

DISSEMINATION OF HYPNOSIS IN ONLINE PRESS WRITTEN IN SPANISH

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Abstract

The patients/clients and the skilled professionals' beliefs and expectations about hypnosis, influence the decision to use this procedure as well as its effects. On the other hand, in the Internet there is plenty of information about hypnosis, which shapes opinions of public and professionals. Therefore, the aim of this study is to analyze the quality of the information disseminated by non-specialized online press. 334 articles (from 2011 to 2012) and 200 articles (from 2018-2019) written in Spanish and published online in non-specialized publications press have been analyzed. Results show that, although a high number of articles demystify hypnosis, many of them disseminate myths as well. The highest percentage of articles that demystify hypnosis is associated with the press topic "Science and Culture". Results indicate that myths are broadly present in the popular culture, and are maintained with the support of their ongoing dissemination in the newspapers online articles. This supports the importance of fostering the dissemination of scientific available evidence about applied and basic research on hypnosis.

KEY WORDS: *hypnosis, myths, beliefs, online press, Internet.*

Resumen

Las creencias y expectativas sobre hipnosis de pacientes/clientes y de profesionales cualificados influyen en la decisión de usar este procedimiento, así como en sus efectos. Por otro lado, en Internet hay mucha información sobre hipnosis, que configura la opinión del público y de los profesionales. Por ello, el objetivo de este estudio es analizar la calidad de la información difundida por la prensa *online* no especializada. Se han analizado 334 (de 2011 a 2012) y 200 artículos (de 2018 a 2019) publicados en español en prensa *online* no especializada. Los resultados muestran que, aunque un elevado número de artículos desmitifica la hipnosis, muchos de ellos difunden mitos al mismo tiempo. El mayor porcentaje de artículos que desmitifican la hipnosis está asociado al tema "Ciencia y Cultura". Los resultados indican que los mitos están

Findings showed are based on the Ana M. Pérez-Pérez's doctoral thesis and first author's master's degree thesis. We have no conflicts of interest to disclose.

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ampliamente presentes en la cultura popular y se mantienen con el apoyo de su continua difusión en los artículos de prensa *online*. Esto reafirma la importancia de fomentar la difusión de evidencia científica disponible sobre la investigación aplicada y básica sobre hipnosis.

PALABRAS CLAVE: *hipnosis, mitos, creencias, prensa online, Internet.*

Introduction

Hypnosis is an object of study with a large body of research that has influenced experimental psychology itself (Kihlstrom, 1992, 2007). However, the debate about its definition and explanatory processes in the scientific field that has been ongoing for more than 100 years should not be forgotten (Lynn et al., 2015; Tortosa et al., 1999). In an attempt to solve the problem of defining hypnosis from an academic point of view, the Association for the Advancement of Experimental and Applied Hypnosis proposed a definition (AAHEA, 2017). AAHEA's definition considers hypnosis as a social construct that evolves along with both research and the cultural and paradigmatic beliefs of each historical moment in which it has been defined.

Along with the debate among experts, in the popular sphere the trends about hypnosis range from an extreme of disbelief and contempt for hypnosis, to another of uncritical and unconditional acceptance of its miraculous effects, sometimes giving it even esoteric qualities. Both extremes distort the image that scientific evidence shows about hypnosis (Lynn et al., 2019) by supporting myths. Appendix shows the myths about hypnosis (Capafons, 1998, 2009; Lynn et al., 2020) that are still present in the views of both the population (Aveni et al., 2016; McAllister et al., 2017; Palsson et al., 2019; Stone et al., 2016) and the definitions proposed by institutions (Cambridge Dictionary, n.d.; Merriam-Webster, n.d.; Oxford Dictionary, n.d.; Real Academia Española, n.d.).

The study of attitudes and beliefs toward hypnosis not only shows how users perceive hypnosis (Stahlberg & Frey, 1990), but also evidences some relevant facts: (a) attitudes and beliefs about hypnosis have a modulatory impact on hypnotic suggestibility (Green, 2012; Green & Lynn, 2011; Spanos et al., 1987); (b) likewise, they are involved in the establishment of *rapport* and the therapeutic relationship (Capafons et al., 2015); (c) they predict therapeutic outcomes, possibly to a greater extent than hypnotic suggestibility (Lynn & Green, 2011; Mendoza et al., 2017; Montgomery et al., 2011; Shimizu, 2014); (d) they may account for possible iatrogenic consequences of hypnosis, such as the creation of false memories or significant memory distortions, as well as potentiate the abandonment of well-established treatments in favor of lay "treatments" not based on scientific evidence (i.e., treatment of cancer, fibromyalgia, immune problems, depression, anxiety, sexual dysfunctions, etc.) (Capafons, 2012; Capafons & Mazzoni, 2005; Lynn et al., 2019). In fact, myths and misconceptions about hypnosis are considered the main obstacle for an effective use of this technique (Meyerson, 2014). Therefore, it is essential to modify the erroneous beliefs about hypnosis and the attitudes derived from them. Research shows that providing scientific

information about hypnosis positively impacts beliefs and generates appropriate attitudinal changes. Likewise, experiencing hypnosis in a context including an adequate explanation about what to expect from hypnosis also causes positive changes by modifying misperceptions about it (Mendoza et al., 2017).

Three main research approaches have been found on beliefs and attitudes toward hypnosis (Molina & Mendoza, 2006): (1) those that aim to assess them using validated scales (Capafons, et al., 2018; Capafons et al., 2015; Green et al., 2012); (2) those that aim to explore their association with other constructs to improve their understanding (Spanos et al., 1987); and (3) those that aim to observe the effects of different types and sources of information on them (McConkey, 1986; McIntosh & Hawney, 1983; Green et al., 2006; Thomson, 2003; Capafons et al., 2005; Capafons et al., 2008).

Although the mass media have been considered as the main disseminators of information, mostly erroneous, about hypnosis (Capafons, 2012; Lynn et al., 2010), no studies have been found that analyze the factors that keep these myths alive nowadays. Specifically, the development of telecommunication technologies and the exponential growth of the Internet in recent years allow access to information in a simple and immediate way to a large part of the world's population (Vázquez, 2003). The mass media in today's society show a growing influence as cultural shapers, acting increasingly as spokespersons, intermediaries, and interpreters of a reality that corresponds to the legitimate forms of a given culture. In fact, a concept that defines our current reality is the "Information and Communication Society". When this term is used, it refers to the fact that information, especially the one transmitted through the mass media, has acquired great importance in society. Thus, society itself would be defined on the basis of such information (Salvat-Martinrey & Serrano-Marín, 2011).

According to the report presented by WeAreSocial and Hootsuite (Kemp, 2019), the number of the Internet users has already reached 57% of the world population (4,388 million people). The media, including the print media, have acknowledged the importance of the Internet, and are also opting for online service to expand their dissemination. The influence that the media possess on all kinds of attitudes and fashions is even greater when they have the technology of the Internet (Angermeyer et al., 2005; Yoo et al., 2016). Likewise, a clear example of the social relevance of hypnosis in the last five years, and especially in the last two years, are the results of the searches carried out by the authors of this paper. It is important to emphasize that, because it is a non-specialized press, it is not subject to the criteria and regulations of scientific research, so the media and their news can alter the reality they aim to transmit and communicate. So much so that journalism professionals are taking action on the matter from different perspectives (Ekström et al., 2020; Van Antwerpen et al., 2022). The lack of filters that supervise that the information transmitted is scientifically supported affects not only to hypnosis, but to any other scientific topic, distorting the knowledge that the reader of this type of press has of the theoretical and empirical bases of the topic. This leads to myths and misconceptions that polarize opinions about hypnosis. Considering all this, we have carried out two studies about the online

press focused on hypnosis. The aim of these studies is to explore to what extent myths and inappropriate beliefs are spread through the Internet.

The aim of the first study (which took place during the years 2011-2012) is to analyze descriptively the news about hypnosis in the general public digital press published on the Internet in Spanish. The second study is a continuation of the first one to find out whether the trends in biases in the information transmitted through this type of press were maintained in 2018-2019.

The following hypotheses are put forward for both studies: (1) there will be a greater number of news articles containing myths about hypnosis than those presenting demystifying content; (2) myths related to special states and magical reactions (myths 4, 5, and 6) will be found to a greater extent than the rest of the myths; (3) articles with demystifying contents will include myths as well, since it will be very difficult for whoever publishes the news to distinguish evidence-based sources of information about hypnosis from unreliable ones.

The main objective of including both studies in an article is to analyze, the prevalence of myths about hypnosis conveyed by the non-specialized digital press during the years 2011-2012 vs. years 2018-2019. To this end, we will proceed to classify the news according to the myths and demystifying content disseminated and compare the second study's prevalence of myths with that obtained in the first study. As this second part of the article is exploratory, we do not establish any hypothesis.

Method

Samples

In the first study, the first sample consists of 334 articles of digital non-specialized press articles about hypnosis. They were retrieved through a weekly alert in the Google search engine between 01/01/2011 and 31/12/2012.

In the second one, the second sample consists of 200 articles of digital non-specialized press articles about hypnosis. They were retrieved through an alert in the Google search engine between 15/11/2018 and 19/01/2019.

Inclusion criteria for both studies were the following: (a) press digital open access articles; (b) articles written in Spanish; and (c) articles containing the word "hypnosis" both in the title and/or in the content. News and articles related to a Spanish musical group called "Hipnosis" were excluded. It was not necessary to establish any other filtering criteria.

We chose Spanish because it is the second native most spoken language in the world after Mandarin Chinese, the second international lingua franca after English, and the third most used language on the Internet (Instituto Cervantes, 2021).

Procedure

For the descriptive study of both samples, consecutive sampling was used to obtain the higher number of news possible. Google search engine was chosen

because in Spain its search usage was 99% and the worldwide usage was 60%, according to the Cervantes Institute (2012). An identifying number was assigned to each article. The information kept consisted of title, dates of the alert and publication, and web site where it was accessible online.

The searching variables were the following: (a) whether the word "hypnosis" is included in the title; (b) whether myths are included in the article; (c) whether there are explicit comments to dispel the myths; (d) source (i.e., name of the media); (e) geographical scope: local, national, and international; (f) country and continent of origin; and (g) topic of the article (i.e., different sections): news, science and culture, leisure, and others. In the second study, unlike the first one, the dispelling comments were also classified according to the myth they corrected, in order to improve the comprehension of demystifying contents. The database is available to other researchers who would like to continue with the study of the information disseminated by non-specialized media.

The myths included were those shown in Appendix. The classification of the news regarding the myths was based on a subjective analysis of the contents of the articles. Therefore, to assess the validity of the assignment to categories, both the judgement of an independent expert with specific training in scientific hypnosis, and the classification previously established in the first and sixth authors' theses were included.

Data analysis

Descriptive qualitative and quantitative analyses were conducted using IBM SPSS Statistics v. 19.0. In order to compare results, the same analyses were carried out in both studies. By forcing the scale, we can obtain a non-metric dimensional analysis using statistical tests for quantitative variables, although the differences are somewhat worse estimated.

To test the interjudge reliability, the intra-class correlation coefficients (ICC) was obtained. The interpretation tables by Fleiss (1986) were used, which are in a balanced position among conservative and liberal criteria (< 0.4 means low agreement, 0.41-0.75 means moderate, and > 0.75 means excellent). The normality and homogeneity assumptions of variances were tested by using the K-S test and Levene's test.

The differences in the presence of the myths in the key variables assessed by the judges were examined by conducting an analysis of variance (ANOVA). Moreover, multivariate analysis of variance (MANOVA) was used to test the differences of groups of the considered factors. After conducting Box's Test for Equivalence of Covariance Matrices, the multivariate profile was validated by using Wilks' Lambda (test of equality of the groups means). The size effect was calculated by using partial eta square (η_p^2) with Cohen's criteria (1977) where 0.2-0.3 was small, 0.5-0.7 was medium, and 0.8 or higher was large effect size.

Finally, in order to obtain a structured set of factors that account for the relationships among the variables related to the myths, a Categorical Principal Components Analysis (CATPCA), was conducted by using the supplementary variables of the myths' presence: topic, continent, category, and word hypnosis in

the title. In the first study, demythologizing comments were used as a supplementary variable as well. In the second study, by contrast, these comments were used as the “myth” variables.

Results

In both studies, all of the intra-class correlation coefficients (ICC) were higher than 0.6, and for the demystifying contents in the second study, higher than 0.7, except for the debunking comments of myths 6 and 7, which were not found in any article. The theses, on which both studies are based, had a more conservative and less risky approach than the independent expert’s opinion. This may account for the differences that led to a low agreement. In the theses, the authors decided on a strict position that minimized interpretation as much as possible, which may have generated more differences due to false negatives than to debatable positives. Bearing this in mind, the assessments showed a good level of congruence between both judges and supported the validity of the myths and dispelling contents’ identification used in this study.

In both samples it was found that the number of articles including any myths exceeds the number of articles without the presence of them in the 2011-2012, 259 (77.5%) vs. 75 (22.5%); and in the 2018-2019, 135 (67.5%) vs. 65 (32.5%), respectively. On the other hand, press articles including debunking content showed a decrease of 7.3% in the 2018-2019 compared to the 2011-2012: 31 (15.5%) vs. 76 (22.8%). It is important to bear in mind that a single press article can include several myths and debunking contents.

First, we describe the frequencies and percentages of the key variables, then we will present the results according to the supplementary variables. Focusing on the myths (Table 1), we can observe an increase in the presence of most myths, except for myths 3 and 7. When using the Wald test to check whether the qualitative differences were supported at the quantitative level, significant differences with a 95% confidence interval were observed with respect to myths 1 ($p = .002$), 2 ($p = .005$), 4 ($p < .001$), and 7 ($p < .001$).

Table 1
Myths’ frequency and percentages in 2011-2012 and 2018-2019 studies

Myth	Study 2011-2012 (N= 334)		Study 2018-2019 (N= 200)	
	<i>n</i>	%	<i>n</i>	%
Myth 1*	99	29.64	86	43
Myth 2*	9	2.69	16	8
Myth 3	10	2.99	4	2
Myth 4**	42	12.57	55	27.5
Myth 5	60	17.96	47	23.5
Myth 6	81	24.25	58	29
Myth 7**	84	25.14	8	4

Note: * $p \leq .005$; ** $p < .001$.

Regarding the demystifying contents classified according to the myth they debunked in the 2018-2019, the most frequently found refers to myth 1, present in 14% of the sample of articles, followed by the rest which are only found in between 2% and 4% of the sample.

Out of the articles that dispelled some myths, it was found a subgroup that contained myths as well (Table 2), the proportion of which is larger in the 2018-2019 sample. Some of them only included one myth, whereas others mentioned several of them. Statistically significant differences were only observed with respect to myth 4 ($p = .023$) and the presence/absence of any myth in the entire press article ($p < .001$). Myth 2 was not present in any of them, although causality cannot be established.

Table 2
Myths' frequency and percentages in press articles with demythologizing statements

Myth	Study 2011-2012 (N= 76)		Study 2018-2019 (N= 31)	
	<i>n</i>	%	<i>n</i>	%
Myth 1	2	2.63	3	9.68
Myth 2	0	0	0	0
Myth 3	2	2.63	0	0
Myth 4*	4	5.26	6	19.35
Myth 5	2	2.63	2	6.45
Myth 6	6	7.89	5	16.13
Myth 7	11	14.47	1	3.23
Any myth**	14	18.42	13	41.94

Note: * $p < .05$; ** $p < .001$.

In the articles debunking the myths, there were significant differences in the profile of the myths (Wilks' $\lambda = .544$; $F[8,325] = 34.117$; $p < .001$) with a medium size effect $\eta_p^2 = .456$. Univariate analysis showed significant differences in the articles that did not contain myths, and in myths 1, 4, 5, 6, and 7. The size effect was small in all cases.

According to the same data trend, the 2018-2019 showed significant differences in the profile of the myths (Wilks' $\lambda = .807$, $F[9,190] = 5.037$, $p < .001$) with a small size effect $\eta_p^2 = .193$.

Univariate analysis showed significant differences in the articles in which the word "hypnosis" was included in the title, that did not contain myths, and in myths 1, and 5. Their size effect was small as well. In both samples, the presence of demystifying content was related to a lower frequency of myths, and also to the presence of the word "hypnosis" in the title, in the second one.

Regarding the variable of the presence of the word "hypnosis" in the title, significant differences were found at both multivariate analyses: in 2011-2012, Wilks' $\lambda = .886$, $F[8,325] = 5.229$, $p < .001$, $\eta_p^2 = .114$; and in 2018-2019, Wilks' $\lambda = .840$, $F[9,190] = 4.015$, $p < .001$, $\eta_p^2 = .160$. However, the size effects of their corresponding univariate analyses were not significant.

The same was found regarding geographical scope. Significant differences were obtained in both samples: Wilks' $\lambda = .902$, $F[20,644] = 1.712$, $p < .027$, $\eta_p^2 =$

.050; and Wilks' $\lambda = .810$, $F[20,376] = 2.093$, $p < .004$, $\eta_p^2 = .100$. However, the size effects were not significant, they were even smaller than those of the previous variable.

As for the geographic analysis of the press distribution through the samples, there is a similar distribution and proportions between articles from Europe (mostly from Spain) and those from Latin America (mostly represented by Mexico, Argentina, and Chile), although articles from China and Israel only appeared in the 2011-2012.

In the 2011-2012, there were differences with a non-significant size effect in the multivariate profile when comparing continents (Wilks' $\lambda = .832$; $F[30,942] = 2.035$; $p < .001$, $\eta_p^2 = .060$). In the 2018-2019, no significant differences were found in multivariate analyses Wilks' $\lambda = .863$; $F[20,376] = 1.439$; $p = .100$.

In the variable topic (news, science and culture, leisure/entertainment, and others), qualitative analyses of both samples indicated that demythologizing is clearly associated to the science and culture topic. On the other hand, myth 1 was present in a high percentage associated to entertainment (with percentages approximately twice as high as in the rest of topics), as well as myths 4 and 6, although these ones in a lower percentage.

In the 2011-2012, a high percentage of the articles with no myths and with myth 7 were associated to the news topic, and myth 5 to the leisure topic. In contrast, in the 2018-2019, the absence of myths was associated to the science and culture topic, myth 7 had a higher prevalence in the leisure topic, and myth 5 was associated to news topic.

In the quantitative analyses, the variable topic showed significant differences in the profile of the myths in both samples. In the 2011-2012: Wilks' $\lambda = .757$; $F[21,930] = 4.517$; $p < .001$; $\eta_p^2 = .089$), and in the 2018-2019: Wilks' $\lambda = .628$; $F[30,549.558] = 3.146$; $p < .001$; $\eta_p^2 = .144$.

In the 2011-2012, there were significant differences in myth 1 ($F = 17.299$; $p < .001$; $\eta_p^2 = .136$), myth 3 ($F = 2.667$; $p = .048$; $\eta_p^2 = .024$), myth 5 ($F = 6.011$; $p = .001$; $\eta_p^2 = .052$), and myth 6 ($F = 3.388$; $p = .018$; $\eta_p^2 = .030$), with myth 3, showing a p-value in the limit of statistical significance.

In the 2018-2019, there were significant differences in myth 1 ($F = 7.389$; $p < .001$; $\eta_p^2 = .102$) and myth 6 ($F = 4.162$; $p = .007$; $\eta_p^2 = .060$), the lack of myths ($F = 2.784$; $p = .042$; $\eta_p^2 = .041$), and the demythologizing contents ($F = 12.226$; $p < .001$; $\eta_p^2 = .158$).

Paired comparisons (Table 3) confirmed the trend found in the percentages of myths and demystifying content as a function of the variable topic, associating the presence of myths to a greater extent to leisure, and associating the presence of demystifying content to science and culture.

Table 3
Significative differences between topic and myths

Topic	Study	Leisure	News	Science and Culture	Others
Myth 1	2011-2012	+	-	-	-
	2018-2019	+	-	-	-
Myth 2	2011-2012				
	2018-2019				
Myth 3	2011-2012	-		-	+
	2018-2019				
Myth 4	2011-2012				
	2018-2019				
Myth 5	2011-2012	+	-	-	
	2018-2019				
Myth 6	2011-2012	+	+	-	
	2018-2019	+			-
Myth 7	2011-2012				
	2018-2019				
No myths ^a	2011-2012				
	2018-2019	-		+	
Any demythologizing content ^b	2011-2012				
	2018-2019	-	+	+	

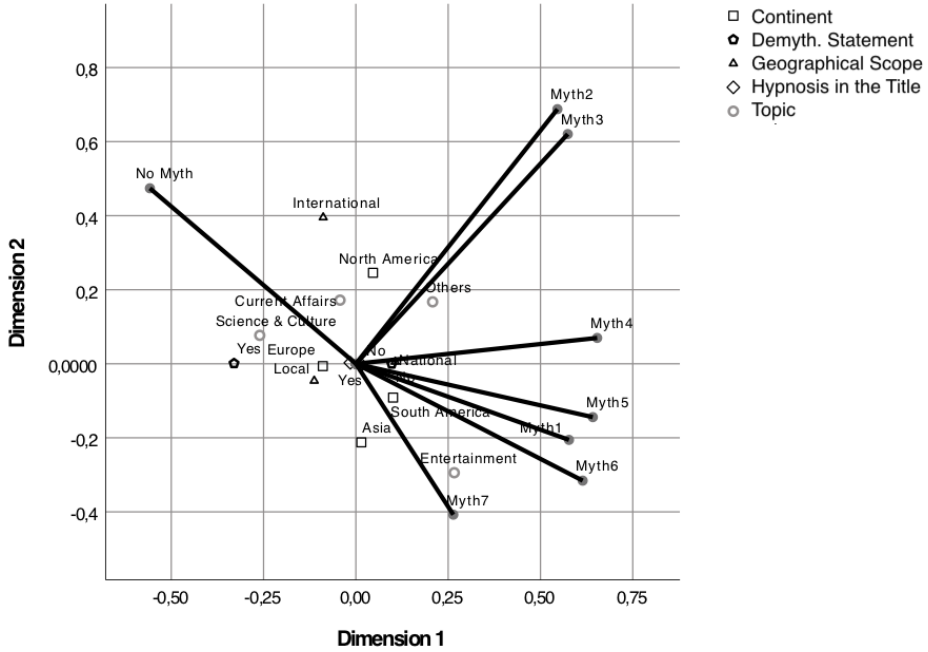
Notas: + positive relationship between myth and topic; -negative relationship in comparison. ^{a,b}They were also calculated in 2018-2019 as an improvement.

Specific analyses in study 1

Finally, the CATPCA model produced a two-dimension solution (Figure 1), since in the scree-test of the eight dimensions eigenvalues, the breaking point appeared clearly in the second dimension. The first two factors accounted for 49.68% of the variance, the first accounted for 31.98% and the second accounted for 17.70% of the variance. The first factor is defined as the contrast between the absence of myths and the presence of all of them. The second dimension is characterized essentially by the presence of myths 2 and 3 in the articles, and to a lesser extent by myth 4, as opposed to the presence of the rest of the myths, probably due to a difference between the presence of myths 2 and 3 respect to the others.

Regarding the main geographical variables of the articles, the international articles were mostly linked to myths 2 and 3, whereas the local and national articles were linked to the other myths. Likewise, considering the variable topic, Science and Culture was the one with fewer myths in the articles, whereas the topics Leisure/Entertainment and Others showed more myths. The category Others was associated mostly with myths 2 and 3, whereas the topic Entertainment was associated with the other myths (1, 5, 6, and 7). Lastly, the demythologizing contents were associated with the absence of myths.

Figure 1
Component loadings and centroids of supplementary variables (CATPCA) in 2011-2012 sample

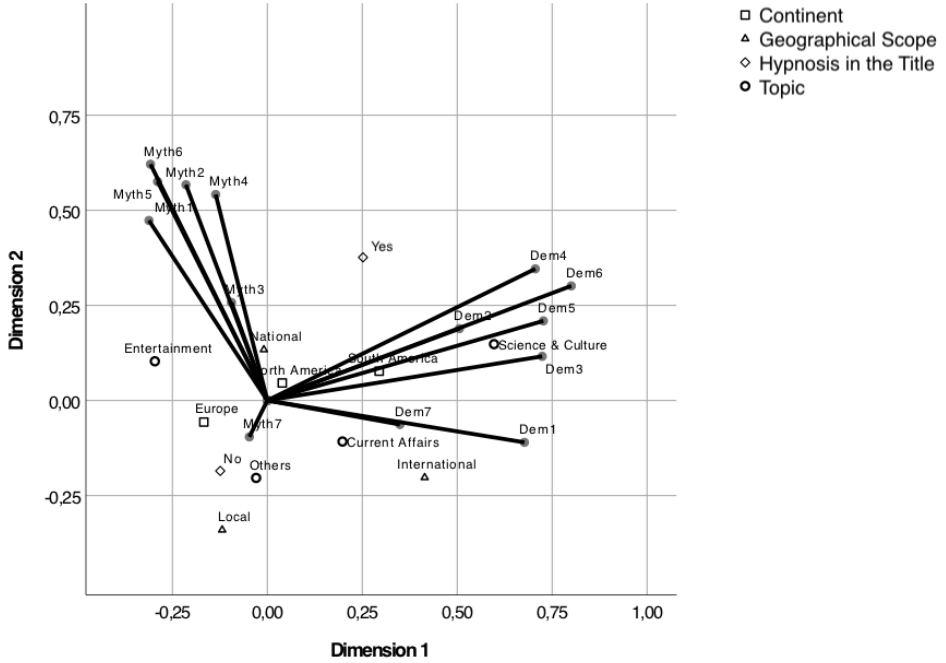


Specific analyses in study 2

In the 2018-2019, a two-dimension structure was obtained as well. The two factors accounted for 38.06% of the variance, the first accounted for 24.13% and the second accounted for 13.93% of the variance. The first dimension is defined as the contrast between the presence and absence of demythologizing contents in the press, especially the ones that demystify myths 6, 5, 4, and 3. The second factor is characterized by the contrast between the presence and absence of myths, mainly of 6, 5, and 4 (Figure 2).

Regarding the geographic scope, the international articles were more linked to the presence of demythologizing statements than the national and local ones. On another note, the presence of the word hypnosis in the title, seemed to be located close to both, myths and demystifying content, compared to the absence of hypnosis in the title. Lastly, unlike the 2011-2012 sample’s CATPCA, Science and Culture and Leisure/Entertainment topics were at the same distance with respect to the presence of myths, but Science and Culture topic were associated to demythologizing contents as opposed to Leisure/Entertainment.

Figure 2
Component loadings and centroids of supplementary variables (CATPCA) in 2018-2019 sample



Discussion

As mentioned before, considering psychological and social factors to improve positive or negative expectancies, as well as the beliefs about hypnosis, have important implications for the practice, especially clinical and forensic.

In these observational studies, we examined the information conveyed by the Internet non-specialized press media that affects their readers’ beliefs and attitudes toward hypnosis. First, the hypotheses of these observational research were confirmed, and the trends were maintained between the years 2011 and 2019. In both samples the number of articles with myths was higher than 65% of the total, in contrast to the number of articles with demystifying content, that was less than 25%.

Given that the number of articles including both myths and demystifying content, was slightly lower in the years 2018-2019, and that the percentage of most myths considered individually increased (Table 1), we can infer that a lower number of press articles contain a higher number of myths in the second sample.

Likewise, it has been found a greater presence of myths related to special states and magic (i.e., presenting hypnosis as a show and causing exceptional reactions, as a similar “state” to sleep, and as a tool to control people). It can be concluded that the goal is not to cause rejection, but rather to attract the reader’s

attention, either to the advertisements, to shows, or to the use of hypnosis as a fast and easy solution to all their problems.

On the other hand, the percentage of articles presenting both demythologizing contents and myths has been duplicated in the second sample (Table 2). We consider that these are the articles with more iatrogenic effects, since they disseminate false or incomplete information along with empirically based information, which makes more credible the former. Similarly, although no pattern was found in the eigenvalues with a clear cut-off, the loadings of myths and demythologizing content seemed to be orthogonal in the CATPCA model of the 2018-2019 sample, suggesting a basic independence of both types of variables.

Further interesting results in our studies show that: (1) the presence of myths is associated to a greater extent to the Leisure topic, and the presence of demystifying contents is associated to the Science and Culture topic; and (2), in the CATPCA model of the 2018-2019 sample, the presence of the word hypnosis in the title seems related to both more myths and more demythologizing contents.

Considering the progressive increase of online information about hypnosis (and about anything else), these latest results seem to indicate that journalism professionals, when using multiple sources of information to understand and convey information as rigorously as possible, have difficulties in separating reliable sources of information from those that are not, or in identifying evidence-based information from information related to myths. Therefore, we propose a joint effort between journalism professionals and scientists specialized in their respective fields of study, to efficiently improve the contents of the news and protect people from misinformation.

The contribution of this paper has to be examined from a global context, framed by the press credibility. A report by the Oxford University and published by the Reuters Institute for the Study of Journalism (2015) concluded that Spanish communication media are considered the ones with the lowest level of credibility in comparison with the other 12 countries included in that study, being 8 of them European. Moreover, this study pointed out that 85% Spaniards show high level of interest for the news, which is one of the highest levels in comparison with other similar populations. Thus, Spaniards do not consider the information conveyed by the press as reliable, but they are interested in following the news. This fact might seem contrary to our reasoning. However, it does not question the long-term impact that the information conveyed by the press may have in generating beliefs and attitudes in the society. Moreover, this effect may be even higher when the information is accessed via the Internet.

Even though our sampling method prevents us from confirming to have accessed to all the published articles on the Internet about hypnosis, we chose this method because it is the closest one to how general population search and find news. Moreover, the sample has to be updated because it was collected between 2011-2012 and 2018-2019. Nevertheless, as our results show, no main differences are expected in a hypothetical new sample.

In 1922, Lippmann pointed out the information media's power to define the world of those who use them, and this idea has not currently changed. The

assimilation of wrong information about a therapeutic technique makes a great impact on the readers, because positive, adequate attitudes based on verified information decrease unreal expectancies and increase fears associated to the use of hypnosis in clinical practice (Capafons et al., 2015; Capafons et al., 2018).

In this study, the information examined is aimed for general public, but many professionals of Psychology and Medicine consider these myths about hypnosis as true, which leads them to avoid training in hypnosis or using this technique in their practice. It is essential to consider the attitudes held by professionals trained to apply treatments, specifically psychological therapy, since they will be involved in the criteria used to decide what psychological treatment will be applied (Haynes et al., 2011).

In short, as said, our results denote that the picture regarding hypnosis in non-specialized online press has not improved since the years 2011-2012. Misinformation about hypnosis may lead to disregard the use of this technique in those cases that it would be beneficial, and even to the abandonment of appropriate professional treatments due to a misguided desire to receive unprofessional hypnotherapy. This paper emphasizes the importance of disseminating information through the mass media that promotes beliefs and attitudes toward hypnosis in line with the available scientific evidence. Therefore, these studies are a further step in raising awareness of the importance of: (1) teaching the population to distinguish therapeutic from pseudo-therapeutic hypnosis and science from pseudo-science based techniques; and (2) helping regulate the use of hypnosis to avoid the iatrogenic effects associated with malpractice and/or professional intrusion.

This study opens new research lines about other important aspects of how the information is conveyed and how it affects our expectancies and beliefs about hypnosis, which are beyond this study's scope. It is important to conduct future studies like this in other languages, such as English, as well as other studies that extend to other forms of online mass communication, since the importance of the Internet is growing, especially after the COVID-19 pandemic.

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Appendix

Hypnosis myths

Myth	Lynn et al. (2020) related myths
Hypnosis does not belong to the field of scientific psychology. Its practitioners are often charlatans, quacks or showmen's. People who improve thanks to it are credulous, ignorant and "dependents".	- Responsiveness to suggestions reflects nothing more than compliance or faking.
Hypnosis can leave the person "engaged" in a trance, so that, unable to "get out of the hypnotic state", its volition will be diminished or the person will become crazy.	- People slip into a hypnotic trance. - The perception of involuntariness during hypnosis is the product of a trance.
Hypnosis can explicit or aggravate "dormant" psychopathologies of the person. It can develop alterations in healthy individuals. Individuals with psychopathological problems can worsen with hypnosis.	- None.
Hypnosis causes similar "state" to the sleep in which the person shows special characteristics. If such characteristics are not achieved, the person is not hypnotized. Someone can only be in that special situation if it receives hypnotically induction method.	- Hypnotic methods require great skill to administer, and responsiveness to hypnosis is greatly determined by the skills of the hypnotist. - Some hypnotic inductions are much more effective than others. - Hypnosis greatly reduces or eliminates peripheral awareness. - The effects of hypnosis are attributable to relaxation. - Hypnosis produces a sleep-like state. - There are reliable markers of a hypnotic state.
Hypnosis takes out and cancels the voluntary control of the person. It becomes a robot in the hands of the hypnotist, so it can commit criminal, antisocial or immoral acts that lead it to being socially ridiculous.	- People cannot resist or oppose hypnotic suggestions.
Hypnosis causes unusual, exceptional and quasi-magical reactions in people. What is remembered under hypnosis is always true.	- Hypnosis is a reliable method to improve recent memories. - Hypnotic age regression can retrieve accurate memories from the distant past.
Hypnosis is a therapy (hypnotherapy), extremely useful, rapid and efficient which does not require any effort from the patient to change its behaviors. However, only the very susceptible persons may benefit from it.	- Hypnosis is a panacea in treatment vs. hypnosis is not helpful. - Hypnosis is typically a stand-alone treatment. - People are either hypnotizable or they are not. - A "Hypnotic Trait " is robustly associated with hypnotic suggestibility

Myth	Lynn et al. (2020) related myths
	- Hypnotic suggestibility cannot be modified.

Note: Adapted from Capafons (1998, 2009) and Lynn et al. (2020). Lynn et al. (2020) myths related to nonhypnotic suggestions, focused attention or mindfulness have been omitted.