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Dietary supplements' endorsements. A content analysis of claims and appeals on Spanish radio

Abstract

The aims of this study are to analyze the presence of endorsers in DS advertising on Spanish radio and the health-related product information of endorsements on full service Spanish radio. To this end, the content analysis of all radio spots broadcast throughout the year 2017 is conducted, deriving a corpus of 165 different radio spots belonging to the product category of dietary supplements, broadcast a total of 10,566 times. According to the Elaboration Likelihood Model, endorsers are a peripheral cue and increase advertising persuasion. The main results show that the most prevalent type of endorser in DS radio spots is the anonymous spokesperson, followed by celebrities, and that endorsers use explicit claims more frequently than implicit claims. Additionally, experts and celebrities use rational appeals more frequently while emotional appeals predominate in endorsements by typical consumers. Thus, rational appeals are prevalent in endorsements voiced by the most credible endorsers: experts and celebrities. That is, the higher the social recognition and credibility of the endorser, the greater the weight of direct, explicit and rational arguments in the message, while less attention is given to emotional appeals.

Keywords

Elaboration Likelihood Model (ELM), dietary supplements, health communication, public policy, radio advertising.

1. Introduction

Advertising plays a prominent role in the demand and consumption of dietary supplements (DS). Whether directly or indirectly, many advertisements encourage the consumption of DS instead of medicine, and the practice of self-care instead of seeking the advice of health care professionals (Chandra & Holt, 1999). In Spain, 30% of consumers take some kind of dietary supplement (OCU, 2018) and 81% of this type of advertising contains statements on disease prevention, including the most serious illnesses such as tumoral and liver diseases and cancer (Sáiz de Bustamante, 2011). In fact, according to a survey carried out by a consumer organization (CEACCU, 2012), most Spanish people believe that the advertised benefits of DS involve no side effects (71.8%) and that the products have been analyzed and approved by the health authorities (83.7%). Spaniards also believe that DS prevent disease (57.9%) or cure illnesses in the same way as medicine, but that they are more inoffensive and natural (35%). Additionally, the fact that DS are sold in pharmacies –and resemble medication in terms of

packaging and presentation– leads consumers to equate the scientific guarantee and effectiveness of both types of products (CEACCU, 2012).

Although there is little scientific evidence that proves their safety and benefits (Kreth, 2000), DS are usually presented as a natural alternative to the chemical substances found in medication. However, natural is not always synonymous with harmless (Royne, Myers, Deitz & Fox, 2016). Thus, the manufacture, packaging, marketing and promotion of DS have been regulated in most countries through the introduction of recently approved legislation.

Advertisers use endorsers as a strategy to increase the persuasive effect of the advertisement. To imbue brands with personality, i.e. to personify the product (Perelló-Oliver, Muela-Molina & Campos-Zabala, 2018), there are different advertising mechanisms that may be used: (1) celebrity; (2) typical consumer; (3) professional expert; (4) company employee; and (5) anonymous spokesperson. The presence of endorsers in advertising has received the attention of researchers from many different fields of study, especially to demonstrate that its inclusion in the message increases advertising effectiveness (Fleck, Michel & Zeitoun, 2014; Stafford, Stafford & Day, 2002). Because of their persuasive potential, endorsers are usually highly regulated, and the Federal Trade Commission (FTC) has developed a complete guide on the correct use of endorsements and testimonials in advertising, where an endorsement is considered to be any verbal statement that “reflects the opinions, beliefs, findings, or experiences of a party other than the sponsoring advertiser” (FTC, 2009, p. 53124).

Spain does not have a specific legal framework that regulates the use of endorsers in advertising. Nevertheless, regulation does exist for the advertising of products with alleged health benefits –with the exception of over-the-counter medicines (OTC) which have their own legislation (Muela-Molina & Perelló-Oliver, 2011). This type of products includes beverages, food, beauty and personal care products, weight loss products and food supplements. The Royal Decree 1907/1996, of the 2nd of August, on the advertising and promotion of commercial products, activities or services with intended health purposes in Article 4 –on the prohibition and limitations of advertising– bans the use of testimonials attributed to health care professionals, celebrities or well-known personalities, or to real or alleged patients, as a means to induce consumption. Furthermore, Article 5 prohibits health care professionals from using their name, profession, position or employment in advertising that promotes preventive, therapeutic, rehabilitation or any other type of health-related benefit. It also prohibits any type of advertising that includes medical diagnoses, prognoses or prescriptions, whether real or alleged, on television, radio or any other medium of dissemination or communication.

Research conducted to analyze the presence of the different types of endorsers in health-related advertising shows a clear preference for television (Brownfield, Bernhardt, Phan, Williams & Parker, 2004; Choi & Kim, 2011; Kaphingst, DeJong, Rudd & Daltroy, 2004; Wallack & Dorfman, 1992) and print media (Chung, Hwang & Kim, 2007; Main, Argo & Huhmann, 2004; Shaw, Zhang & Metallinos-Katsaras, 2009). The same is true of studies conducted to analyze and quantify the use of different types of claims –such as explicit and implicit health claims (Chung, Hwang & Kim, 2007; Wallack & Dorfman, 1992)– or appeals –rational and emotional (Chan, Leung & Tsang, 2013; Main, Argo & Huhmann, 2004)– while no empirical work has been found on the different types of claims and appeals in DS radio endorsements.

Based on previous research, the main objective of this work is to analyze the presence of endorsers in DS advertising on Spanish radio, as well as the health-related product information of endorsements. More specifically, the aim is to analyze the most prevalent type of endorser by type of claim and appeal in spots broadcast on full-service radio stations. The radio medium has been chosen because, as previously mentioned, it has received little attention from the scientific community (Manganello & Blake, 2010). However, with more than 26,878,000 daily listeners (AIMC, 2017) in Spain, it has the second largest audience after

television. Additionally, according to a recent sociological report by Metroscopia (Toharia, 2017), it is the most trustworthy source of information for 82% of Spanish people, followed by the Internet (80%), newspapers (55%) and television (51%).

2. Theoretical and research background

2.1. Endorsers in health-related advertising

According to the Elaboration Likelihood Model (ELM) of persuasion, endorsers are a peripheral cue with influencing power on the attitude of recipients and can, therefore, increase advertising efficiency (Petty, Cacioppo & Schumann, 1983). If a recipient "can be confident that an expert source will be willing to provide accurate information because of his or her high trustworthiness, they may forgo the effortful task of scrutinizing the message and, instead, unthinkingly accept the conclusion as valid" (Priester & Petty, 2003, p. 409). Buchholz and Smith (1991) have expressed similar views in relation to highly involved consumers exposed to radio commercials, as in the case of health-related products, so it seems important to analyze the most frequently used type of endorser in DS advertising.

In health-related advertising, previous works have shown that expert endorsers –pharmacists and physicians– used in over-the-counter (OTC) pharmaceutical advertising produced significantly more favorable changes in the attitudes of consumers than celebrities and typical consumers (LaTour & Smith, 1986). Along similar lines, experts achieved better responses to direct-to-consumer (DTC) advertising than celebrity endorsements, which are not effective or suitable cues in the diffusion of prescription drug information among consumers with medical conditions (Limbu, Huhmann & Peterson, 2012). Additionally, consumers showed a more positive attitude towards the advertisement when it was endorsed by an expert or celebrity compared with a non-celebrity endorser in DTC print advertising (Bhutada & Rollins, 2015; Rollins & Bhutada, 2014). However, Wu, Linn, Fu and Sukoco (2012) argue that, in DS advertising, consumers tend to respond with more favorable ratings in terms of liking and believability when a celebrity endorser is used rather than an expert.

Kaphingst, DeJong, Rudd and Daltroy (2004) established four different sources of information: celebrity, health care professional (doctor, physician, nurse, pharmacist or other medical expert), layperson and anonymous voiceover, the latter being the most prevalent endorser for television prescription drugs. Shaw, Zhang and Metallinos-Katsaras (2009) found that in magazines with high adolescent readership, 32% of DS advertisements used testimonials, half of them from famous people. Thus, the research background and previous works lead to the following hypothesis:

H1: The anonymous spokesperson is the most prevalent type of endorser in DS radio spots.

2.2. Types of claims and appeals in health-related advertising

Explicit claims state the benefits of a product directly in the message. This involves the use of very simple and straightforward product claims where there is little confusion regarding what the advertiser is trying to say. In explicit health messages the product advertised or promoted is directly linked to some desirable health outcome and the connection is made for the recipient (Chung, Hwang & Kim, 2007). On the other hand, implicit claims do not directly state the products' benefits. An implied health claim is understood as any form of communication that leads consumers to infer increased product healthfulness although the claim is not explicitly made in the message (Orquin & Scholderer, 2015). In Chung, Hwang and Kim's work (2007) all but one of the claims were determined to be explicit.

For the ELM, cognitive processing of the message is the basis of the central route, where people are motivated to think about the information and arguments presented in the advertisement. One important implication of the ELM is the effects of the different types of appeals (Petty, Cacioppo & Schumann, 1983): under high involvement conditions, a person

may evaluate the relevant information of the advertised product (central route) but under low involvement conditions, a person will not expend the effort required to think about the product-relevant arguments and may instead focus on the product's endorser (peripheral route). Rational appeals are more effective in cases where consumers are highly involved with the advertised product and emotional appeals are more effective when involvement is low (Baker & Lutz, 2000).

In health-related advertising, rational appeals offer a factual presentation of the product and its features, attributes or benefits, and may include comparisons with other brands, statistical or research information, and/or product usage information (Main, Argo & Huhmann, 2004). Emotional appeals are based on the experiential side of consumption and try to make consumers feel good about the product (Albers-Miller & Royne Stafford, 1999). Rational appeals are more prevalent than emotional ones (Chan, Leung & Tsang, 2013) and, in fact, DS magazine advertisements contain more rational appeals in the visual and headline than prescription drugs and OTC remedies (Main, Argo & Huhmann, 2004). This information leads to the following hypotheses:

H2: Explicit claims are more frequently used by endorsers than implicit claims.

H3: Rational appeals are more frequently used by endorsers than emotional appeals.

3. Methods

The conception and objective of this paper require "a research technique for the objective, systematic, and quantitative description of the manifest content of communication" (Berelson, 1952, p. 18), in this case of different types of claims. According to the American Marketing Association (AMA), an advertising claim is a statement made in advertising about the benefits, characteristics, and/or performance of a product or service designed to persuade the customer to make a purchase. Thus, the empirical nature of this study seems to require an analysis of verbal statements, as the most relevant element of the radio message and description of the product.

In line with this decision, the methodology chosen to develop this work follows a quantitative and multistage approach based on content analysis which enables the objective and systematic content description of all radio spots broadcast throughout 2017 on full service radio stations in Spain, since the programming's contents are based on news and current affairs. The selection of the stations followed two criteria: national coverage and Spanish-language broadcasting. According to data from the Estudio General de Medios (EGM) (AIMC, 2017), the stations with the highest audience levels are: Cadena Ser, Cadena Cope and Onda Cero, with a total of 9,000,000 daily listeners.

The data analyzed was obtained from Arce Media's database (joined since 2007 to Nielsen's database), a company dedicated to the collection and analysis of advertising activity in conventional media. In this study, dietary supplements belong to the non-medication group within the health category and include the following types of products: food and vitamin complexes, tonics, energy boosters, cell regeneration supplements, weight-loss supplements, vitamins and other health and nutrition products. Following this selection criteria, the final corpus is composed of 10,566 radio spots (165 without repetitions). It was decided to incorporate the accumulated frequencies of broadcast due to the importance of supplementing the content analysis specific to each radio spot with the weight of each one within the overall advertising discourse. This provides the opportunity to work with the complete universe of DS radio spots rather than with a sample. In this way it is possible to avoid the statistical bias and margins of error inherent to the elaboration process of any statistical sample. The complete text transcription of each one of the 165 spots, broadcast a total of 10,566 times, was conducted for its subsequent analysis and coding by two trained coders, according to the following variables:

- 1) Radio Station; (1) Cadena Ser; (2) Cadena Cope; (3) Onda Cero.
- 2) Type of endorser. (1) Expert: a health care professional, i.e. a physician, nurse, pharmacist or other medical expert; (2) Celebrity: a famous person whose name is socially recognized; (3) Typical consumer: an unknown person who represents a consumer; (4) Anonymous spokesperson: an unidentified voiceover who represents the advertiser; (5) None. The analysis only considers the voice describing the product in the message body copy and excludes other parts such as the introduction, which usually presents the consumer's problem, or the ending or call to action which, in the imperative style, asks the target to do something.
- 3) Type of claim. In line with the analyzed information (Chung, Hwang & Kim, 2007; Wallack & Dorfman, 1992) the classification is: (1) Explicit claim: in a direct form, it assures the audience that the product improves health –the word “health” is mentioned– a certain illness, medical condition or risk factor; (2) Implicit claim: the consumer infers that the product is beneficial for his/her health; (3) Both; (4) None.
- 4) Type of appeal. According to previous studies, there are two types: (1) Rational appeal (Main, Argo & Huhmann, 2004): objective information and arguments in favor of the product and its characteristics, data, functions and benefits; (2) Emotional appeal (Chan, Leung & Tsang, 2013): a subjective proposal of the experience derived from the product's consumption, such as mood alterations, wellbeing, physical performance, achievement/enablement or a change in appearance; (3) Both; (4) None.

The previous inter-codifier reliability was tested using Cohen's Kappa (Cohen 1960), which showed a variation between 0.856 and 1, calculated with SPSS (version 17). Specifically, the variable type of endorser reached a value of $k=0.970$ and type of claim reached $k=0.947$. This high level of agreement in such a large universe (10,566) is explained by the fact that the operationalization of variables is based on background literature and involved little difficulty for the two coders. The variable which showed more discrepancy was type of appeal with a value of $k=0.856$ in the codification of the third attribute “both.” In order to solve the few discrepancies detected (Kassarjian, 1977), a third work session took place in which the two coders, after assessing the situations, decided the final codification of doubtful cases. The results shown below are based on a value $k=1$ for all variables. Additionally, any crossed data of the coded variables has been submitted to relevant statistical significance tests using nonparametric χ^2 analysis.

4. Results

With regard to the presence of endorsers in DS radio spots, the first results show that all advertising of this type of products uses an endorser rather than other advertising resources –for example, dramatization or fiction. The analysis of the corpus under study– 10,566 radio spots–validates H1 since the most widely used type of endorser in DS radio spots is the anonymous spokesperson, present in 59.97% (6,336) of cases. Celebrities appear in 24.6% (2,604) of DS radio spots, followed by health care professionals –experts– present in 13.79% (1,457). Finally, typical consumers appear in only 1.6% (169) of cases.

Table 1: Type of endorser and type of claim.

	Expert		Celebrity		Typical consumers		Anonymous spokesperson		Total	
Explicit	1,031	70.8	1,492	57.3	29	17.2	4,244	67.0	6,796	64.3
Implicit			328	12.6					328	3.1
Both	406	27.9	323	12.4	140	82.8	1,216	19.2	2,085	19.7
None	20	1.4	461	17.7			876	13.8	1,357	12.8
Total	1,457	100.0	2,604	100.0	169	100.0	6,336	100.0	10,566	100.0

Source: Own elaboration.

Note: Type of endorser and type of claim; χ^2 : 1,783.044; Significance: .001.

DS advertising discourse is characterized by its explicit and direct description of the product and its benefits. This argument in fact validates H2 since explicit claims are more frequently used by endorsers than implicit claims. Table 1 provides the results derived from crossing variables type of endorser and type of claim and shows that 70.8% of expert endorsers and 57.3% of celebrity endorsers use explicit and direct messages to describe the alleged health benefits of DS. Additionally, typical consumers are in 82.8% of cases ordinary people who use both types of claims –explicit and implicit– to describe the product and infer an alleged health improvement.

Table 2: Type of endorser and type of appeal.

	Expert		Celebrity		Typical consumers		Anonymous spokesperson		Total	
Rational	1,301	89.3	1,531	58.8	29	17.2	3,638	57.4	6,499	61.5
Emotional			643	24.7	140	82.8	988	15.6	1,771	16.8
Both	136	9.3	344	13.2			1,710	27.0	2,190	20.7
None	20	1.4	86	3.3					106	1.0
Total	1,457	100.0	2,604	100.0	169	100.0	6,336	100.0	10,566	100.0

Source: Own elaboration.

Note: Type of endorser and type of appeals; χ^2 : 1,566.201; Significance: .001.

The results also validate H3 since rational appeals are more frequently used by endorsers than emotional appeals. Table 2 shows that 61.5% of appeals used by endorsers are rational. In this respect, it is worth highlighting two characteristics. The first has to do with the fact that experts (89.3%) and celebrities (58.8%) resort to the use of rational appeals more frequently in order to justify the alleged advantages of the advertised product. And the second is that typical consumers favor the use of emotional appeals (82.8%) to awaken listeners' interest and gain their confidence, sharing their personal experience of the product.

5. Discussion

The main objective of this work is to analyze the presence of endorsers in DS advertising on Spanish radio and the health-related product information of endorsements. The results, consistent with previous studies (Kaphingst, DeJong, Rudd & Daltroy, 2004), show that anonymous voiceovers are the most prevalent type of endorser used (60%). However, 40% of health-related radio spots broadcast throughout 2017 employ influential endorsers who are easily recognized by the audience and are banned by Spanish legislation. It is worth noting that 25% of these spots feature celebrities even though previous research has shown that this type of endorser has very little presence on the radio medium (Perelló-Oliver, Muela-Molina & Campos-Zabala, 2018). The underuse of celebrities in radio spots is due to the communication characteristics of a medium which cannot exploit the visual potential and appeal of famous personalities. Nevertheless, their high presence in radio advertising of health-related products evidences that advertisers believe celebrities increase the effectiveness of advertisements (Bhutada & Rollins, 2015; Rollins & Bhutada, 2014; Wu, Linn, Fu & Sukoco, 2012) compensating the lack of scientific reliability of the products.

If we exclude anonymous voiceovers and only consider identified voices, celebrity endorsers have the highest presence in DS radio spots, a fact which is consistent with previous studies (Shaw, Zhang & Metallinos-Katsaras, 2009). However, advertisers also employ expert endorsers because they produce favorable attitude changes in listeners (Bhutada & Rollins, 2015; LaTour & Smith, 1986; Limbu, Huhmann & Peterson, 2012; Rollins & Bhutada, 2014). Physicians are perceived as health information and treatment experts due to their training, professional experience and prescribing power (Bhutada & Rollins, 2015). The fact that experts use explicit claims and rational appeals (70.8% and 89.3% respectively) more

frequently is explained by influencing factors such as their professional role and field of work. These results are in accordance with previous studies (Chan, Leung & Tsang, 2013; Chung *et al.*, 2007; Main, Argo & Huhmann, 2004) which highlight the efficiency of rational appeals when consumers are highly involved with the advertised product, as in the case of DS (Baker & Lutz, 2000).

The results of the present work show a relationship between the types of endorser and appeal. In DS radio spots, the higher the social recognition and credibility of the endorser, the greater the weight of direct, explicit and rational arguments in the message while less attention is given to emotional appeals. On the other hand, in radio spots featuring ordinary people, the implicit discourse and emotional arguments based on the endorser's experience of the advertised product has more weight. In any case, the relative weight of the presence of typical consumers compared with other types of endorsers in DS radio spots is very low.

The fact that all DS spots broadcast on radio use endorsers reinforces the peripheral cue (Petty, Cacioppo & Schumann, 1983) according to the ELM. It would therefore seem that the route to persuasion in DS advertising reinforces the product information offered by the endorsement (central) with other factors related to the credibility of the source (peripheral). More specifically, the personal appeal of actors, the trustworthiness of renowned journalists and opinion leaders or the expertise of physicians seem to be the elements chosen by advertisers to influence listeners and distract their attention from the message (Priester & Petty, 2003). That is, when a physician or famous person advertises a product, consumers may not question the content of the message and accept it as true and valid because they tend to have more confidence in endorsements that come from an expert or trusted source (Bhutada & Rollins, 2015).

Endorsers are an executional factor for the persuasion process via the peripheral route. And health information can be associated with significant risk (Bhutada & Rollins, 2015; Bhutada, Rollins & Perri III, 2017) so that DS can be considered products with high involvement for consumers. In this respect, this work shows that, for highly involved consumers, DS radio spots use both routes to enhance the persuasive effect of the product. Therefore, rational appeals predominate in endorsements voiced by the most credible endorsers: experts and celebrities. It is also important to consider the broadcasting medium of the endorsement. Thus, for highly involved consumers, radio commercials offer more cognitive impact than television, and listeners have greater opportunity to elaborate on the claims due to the absence of visual stimuli (Buchholz & Smith, 1991). There is no image to exploit the actor's personal appeal or the reassuringly experienced manner of a physician addressing consumers, and consequently explicit claims based on product characteristics and rational appeals acquire a relevant role.

The results of this research entail several implications for public and health policy that should be taken into account by the different stakeholders involved. Advertisers and the media should be required to develop higher levels of responsibility towards consumers. Public opinion leaders, health professionals and celebrities have high persuasion power and, therefore, manufacturers should not employ them to endorse their advertising. On the other hand, the media should not public or broadcast health-related endorsements of high-involvement products which involve any type of health risk. It is also essential that public personalities –who have influential power as opinion leaders– are more scrupulous when accepting to participate as endorsers in advertising, as this requires an understanding of the legal parameters involved (Kertz & Ohanian, 1992). Actors and actresses –well-known personalities of professional standing– lend their voices and social appeal to endorse DS in radio spots; however, it is worrying that reputable radio journalists also take part in this practice, against the ethical code of their sector (Muela-Molina, Martín-Santana & Reinares-Lara, 2018). Furthermore, testimonials of this nature on topics outside their area of expertise may mislead consumers (Hastak & Mazis, 2011) and constitute a further breach of law.

5.1. *Future Research*

The results of this work pave the way for the development of future research that may provide continuity or resolve emerging questions and/or hypotheses. For example, following the Elaboration Likelihood Model, it would be interesting to learn how the source's trustworthiness affects information processing or to what extent the persuasive power of the message is dependent on the gender and/or role of the endorser –whether male or female, expert, celebrity, typical consumer or anonymous spokesperson. Additionally, the absence of image highlights the importance of the voice characteristics of the endorser –voice pitch or gender– so it would be relevant to analyze how they influence highly involved consumers in health-related radio advertising. On the other hand, the trinomial endorser, advertising and involvement can be applied to influencers in the Internet medium to analyze the types of products they recommend, and the relationship between product advertising and type of consumer and degree of involvement.

Certain factors have emerged during the process of this work which deserve further study. Firstly, and regarding the type of endorser, some experts are either fake physicians – their credentials are unavailable– or omit important information for consumers regarding their relationship with the advertiser. Thus, these alleged health professionals are considered disguised communicators or “posers” (Petty & Andrews, 2008), a clear example of misleading advertising. Secondly, when endorsers give opinions about an issue outside their area of expertise (Hastak & Mazis, 2011), the endorsement may mislead consumers. This is the case of actors, actresses or journalists who describe and recommend products they have no experience of. Given their influence on consumers, celebrities as endorsers should at least test the product and guarantee the validity of the testimonial or should possess whatever expertise is implied by the nature of their claims; that is, the use of endorsements requires an understanding of the legal parameters involved (Kertz & Ohanian, 1992). In this regard, although advertisers are ultimately responsible for their advertising and content, breaches of the law and codes in this matter are judged based on the content of endorsements –i.e. the degree of truthfulness of the claims– and the endorser, as the source of the message, is usually exempt from any responsibility. This fact needs to be analyzed in terms of public policy because endorsers are also responsible for what they say and should not be granted immunity (FTC, 2009). The case of journalists as endorsers (Muela-Molina, Martín-Santana & Reinares-Lara, 2018) is special since they are public opinion leaders and the code of ethics of their profession does not allow their participation in any advertising message or activity. However, they have a prominent presence in the analyzed corpus. In this sense, an analysis of the presence of radio mentions would be recommendable, that is, of advertising when embedded within the programs and live read by radio personalities. Moreover, this analysis could be put into relation with the time slot and the radio station's audience profile.

On the other hand, concerning the health-related product information of DS radio spots, the analysis has also highlighted the fact that many health claims are in breach of current legislation. A further study could focus on this matter, to assess the level of respect shown for the law and codes of conduct applicable to this type of advertising, in line with previous studies (Avery, Eisenberg & Cantor, 2017; Parker, 2003; Perelló & Muela, 2011; Shaw, Zhang & Metallinos-Katsaras, 2009). Additionally, it would also be relevant to analyze the presence of health claims and structure/function claims as well as compare the existing legislation for health-related claims in the Food and Drug Administration regulatory framework of the USA and Europe.

Finally, it would also be interesting to conduct comparative research of the same object of study in different countries, assess and analyze the results in order to draw conclusions on cultural and sociological variables that influence the presence of endorsers in DS advertising

and the health-related product information of endorsements, such as the types of claims and appeals.

5.2. Limitations

The main limitation of this research has to do with the choice of the radio medium and, in particular, of full-service radio stations, so that future research could widen the scope of study to include other types of stations –for example, music radio stations– with different audiences. This would verify whether the predominance of rational appeals is characteristic of this type of radio stations and due to their programming, and whether the results would be different in other radio formats. It would also be interesting to compare the presence of endorsers in DS advertising with their presence in other types of mass media such as television, press and magazines, and the implementation of the ELM for highly involved consumers when the message has or lacks a visual component.

The present work, on the other hand, has not contemplated the existing peculiarities of the variables type of endorser, type of claim and type of appeal for the different types of dietary supplements. In this regard, it would be interesting for future research to consider the existing correlation between energy boosters, cell regeneration supplements, vitamins, vitamin complexes and other modalities, with special emphasis on slimming products, which deserve in-depth investigation.

Moreover, the present descriptive study has focused on the presence of endorsers in DS radio spots and on the health information content of endorsements, so that it would be interesting to develop a further line of research to analyze the point of view of message recipients. Therefore, at an experimental level, the effects on recipients of DS advertising voiced by different endorsers in various types of media also provides a relevant line of further research.

On the other hand, regarding the analysis of endorsements, this work has focused on the types of claims and appeals in DS radio spots. The following step would be to analyze health-related claims for a similar corpus, which would require an analysis of the legal framework and a more specialized analysis of the object under study –DS radio spots– from the perspective of regulation and self-regulation.

6. Conclusions

The presence of celebrities in DS radio spots is significantly high considering that this type of endorser is hardly used in the medium. It can therefore be concluded that in DS advertising, according to the ELM, endorsers such as celebrities and experts are the peripheral cue preferred by advertisers rather than the central route. However, when other variables are taken into account, the results enable the introduction of important considerations regarding the ELM. Thus, for highly involved consumers of health-related products, the fact that endorsers considered trustworthy and efficient in terms of advertising use a direct explicit discourse and rational appeals, reinforces the idea of the clearly persuasive intentionality of advertisers when using both routes of message processing: the central route and the peripheral route. But the medium's characteristics must also be considered since, in radio and for highly involved consumers, rational appeals have more weight and presence in the sound message due to the absence of visual elements. Therefore, when the physical image or appeal of a celebrity or the reliable experience of a physician cannot be exploited, perhaps voice characteristics –such as gender, vocal pitch or tone– influence the processing of the message information and its persuasive capacity, so that an ELM analysis of these variables would be desirable.

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