaire as an instrument for data collection. Multivariate statistical techniques (multiple correspondence and hierarchical analysis performed with the software SPAD®, France) were used to present the typology. The analysis of the answers to open-ended questions was conducted by using lexical analysis. It is worth noting that all the participants accepted to participate in the study after signing an informed consent form and they also allowed

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[1] Further information can be found at http://www2.Cirurgiaplastica. org.br/

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that scientific articles exposed their statements, provided that their identities were kept confidential.

The following is a brief theoretical review on the topic of body perception and social representations presented so as to enable the analysis proposed, followed by the chapters method, results and conclusion.

II. The Body and the Determinants of its Shapes: Influences on Consumption Behavior

According to Poulain (2004) and Camargo et al. (2013), body image is socially and culturally constructed, suffering influences from contexts in which people live and working as a kind of individuals' social identity. The study on the perception of the body and the consumption of aesthetic services, capable of transforming this body, can be a way to know the social representations of the body, i.e., social norms, ways of perceiving the body by the individuals, symbolisms, and codes and languages that reveal social determinations about the human body.

According to Cunha (2008), consuming is an important act to assert identity. The author explains that the body, while self-image, is a project in which investments are made and it can be in constant transformation in a consumer society. The representations of "beauty" are pursued and turned into reality through consumption.

Moscovici (2003) states that social representations are a way of obtaining knowledge about the world, sharing and creating concepts about objects and situations, as well as using means of communication present in everyday life. The representations are some sort of system that helps in understanding reality and the organization or orientation of people's actions in their social environment.

The importance of studying the body considering the social representations is justified by Jodelet (2001), because they build social ways of interpreting the sizes of bodies and make it possible to know the ways in which people perceive themselves and choose their models of behavior.

Since the last years of the 1980s, Leal, Catrib, and Amorim et al. (2010) claim that feminine beauty, mainly in the West, started to be associated with the light body without excesses. The symbolic belief of social success is materialized in the slim, beautiful and young body. The authors add that any sacrifice to shape the body is justified by adaptation to social standards constructed and the search for social success.

However, Lambert et al. (2005) point out that in Western Latin American countries, and even in Eastern countries, such as Japan, a slim body is advocated as an ideal body, particularly among individuals of the higher income classes. The authors explain that in an era of food abundance, the bigger the restrictions faced by certain social groups, the more fat is associated with a symbol of social distinction. This occurs because individuals of lower income classes regard fat as a symbol of wealth. On the other hand, access to food is easier for those belonging to the higher income classes and the accumulation of fat in the body is considered synonymous with lack of information, little care with the body and individualism, since the accumulation occurs in their bodies and the food is not shared.

With the promotion of slim bodies as a model of beauty, the size of the mannequins for women has decreased significantly (Le Breton, 2006). This happens because, when corpulence is no longer regarded as beauty, women are influenced by the largest demands of adaptation to the new fashion. According to Lipovetsky (2000), the numerous types of diets conveyed by the media and the increase in the number of aesthetic surgeries performed confirm the desire of human beings to present themselves to the social environment to which they belong, or to which they want to belong, showing a body that is in accordance with the aesthetic standard established as ideal.

Malisse (2002) considers that aspects of joviality, beauty, self-transformation, perfection, and thinness are topics present in dialogues and incessant sayings of those most dissatisfied with their bodies. As the author points out, generally speaking, women are more vulnerable to social pressures that define optimal sizes of bodies compared to men. As a result, women are more anguished over the meanings that can transmit a social identity that does not fit in single size shapes.

In contemporary societies, through public health policies and nutritional discourses, aesthetic standards devalue overweight and obesity because of their harmful impacts on health. According to Rocha (2006), such communications not only influence the ways in which individuals perceive their bodies, but their attitudes in the face of the possibilities offered in the market of body transformation. For the author, one of the ways to understand the aesthetic criteria of beauty is by means of studies on the social representations of the body and femininity.

Studies conducted by Baudrillard (1995) and Novaes and Vilhena (2003) showed that women's statements about the self-perception of the body were correlated with moral judgments. Most of the respondents in those studies considered that not having a body size socially idealized represented lack of discipline, little concern about oneself and lack of concern about the body.

Empirically, the body has already been the object of analysis in a considerable number of studies in Brazil, for example, the study conducted by Comério et al. (2009). The authors interviewed a group of undergraduate students of a public university in the

State of Minas Gerais and observed that those women aged between 18 and 23 years were experiencing guilt, because they stated that achieving the body they desired depended on themselves, through exercising or restricting certain foods. Most of the young participants of the survey stated that they did not have a healthy life, because they did not exercise regularly and they did not eat a balanced diet. The desire to have a slim body was unanimous, since it would be synonymous with success, victory and satisfaction for them. According to their statements, the abdomen was the part of the body that most bothered them and the search for the ideal body was regarded as an action that would promote better self-esteem and happiness.

Secchi (2006) also researched the social representation and the image of the female body in groups of undergraduate students of psychology, fashion and physical education courses of two universities of the State of Santa Catarina. The researcher obtained the following main results: the participants showed a tendency to perceive their bodies larger than the size that they considered ideal; as for age, the research pointed out that in the group over 31 years of age the satisfaction with the body was 61.54% and in groups with lower age the satisfaction was 30.77%. Most of the participants in the study had adhered to restrictive diets; they were favorable to aesthetic surgeries and they had the desire to undergo some aesthetic surgery in the future.

Camargo et al. (2013) conducted a study in another Brazilian university located in the south of the country. They found that for the group of individuals researched the body was described by biological, psychological and social characteristics. Beliefs, perceptions and attitudes showed representations of the social group to which they belonged. Social standards of beauty were confirmed by the group and when the participants of the focal group were questioned individually, the answers revealed information about the social learning about the body and its shapes accepted, tolerated and rejected. The authors affirm that understanding the social representations of the individuals about some particular topic implies to know how they link individual explanations to those of social order on the subject. Analyzing the body under the interference of two contexts (health and beauty), the study revealed different representations. According to the authors, there was individualism when the subjects regarded the body in the health context (balance, life, care). On the other hand, regarding the context beauty, thoughts about the body were concerned with social identity, the other's look and exchanges that may or may not occur between each other.

Knowing that the ways to perceive and build people's bodies are also part of a complex system of social and symbolic functions, our goal was to know the social representations of the body and femininity contained in the discourses of the young people that composed the sample of this study. In addition, as stated by Poulain (2004), that the construction of identity is associated with the body, we were also interested to unveil the types of investment made in body image.

Finally, it should be mentioned that, according to the main purpose of our study, the theoretical framework presented not only guided the analysis of the results found in the field study, but also determined the choice of collection techniques and treatment of those data. Further information about the research methodology is discussed below.

III. Method

The results presented in this article are inserted into an extensive research that aimed to assess body perception in young women living in the city of Campo Grande, State of Mato Grosso do Sul, Brazil, and its influence on consumption and investments for the construction of a body considered ideal. To that end, we took into account the action of different determinants of consumption (sociodemographic, socioeconomic and sociocultural).

In order to not strengthen the socioeconomic determinism in studies on consumer behavior, it is worth mentioning that the decision for the sample stratification—by income, age and level of education—was due to the interest in facilitating the interpretation of results and, especially, in finding different consumption behaviors among individuals of a same group within the typology designed.

For carrying out the research in which the results presented in this article are inserted, we interviewed 215 young students from different undergraduate courses of a federal university in the city of Campo Grande. Regarding the sample of the survey and considering the universe of 7000 students of that university, we estimated an error of 6.5%.

For the composition of the sample, we were more interested in its heterogeneous characteristic with regard to the undergraduate courses that the young women were attending, their statements from different income classes, different ages, and semesters attended. All these differences could enable this research to: choose criteria for comparison of behaviors (for example, with regard to ways of perceiving the body and the techniques for the construction of this body); assess different consumption behaviors (according to their ages, incomes, undergraduate courses, and semesters attended); and identify marginal and potential consumers of certain body aesthetics services.

The survey method was chosen for data collection. Malhotra (2004) explains that the method consists in a search for information through questioning the respondents regarding their behaviors, attitudes, perceptions, motivations, demographic characteristics,

and lifestyle. This procedure was accomplished using a structured questionnaire applied through personal interviews. Before the completion of the interviews, the questionnaire was submitted to a committee of ethics in research involving humans for approval. Only after the approval of the research we carried out the contact with the courses and the undergraduate students. Still regarding data collection, it should be noted that the questionnaire was elaborated with 66 variables, containing a total of 268 types of possible answers (variable type). Such variables reflected aspects of the socioeconomic and demographic positions of the sample, as well as the perceptions about the body and the attitudes toward the construction of this body, i.e., the consumption of aesthetic services.

Considering the goal of this work, i.e., to present the aforementioned typology in order to analyze the data collected and perform groupings of answers, we decided to carry out a multiple correspondence analysis followed by an ascending hierarchical classification—cluster analysis—using the software SPAD® (France). The difference between these multivariate analyses and classical analyses is that multiple correspondence analysis allows evaluating the relationship between a very large set of variables, and hierarchical ascending classification allows finding the desired typology.

From the completion of these analyses, factorial plans were generated and they had to be interpreted as maps, in which the location of each class in the typology implies similarities or differences in choices of types of variables. Thus, the position that the individuals occupy in the factorial quadrants and inside the generated classes will be closely related to the similarity of their answers with respect to the active variables. It is worth mentioning that only the variables with largest factorial load were considered for the determination of the groups, i.e., those which best represented the set of responses.

Regarding active variables (called determinants of consumer behaviors) calculations of distance of individuals were carried out. With this, the allocation of subjects and modalities for closer variables could be represented in a multidimensional space. The term variable type is understood as the response options; for example, in the case of the variable "semester of the course", first and second, third and fourth, fifth and sixth, and seventh and eighth semesters represented the types of this variable.

Active variables used in this study for multiple correspondence analysis were the questions concerning:

– Definitions of ideal body and perceptions about their own body (stage at which they cared more about the body; what they thought that others think about their body; if they could switch bodies, who you would switch with and what size this body of desire would be);

– Differences between sexes, social classes and people's age with respect to care regarding the body (Whose body shape is most demanded by society? What are the methods of body care? Can male and female artists gain weight? Difference between sexes with respect to overweight; attitude toward an image of a fat baby; and perceptions about the importance of body size in different contexts);

– The degree of importance regarding body care (underwent surgeries; did body aesthetic treatments; opinion about slimmer women; and attitude when dressing);

– Knowledge about types of services and construction methods of the body available in the market (criteria to choose the clinics; use of fat reducing creams; belief in creams; frequency of visits to the gym; clinics; plastic surgeons; going on a diet; and perception about the clinical services).

The multiple correspondence analysis allowed us to assess the main types of behaviors and their determinants. To assess what determined the different behaviors mentioned by the respondents and the explanatory variables of the behaviors (called illustrative) were entered into the software. As an example of these variables, we can mention demographic and socioeconomic characteristics of the individuals (course, semester, age, parents' education, number of children at home, and income) and other variables that are also human behavior determinants, such as sociocultural variables. The variables that enabled us to better understand the ways in which the young women perceived their bodies and others' bodies also enabled us to observe the action of social representations (social norms, rules, values, taboos), conditioning attitudes and preferences stated by the participants.

With regard to factors represented on the factorial axes (Figure 2), they correspond to calculations of distance of the modalities of variables in descending order. Escofier and Pages (1998) and Lebart et al. (1995) affirm that the Chi-square metric (χ^2) allows the comparison of lines (individuals) and columns (modalities). This way, the similarity between two individuals was defined by the calculation of the Chi-square distance (χ^2), i.e., the distance between their profiles (selected modalities) that play a role similar to the calculation of the standard deviation used in the study of numerical or continuous variables.

The analyses of the data and factorial plans were used to perform groupings of individuals in a typology of synthesis. To minimize the empirical character of this method, an ascending hierarchical classification was then performed. The individuals were classified considering the distances calculated by

correspondence analysis. The number of groups of individuals (classes or clusters) was chosen on the basis of the degree of desired synthesis and the capacity to explain the phenomenon studied. The dendrogram shown in Figure 1, obtained using the software SPAD, can show the link (strong or weak) between the classes and the representativeness of each class (in percentage - Figure 3) considering the purpose of this study.
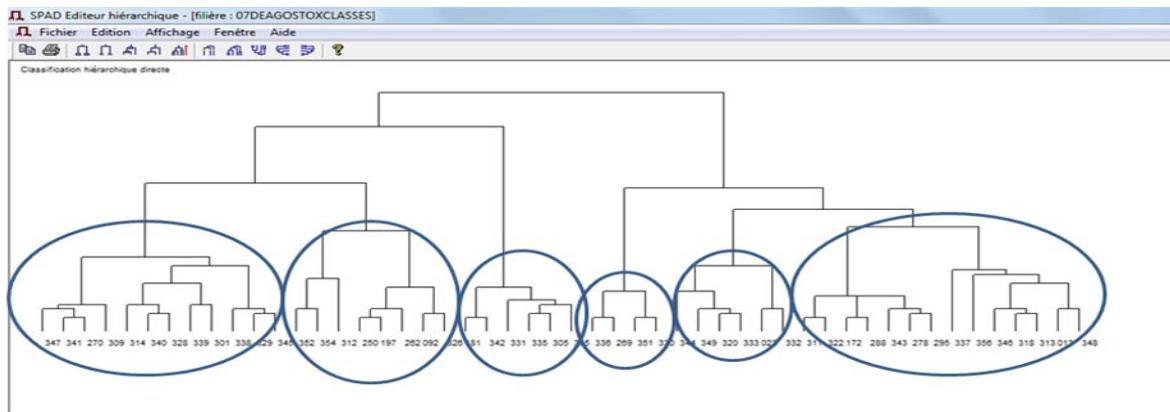
Source: Prepared by the authors.

Figure 1 : Dendrogram with the distribution of six classes chosen for the analysis

The representativeness of the six classes is shown in Figure 2.
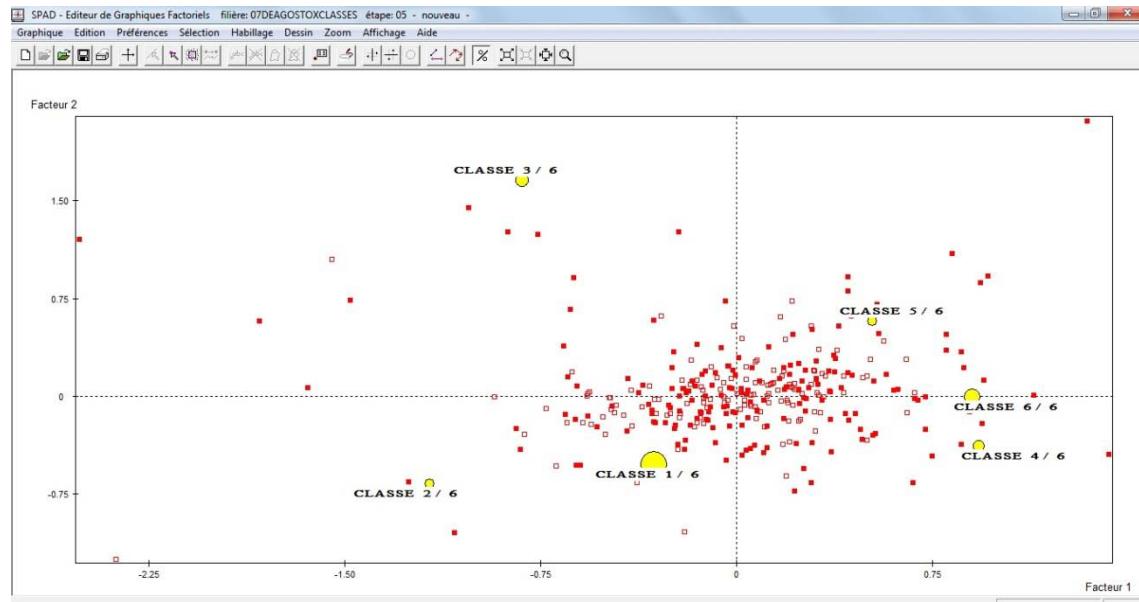
Source: Prepared by the authors

Figure 2 : Distribution and representativeness of the six classes

The distance of a group in the center of the factorial plan reflects its difference in relation to individuals located at the central point (without substantial statistical representativeness). A greater or lesser proximity between groups in the same factorial plan implies a greater or lesser correlation between the types of variables that characterize such groups, especially when they are away from the central point.

Finally, it is worth mentioning that in multivariate statistical analysis the definition of the set of latent dimensions, or better, the definition of the factors, must be understood as the representation of a new set of variables that is more representative for the study, having been removed from the original set. Since there was a level of correlation between the variables (degree of inter-correlation: approximately 0.93), we observed the variability and the percentage of variance explained as a criterion for decision of the number of factors that would be adopted for data analysis. The first four factors in the table of eigenvalues and percentage of variance

explained corresponded to approximately 60% of the total variability. The constant factorial plans of Figures 2 and 3 present the information of factors 1 and 2 generated by the software SPAD. From the four factors that best explained the variability of the data, we decided to present the results contained in the first and second factors due to the most representative factorial loads of the variables for the formation of those factors.

IV. Discussion

Before we begin the discussion of the results, it should be emphasized that Figure 3 has only the function of presenting the modalities of variables which best characterized each class chosen for analysis and facilitate its understanding regarding the perceptions and attitudes of the participants with respect to the body and the ways to build it. The percentage shown next to each class corresponds to the representativeness of those answers in the total set of variables contained in the questionnaire. The typology presented allows us to observe social reality, group identity and the investments made in the body as a means of communicating socially with the groups they belong to or which are considered benchmarks, in addition to differentiate themselves from the behaviors of groups rejected.

CLASS 3/6 (14%)
Regardless of social class or sex, those who want and can shape their bodies with little physical activity or changing their habits minimally;
My attitude with respect to fat reducing creams and disapproval, because I'm not interested in these products;
However, my colleagues at the university regard my body as those which are far away from perfection, lack of exercise;
I totally disagree with the idea that slimmer women are more disciplined.

CLASS 5/6 (10%)
The size of a body has influence on the university environment, relationships, social environment, work, and at home;
A fat man may even be charming, but if he's an artist, he should lose weight, because I think that fat people are horrible;
Negative attitude toward a fat baby, I think he/she should lose weight;
If I could have someone else's body, it would be my university colleague's, a slim body.

CLASS 1/6 (32%)
I'm satisfied with my body and my weight;
Usually, I hear that I'm fine when I complain about some part of my body;
The size of a body doesn't influence on the university environment and society;
I like my buttocks and my thighs the way they are;
I'm attending the last semesters of the course;
No to aesthetic clinics, because prefect bodies are built without treatments;
Middle class and richer women choose clinics to shape their bodies;
Fat men and women may even be charming;
I don't want to go to clinics, I want to do sports and go to the gym.

CLASS 2/6 (10%)
I am not still worried about the shape of my body, I have other more important things to think about;
Neither my family nor my friends influence the way I perceive my body;
I'm not worried with what the media says about beautiful body;
I never measure my weight, I don't go on diets, I don't go to gyms and let alone aesthetic clinics;
The size of a body doesn't influence relationships;
I don't have a boyfriend;
I totally disagree with the notion that slimmer women are healthier.

CLASS 6/6 (22%)
Middle class women are richer and they can choose more than four activities to shape their bodies;
I have already undergone a plastic surgery, but I rarely visit the plastic surgeon;
Negative attitude toward a fat baby, I think that if it is a girl, she should lose weight, it's better for her to be fat only at this stage;
Poorer people do less activities to shape their bodies;
The aesthetic clinics I go to are suggested by friends;
If I could have someone else's body, it would be my university colleague's, a slim body;
I believe in fat reducing creams;
The models of aesthetic clinics represent the ideal body;
My legs could be thinner;
I look for information on the Internet regarding how to build a beautiful body.

CLASS 4/6 (12%)
Even though I know it's not possible to lose weight fast, I'd love to buy those aesthetic services;
I weight more than I should and I don't like my body and I feel guilty for not buying clothes in smaller sizes;
I believe in fat reducing creams;
My colleagues must think I'm fat;
I rarely visit a nutritionist and I agree with the notion that slim women are healthier;
I want to undergo three plastic surgeries to reduce my body measures, I pay less and more invasive services; My legs and arms could be thinner and my buttocks more defined;
I always go on diets.

Source: Figure prepared by the authors based on the results of the field study

Figure 3 : Typology of behaviors - perceptions and attitudes toward the body and body aesthetics services

Analyzing the opposition of classes contained in the factorial quadrant, we observed a heterogeneous behavior regarding body perception and investments in aesthetic services according to the statements of the participants. While for classes 5/6, 6/6 and 4/6 the social representation of the female body was in general more associated with social demands, aesthetic concerns and frustration felt for not having the ideal body, for classes 3/6, 1/6 and 2/6 the representation of the body was more associated with the inconvenience caused by the conventions of a consumer society that determines the slim body as ideal of beauty and offers services for transforming the "ugly body into a beautiful body".

Most hostile attitudes toward body fat—even in children and, especially, when that fat is in a female body—the desire to imitate the target body and the influence of other's opinion on the size of the body are the perceptions that value respondents' investments positively in the industry of body construction, namely, the purchase or the belief in fat reducing creams, services offered by body aesthetic clinics and even plastic surgeries.

It is through these purchases of products and services that the representations of beauty or ideal become real, possible. The construction of identity is tied to consumption and, as observed in the modalities that best represented the responses of classes 5/6, 6/6 and 4/6, not having a slim body is shameful. Since women feel dissatisfied with their self-image, the consumption of products or services able to change the

shape of their bodies and contribute to the construction of a desired identity was justified in the statements of the participants interviewed as a behavior for minimizing the anguish caused by the idealized images.

On the other hand, in the same context (the university), more reflective behaviors, that reject the cult of the body as a way to be socially different, were observed in young people. They did not believe that the size of the body had some influence on the environments they frequented and they did not believe in the promises of aesthetic clinics and fat reducing creams. They approved their identity and thought that attending clinics or undergoing surgical procedures was not necessary to shape their bodies. However, it is worth mentioning that for the classes 3/6 and 1/6 such statements revealed an association between the body and health and a concern to maintain good health, exercising and going to gyms. For the class 2/6, denial with respect to investments made in the body was more associated with a distance from the consumer society and little interest in imitating standards imposed.

This way, it is concluded that, although the ways to control the appearance of the body were different—except for a single class in the typology (2/6)— we observed that one way or another there were body investment initiatives and some sort of consumption performed (from sports practiced in gyms to undergoing plastic surgeries), strengthening the body issue as social identity. Thus, all the ways of body consumption were understood as a strategy for identity affirmation. The agents of public and private powers interested in the subject of this study should recognize that heterogeneous consumption behaviors can be observed among individuals with similar demographic and socioeconomic characteristics.

V. Conclusion

The analysis of the discourses on the female body of 215 young undergraduate students of a Brazilian public university allowed us to understand the ways in which the group perceived their bodies, the standards of beauty—which according to the students were socially imposed—and behaviors adopted in order to change or build their social identities.

The typology allowed us to observe that the groups referred to important topics, such as concerns relating self-image (How am I judged and analyzed by my peers?), consumption as a form of therapy (the purchase of aesthetic services justified by the well-being provided, since the ideal is the transformation of their identity and social acceptance), the question of luxury and desire (purchasing aesthetic services as a means to differentiate socially) and the question of the dilemma (denial of the slim body fantasy and the question of acceptance of the group and the environment they belong to). These results allow defining the patterns of consumption that establish social identities.

In this work, we observed that there are many variables that can influence individuals' consumption behaviors. However, we intended to highlight the potential for interpretation of sociocultural variables as important determinants of specific and symbolic behaviors. We expect to encourage further studies on consumption conducted in the field of marketing having culture as a guideline for behaviors.

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