Smoking prevention with narrative messages. An experimental study on the joint effect of audience-character similarity and narrative voice

Prevención del tabaquismo con mensajes narrativos. Estudio experimental sobre el efecto conjunto de la similitud con el protagonista y la voz narrativa

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Abstract

This study focuses on smoking prevention using narrative messages. In particular, the role of two narrative attributes that can indirectly influence the intention to quit smoking, self-efficacy expectations and the perceived effectiveness of the preventive response were analysed. An experimental study was carried out (N = 680, 50% women and age range 18-55 years) with a 2 (narrative voice: first- vs. third-person message) x 2 (audience-protagonist similarity: low vs. high) between-subjects factorial design. Results showed that the optimal reception condition (first-person narrative with a highly similar protagonist to the audience) induced the highest levels of identification with the protagonist (a former smoker who described the process of quitting smoking and subsequent the improvements he has experienced). Mediational analyses showed that the optimal reception condition exerted significant indirect effects on the dependent variables, due to the increase in identification and reactance reduction. In addition, the optimal reception condition also exerted a significant indirect effect on the perceived effectiveness of the preventive response that was explained by stronger identification and weaker counterarguing. The present study opens an innovative line of research on the construction of narrative messages for smoking prevention. The relevance of the characteristics of these messages is highlighted in order to activate mediating processes that facilitate persuasion.

Keywords: Health communication; Smoking prevention; Narrative persuasion; Character-audience similarity; Narrative voice.

Resumen

El presente trabajo se centra en la prevención del tabaquismo utilizando mensajes narrativos. En particular, se analiza el papel de dos características de los mensajes narrativos que pueden influir, de manera indirecta, en la intención de dejar de fumar, las expectativas de auto-eficacia y la percepción de la eficacia de la respuesta preventiva. Para ello, se llevó a cabo una investigación experimental (N = 680, 50% mujeres y rango de edad 18-55 años) con un diseño factorial 2 (voz narrativa: mensaje en primera vs. tercera persona) x 2 (similitud con el protagonista: baja vs. alta). Los resultados mostraron que la condición óptima de recepción (narración en primera persona protagonizada por un personaje similar a la audiencia) indujo niveles más elevados de identificación con el protagonista (un exfumador describía el proceso de abandono del tabaco y las mejoras que ha experimentado desde entonces). Los análisis mediacionales mostraron que la condición óptima de recepción ejercía efectos indirectos significativos sobre las variables dependientes que se debían al aumento de la identificación y la reducción de la reactancia. Además, la condición óptima de recepción también ejerció un efecto indirecto significativo sobre la eficacia percibida de la respuesta preventiva que se explicaba por el incremento de la identificación y la reducción de la contra-argumentación. El presente trabajo abre una línea de estudio sobre la construcción de mensajes narrativos para la prevención del tabaquismo. Se pone de manifiesto la relevancia de las características que dichos mensajes deben tener para que se activen procesos mediadores que faciliten la persuasión.

Palabras clave: Comunicación en salud; Prevención del tabaquismo; Persuasión narrativa; Similitud con el protagonista; Voz narrativa.

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Smoking has been linked to multiple health problems, such as respiratory and cardiovascular diseases and various forms of cancer (American Cancer Society, 2018; World Health Organization, 2017). At the same time, smoking is also the biggest preventable cause of premature death. Therefore, improving the effectiveness of campaigns for smokers to quit is an important goal in public health management and communication for health. The present work focuses on the prevention of smoking using narrative messages, namely, personal stories featuring former smokers who serve as a model to trigger changes in attitudes and behaviors among active smokers (Dunlop, Wakefield & Kashima, 2010; Kim, 2019).

Narrative messages on smoking prevention

To delimit the focus of our study, we must first of all define what a narrative is. Many definitions are available, but they all have one thing in common: that they have a narrative message which includes at least one character who experiences or faces (at least) one specific event in a specific time-space frame (Green, 2006; Kreuter, Green, Cappella, Slater, Wise, Storey, Clark, O'Keefe, DeErwin, Holmes, Hinyard, Houston & Woolley, 2007; McDonald, 2014). A character is a human agent whose actions are driven by certain intentions or motives and who seeks to reach a goal. The event faced by the character is a transition between two states which are connected temporarily and causally, although most of the narratives are composed of multiple causally connected events. Although events can be narrated in a non-chronological order, the underlying structure is a cause-effect relationship (or action-reaction) which connects narrative events and characters in a structure that takes the form of a story or tale. These elements (characters, events, space and time) convert the narratives into concrete and specific messages, i.e., "stories of individual cases", in which events occur where one or several people are involved in a certain environment. Focusing on specific cases contrasts, for example, with scientific explanations, which give more abstract and general information based on multiple cases. Non-narrative messages therefore provide more general or abstract facts, which are presented as information ("each cigarette you smoke increases your risk of lung cancer") or statistics (providing figures on the prevalence of a phenomenon, "8 out of 10 people with lung cancer die in the next three years"), compared to the experiential style of the narrative ("chemotherapy to treat lung cancer messes up my whole body, it's as if I were alive but dead inside").

In the context of our project, we will define the narrative messages for smoking prevention as short personal stories featuring a former smoker and offering details of his or her experience with cigarettes. A smoking prevention narrative refers to the personal history of a former smoker, which aims to serve as a model to bring about changes in attitudes, beliefs and behaviors in active smokers (for example, the *Tips from Former Smokers* campaign, developed in the United States by the Centers for Disease Control and Prevention, CDC). Thus, they refer to two different *states*, life as a smoker and life after quitting tobacco, and both are connected to each other in a *causal and temporal sequence*. In addition, the narrative may refer to aspects such as the reasons leading the character to stop smoking (*intentions and goals of the character*), the degree of prior addiction to cigarettes (how many was smoked), the number of times he or she tried to stop smoking, the strategies used to stop smoking, the benefits of quitting smoking and/or the disappearance of negative effects caused by tobacco after quitting. The aim of a smoking prevention narrative is to trigger in the target audience the desire to stop smoking, to reinforce expectations of self-efficacy and convince the listener of the effectiveness of the promoted preventive response (i.e., quit smoking).

Messages constructed as narratives are increasingly used in health communication to achieve public health objectives, such as the prevention and detection of diseases (Frank, Murphy, Chatterjee, Moran & Baezconde-Garbanati, 2015; Green, 2006; Jensen, Yale, Krakow, John & King, 2017; Thompson & Kreuter, 2014). Narrative health messages have been shown to be capable of bringing about changes in coherent beliefs and attitudes, as well as stimulating healthy behaviors (De Graaf, Sanders & Hoeken, 2016). In the case of smoking prevention, studies have proliferated in recent years which demonstrate the effectiveness of narrative formats (De Graaf, van den Putte, Nguyen, Zebregs, Lammers & Neijens, 2017; Dunlop et al., 2010; Kim, 2019; Kim, Bigman, Leader, Lerman & Cappella, 2012; Kim & Lee, 2017; Kim, Shi & Cappella, 2016; Williams, Green, Kohler, Allison, & Houston, 2011).

Meta-analyses show that narrative interventions produce significant effects on the dependent variables considered (in beliefs, $r = .17$; attitudes, $r = .19$; behavioral intention, $r = .17$; and behaviors, $r = .23$; Braddock & Dillard, 2016), but also that there is significant variation in these effects (Shen, Sheer & Li, 2015; Zebregs, Van den Putte, Neijens, & De Graaf, 2015). The findings suggest that although narrative messages can serve as a promising health communication tool, not all narratives are effective. Finding out which ingredients of the narratives are most effective from a persuasive point of view therefore becomes an important question and constitutes one of the main objectives of this study.

Explanatory processes of narrative persuasion

A second aim of the present study is to understand and explain the processes or mechanisms responsible for the persuasive impact of tobacco prevention narratives. The main theoretical models of narrative persuasion are the

Transportation-Imagery Model of Green and Brock (2002), the *Extended Elaboration Likelihood Model* (E-ELM) of Slater and Rouner (2002) and the *Entertainment Overcoming Resistance Model (*EORM) of Moyer-Gusé (2008). In this context, the main processes studied are identification with the protagonist, narrative engagement or transportation, counterarguing and reactance.

Identification is an imaginative process which involves the gradual loss self-awareness and the assumption of the affective and cognitive point of view of the protagonist of a narration (Cohen, 2001; Igartua, 2010, 2017). Narrative transportation is a psychological process which involves a state of attachment or immersion with the story or tale that is being narrated (Busselle & Bilandzic, 2009; Green & Brock, 2000). Counterarguing is the process of making critical evaluations during exposure to the message (which means thinking negatively about the persuasive or preventive proposal). It has been formally defined as "the generation of thoughts (or cognitive responses) that explicitly refute a message's intended persuasive theme" (Niederdeppe, Kim, Lundell, Fazili, & Frazier, 2012, p. 758). Reactance is a second process linked to resistance against the attempted persuasion triggered when the individual considers that their freedom of choice is being threatened.

A two-way classification of mediating processes thus suggests itself: a) those that are directly related to the impact of the message's features, i.e., identification with the characters and narrative transportation; and, b) those that explain how those involved with the narratives and their protagonists are persuaded, thanks to counterarguing and reactance. At the start of the causal chain, identification and narrative transportation are the most relevant processes, the primary mediators, because they initiate the process which will facilitate the persuasive impact, through reducing the generation of counter-arguments and reactance. In this way, counterarguing and reactance are considered *secondary mediating mechanisms* (Banerjee & Greene, 2012; Shen, Seung, Andersen & McNeal, 2017).

The EORM model by Moyer-Gusé (2008) argues that identification and narrative transportation reduce counterarguing and also reactance: people who get engaged by a narrative message *get carried away* by the story that is told (and experience enjoyment and entertainment), thus weakening any positioning or critical attitude towards the message (since these would be processes incompatible with enjoyment or entertainment). However, the empirical evidence in this regard is inconclusive. For example, Moyer-Gusé and Nabi (2010) found that transportation was associated with greater counterarguing while, in contrast, identification actually did reduce the process of resistance to the message.

In any case, given that narrative transportation and identification with the characters are relevant processes in triggering attitudinal changes when narrative messages are received, research is currently focused on understanding how to enhance these processes, that is, which variables related to the characteristics of the characters or the presentation of the narrative have an effect on these processes and, indirectly, on the attitudinal variables (De Graaf et al., 2016). The present study focuses specifically on the analysis of two factors which can increase identification and narrative transportation: the similarity between the protagonist and the target audience and the narrative voice or perspective from which the story is told.

Similarity to the protagonist

The similarity to the protagonist occurs when the person who is exposed to a narrative message shares certain features with the protagonist. This similarity can be based on objective features (in demographic aspects, such as gender or age), but also on psychological or subjective characteristics (such as personality, beliefs, opinions, values or biographical experiences). It is assumed that "if there is a considerable social distance between the audience and the protagonist of the narrative (...), persuasion is less likely to happen" (Walter, Murphy & Gillig, 2018, p. 32). However, empirical evidence on the effect of similarity yields inconsistent results. In the review of Tukachinsky (2014), it is observed that the manipulation of similarity (in objective terms) enhanced narrative transportation and the perception of similarity, but not identification.

It should nevertheless be borne in mind that similarity is a complex construct with several dimensions, and that it has not always been experimentally manipulated in the same way, which could explain the inconsistent results. Thus, Tukachinsky's review (2014) only considered studies where similarity had been manipulated in terms of demographic traits such as sex, age or ethnic origin. In the present study, a new dimension of similarity relevant to the prevention of smoking is introduced: the behavioral similarity depending on the degree of nicotine dependence. The manipulation of behavioral similarity is an innovation with respect to previous studies, in which the similarity in socio-demographic variables has been manipulated (Chen, Bell & Taylor, 2016, 2017; Cohen, Weimann-Saks & Mazor-Tregerman, 2018; Kim, 2019). In order to manipulate similarity, information about the degree of addiction was taken into account both by the protagonist of the narrative and by the participants. The literature on addiction to tobacco has found that among the factors for successful quitting, the severity of dependence (number of cigarettes per day, score in the Fagerstrom test) plays a role (Moreno & García, 2000).

It is also possible, however, that similarity influences identification only under certain reception conditions (Kaufman & Libby, 2012), so it is necessary to continue extending this line of research and further exploring the

specific conditions in which the similarity effect can be enhanced. One of these ways, as proposed here, is through the narrative voice.

Narrative voice

The narrative voice or point of view refers to the perspective adopted by the narrator and from which the story is told: first, second or third person (Chen et al., 2017, Nan, Futerfas and Ma, 2017). First-person narratives are those which focus on the feelings and thoughts of the protagonist of the narrative and do so by assuming the first person, thus necessitating the use of first-person pronouns "I", "me" or "my". In such narratives, the narrator is part of the story and sets out his or her view on a topic or experience directly ("I felt bad for continuing to smoke", "I always thought I would never be able to stop smoking"). In third-person narratives, there is a narrator who is not the protagonist of the story and who describes the experience of the character but from an external point of view or by adopting the viewer's perspective. In this way, the character is alluded to by his or her name or by the third-person pronouns "he" or "she" ("Javier felt bad for continuing to smoke", "Javier always thought he would never be able to stop smoking"). Finally, the second-person narrative identifies the target reader as the protagonist ("you felt bad for continuing to smoke", "you always thought you would never be able to stop smoking"). The second-person perspective is useful for developing materials such as guidelines, instruction manuals or self-help books, but it is rarely used in health campaigns in the form of narratives (Christy, 2018).

The first person helps the audience of the message to take the perspective of the narrator, and this taking of perspective constitutes a key element of the identification with the characters. In addition, neuropsychological research has shown that first-person narratives (versus third-person) are processed differently at the neurological level (Van Krieken, Hoeken & Sanders, 2017).

Chen et al. (2016) indicate that research in narrative persuasion has not devoted enough time to analyzing the effect of the narrative voice, despite being a very relevant formal resource for the design of narrative messages to prevent smoking (for example, the *Tips from Former Smokers* campaign). Thus, in the review by De Graaf et al. (2016) of a total of 153 experimental studies on narrative persuasion related to health, only four studies are identified which manipulated this feature, and only one of them focused on smoking prevention. This review showed that first-person narratives have a greater potential for triggering persuasive effects, although the evidence was not consistent and the number of studies considered was low. What has been observed in previous studies is that the messages in the first person (in contrast with those in the third person) are perceived as more personal; they are easier to understand, increase the identification with and taking the perspective of the protagonist, and are more effective in inducing the perception of risk (Chen et al., 2017; De Graaf, Hoeken, Sanders & Beentjes, 2012; Kaufman & Libby, 2012; Nan, Dahlstrom, Richards & Rangarajan, 2015).

However, studies which combined the narrative voice and another independent variable in the same experiment have not produced such clear results. For example, in the study by Nan et al. (2017) the superiority of first-person messages over third-party messages only manifested itself when the story was presented in writing rather than as an audio message. Similarly, Kaufman and Libby (2012), studying identification, observed an interaction effect between narrative voice (story in first or third person) and similarity with the protagonist (belonging to the same university as the participants or not), where the reading of a story told in the first person by a character belonging to the same group as the audience significantly increased identification.

Objectives and hypotheses

Our project aims to deepen the "joint effect" of similarity and narrative voice by establishing, as an original contribution or innovation in the research on narrative persuasion applied to smoking prevention, the concept of *optimal reception condition*, which involves presenting a narrative in first person featuring a character similar to the audience. Given the scarcity of research focusing on these variables in the study of smoking prevention, and the existence of contradictory results on the "main" effects of similarity and narrative voice, we believe it is important to study how both factors can be combined to induce strong identification and narrative transportation, and an indirect effect (through these processes and as well as through counterarguing and reactance) on the persuasive impact of narratives of smoking prevention.

It is expected that if the smoking prevention message is presented in the first person and comes from a person similar to the audience (depending on the degree of nicotine dependence) it will trigger greater identification with the protagonist and greater narrative transportation, and for this reason it is also more likely not to be perceived as a threat (does not generate reactance or counterarguing), which will have an indirect effect on behavioral intention, expectations of self-efficacy and effectiveness of the preventive response. Thus, it is hypothesized (H1) that the combination of a first-person narrative featuring a character similar to the audience will generate the highest levels of identification with the protagonist of the message (H1a) and narrative transportation (H1b). Secondly (H2), it is hypothesized that the optimal reception condition will have an indirect effect on the intention to stop smoking, the expectations of self-efficacy, and the perception of the effectiveness of the preventive

response, which will be (serially) mediated by the identification with the characters (H2a) and narrative transportation (H2b) (primary mediators) and counterarguing and reactance (secondary mediators).

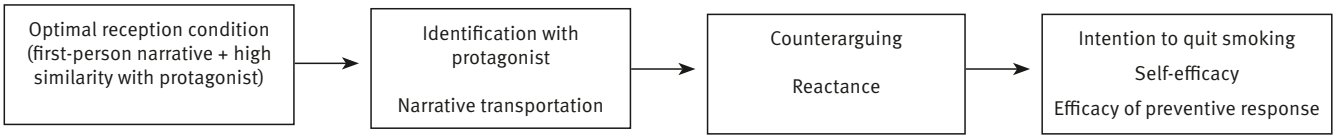


Figure 1. Proposed mediational model

Methods

To test our predictions, an online experiment was conducted with Qualtrics, accessing a representative sample of 680 adult smokers living in Spain, of both sexes, and aged between 18 and 55. To determine sample size, a preliminary analysis was carried out with the G*Power program (Faul, Erdfelder, Lang & Buchner, 2007). All participants were shown a narrative message featuring an adult former smoker (a 35-year-old man) who recounted his experiences during the process of quitting smoking, emphasizing the positive consequences of quitting. In the narrative message, the narrative voice (first- versus third-person narration) and the protagonist's level of addiction (high versus low) were experimentally manipulated. All materials related to the study have been deposited in the *Open Science Framework* repository (https://osf.io/y3c8f/).

Participants

The study included a sample of 680 adult smokers aged 18 to 55 (M = 35.68, SD = 10.85), selected among the panelists available in Spain through the company Qualtrics (an online *opt-in* survey provider), setting quotas for sex (50% of each sex) and age (20% aged 18-22 years, 30% aged 23-35 and 50% aged 36-55). The field work was carried out between October 2 and 14, 2018. To select the participants in the first part of the online questionnaire, three screener questions were included: "In relation to smoking, how would you define yourself?" (I have never smoked, I have smoked occasionally, I am a habitual smoker), "Throughout your life, have you smoked more than 100 cigarettes?" (no/yes) and "In the last week ..." (I have not smoked, I have smoked less than 5 cigarettes a day, I have smoked 5 or more cigarettes every day). Only those who declared themselves to be habitual smokers, who indicated that they had smoked more than 100 cigarettes during their lifetime and 5 or more cigarettes every day during the last week were taken into account. On the first screen of the online questionnaire, each participant was required to provide informed consent.

Design and procedure

A 2 x 2 between-subjects factorial design was used. Two independent variables were manipulated: the narrative voice (first- versus third person) and the level of nicotine addiction of the narrative's protagonist (low versus high). The was carried out by Qualtrics, which allowed us to work with a totally randomized design in terms of the distribution of participants for the different versions. In this way, 170 participants were randomly assigned to each experimental version.

Given that Qualtrics allows a series of quality controls to be used, the questionnaire was designed in such a way that it was only possible to complete in a single session, from start to finish. In addition, questionnaires were only counted as valid if participants took between 6 and 45 minutes to complete them (M = 11.16 minutes, SD = 4.71), if they took between 60 and 420 seconds to read the narrative (M = 110.67, SD = 50.54), and if they correctly answered a control question included in the final part of the questionnaire. Finally, two memory questions at the end of the questionnaire asked about the name of the protagonist of the narrative (Miguel, correctly remembered by 96.8% of the participants) and his age (35 years, correctly remembered by 93.7% of the participants). Taking both variables into account, 59 people did not correctly remember this information, so that the final sample consisted of 621 participants. The decision was made to eliminate these 59 participants as an additional measure of quality control (a common practice in these type of studies, see Kim, 2019), observing that there were no differences in the percentage of "invalid" cases "(those who did not remember both details of the narration) across the four experimental conditions (χ^2 (3, N = 680) = 3.47, p = .324).

Narrative and experimental manipulations

A narrative whose protagonist was a 35-year-old man who said that he had quit smoking a year before was written using stories from former smokers in forums and web pages[1], advertising from companies that market products

[1] http://www.stoptabac.ch/cgi-bin/aff_tem2_sp.pl?aff_all+T2

to stop smoking (such as *Nicorette*)[2], and narratives used in previous studies (Dunlop et at., 2010; Kim et al., 2012; Kim et al., 2016; Williams et al., 2011). In his story, the former smoker talked about issues such as how old he was when he started smoking, why he decided to stop smoking and how he managed to do so. Similarly, he described the process of giving up and the improvements he has experienced since then, but without including any abstract or statistical information. In the final part of the narrative, the protagonist commented that he had not smoked for more than a year, that he no longer wanted to smoke again, that he noticed how the negative consequences associated with smoking disappeared and that he experienced a series of benefits from giving up smoking.

To manipulate the narrative voice, the elements that mark the grammatical person in written narratives were modified, such as the choice of personal pronouns. In the first-person narrative, the first-person pronouns "I", "me", "my", "myself" (example: "I quit smoking a year ago") were used, while in the third-person narration, the name and the third-person pronouns "he", "she", "him", "her", "it", and the reflexive particle "-self" (example: "Miguel stopped smoking a year ago") were used. In addition, in the first-person narration, the protagonist was presented using his name at the beginning: "my name is Miguel, I am 35 years old and I started smoking at 15". In the third-person narration, the narrator presented the character by giving his name: "Miguel is 35 years old and started smoking at 15". This experimental procedure for manipulating narrative voice has been used successfully in a large number of studies (Banerjee & Greene, 2012; Chen et al., 2017; Chen, McGlone & Bell, 2015; Nan et al., 2015; Nan et al., 2017).

The manipulation of behavioral similarity was carried out taking into account the information on the level of nicotine dependence of both the narrative's protagonist and the participants. In the narrative featuring a former smoker with low nicotine dependence, information was included about the number of cigarettes smoked before quitting ("he was not so hooked, he only smoked 9 or 10 cigarettes a day"), the money he saved by stopping smoking ("I started saving, more than €80 a month, when I stopped buying cigarettes") or the life changes ("I no longer have to make sure I have cigarettes with me, I no longer need to smoke a cigarrette to relax"). In the narrative featuring a former smoker with high nicotine dependence, the greater number of cigarettes smoked before quitting was emphasized ("he was very addicted and smoked more than one pack of cigarettes a day"), greater financial savings on giving up ("I started saving, more than €150 a month, when I stopped buying cigarettes") or a deeper life changes ("I am no longer a slave to tobacco who rummages through household garbage in search of cigarette butts, I no longer wake up at night to smoke").

To create an index of behavioral similarity between the protagonist of the narration and the participants (low, high), in the pre-test measure participants were asked for information regarding their degree of nicotine dependence using the Fagerström test (Heatherton, Kozlowski, Frecker, Fagerstrom, 1991). The Fagerström test is a 6-item scale that assesses people's nicotine dependence (for example, how much time goes by between getting up and smoking your first cigarette? 0 = more than 60 minutes, 1 = between 31 and 60 minutes, 2 = between 6 and 30 minutes, 3 = up to 5 minutes). Combining the scores of the six questions determines the degree of nicotine dependence (with values from 0 to 10). In this way, the characteristics of each participant were matched to those of the narrative's protagonist, and similarity was thus determined using behavioral criteria as a reference. A condition of high similarity was established if the protagonist of the narrative indicated that he was highly addicted to cigarettes and the participant scored 5 or more in the Fagerström test (which was the median value on this scale in the present study), or if the protagonist of the narrative indicated that he had low dependence and the participant scored below 5 in the Fagerström test. Likewise, a condition of low similarity was established if the protagonist of the narrative indicated high dependence and the participant scored less than 5 in the Fagerström test, or if the protagonist indicated low dependence and the participant scored 5 or more in the Fagerström test.

A pilot study was carried out with 120 participants (57.5% women, aged 18-32, M = 20.73 years, SD = 2.69). Participants in the pilot study were randomly distributed across all four versions of the narrative. After reading, they answered a questionnaire with questions about the clarity or degree of comprehension of the message (for example, "The message is clear and understandable"), perception of credibility, interest and perceived realism, through 7-point Likert-type scales (from 1= *strongly disagree* to 7= *strongly agree*). The results showed that the narratives designed were perceived as clear and easy to understand (M = 6.13, SD = 2.69), credible (M = 5.43, SD = 1.33), interesting (M = 5.30, SD = 1.28) and realistic (M = 5.92, SD = 0.97). In all the variables considered, the value obtained was significantly higher than the theoretical midpoint (4), as verified by a Student's t-test for a sample ($p < .001$).

[2] For example: https://www.youtube.com/watch?v=VpbZYvcEXVI

Measurements

The questionnaire consisted of pre-test and post-test measures. The pre-test measure included the screener questions and the Fagerström test (mentioned above), as well as basic socio-demographic information (sex and age). The post-test measure was presented immediately after reading the former smoker's narrative, and contained scales in the following order to measure similarity with the protagonist of the narrative and memory of the narrative voice (to test the efficacy of experimental manipulation), identification with the protagonist, narrative transportation, counterarguing, reactance (mediating variables), intention to stop smoking, expectations of self-efficacy, and expectations of the effectiveness of the preventive response (dependent variables).

Dependent variables

Intention to stop smoking. A scale composed of three items was created from research by Dunlop et al. (2010), Kim et al. (2012), Kim et al. (2016), Thrasher, Arillo-Santillán, Villalobos, Pérez-Hernández, Hammond, Carter, Sebrié, Sansores, and Regalado-Piñeda, (2012), Wehbe, Basil and Basil (2017), and Williams et al. (2011): "I think I am going to make an effort to stop smoking", "it is very likely that I will quit smoking in the next 3 months" and "I will definitely quit smoking in the future" (from 1 = *strongly disagree*, to 7 = *strongly agree*). A smoking intention index was constructed from calculating the average of the three items (α = .82).

Expectations of self-efficacy in relation to quitting smoking. Self-efficacy is defined as the confidence that a person has in their ability to perform and maintain a certain behavior in a given situation (in this case, refrain from smoking after quitting the habit) (Spek, Lemmens, Chatrou, Kempen, Pouwer & Pop, 2013). To measure the expectations of self-efficacy, a scale composed of six items was used, based on Chen et al. (2015), McQueen, Waters, Kaphingst, Caburnay, Sanders Thompson, Boyum and Kreuter (2016), Spek et al., (2013), and Williams et al. (2011): "I think I have the capacity to quit smoking if I put my mind to it", "I'm sure I can quit smoking", "I know what I should do to quit smoking", "if I quit smoking and someone offered me a cigarette I would resist temptation and I would not smoke", "if I quit smoking and went to a party with friends or relatives, I would know what to do so as not to smoke", "once I have already decided not to smoke again I'm sure I would not have a cigarette even if I felt sad or anxious" (from 1 = *strongly disagree*, to 7 = *strongly agree*). An index of self-efficacy expectations was constructed from calculating the average across the six items (α = .88).

Perception of efficacy of the preventive response (quit smoking). This was measured on a scale comprising five items, created using the study by Chen et al. (2015): "I am convinced that if I stop smoking in a short time my health will improve", "I am sure that if I stop smoking my body will soon recover from the harmful effects of tobacco", "I am convinced that quitting smoking will reduce the risk of serious illness in the future", "even if you've smoked for many years, it is possible to recover health if you stop smoking in time", "a life without cigarettes reduces the risk of cancer" (from 1 = *strongly disagree*, to 7 = *strongly agree*). An index of perceived efficacy of the preventive response was constructed from calculating the average in the five items (α = .78).

Mediating variables

Identification with the protagonist. This was assessed with a scale comprising 11 items, the reliability and structural validity of which has been tested in a previous study (Igartua and Barrios, 2012). The instrument was designed to retrospectively measure the identification whit the protagonist of the narrative through items such as "I was worried about what happened to Miguel", "I felt emotionally involved with Miguel's feelings", "I felt like I was Miguel") (from 1= *not at all* to 5= *very much)*. An index of identification with the protagonist was constructed from the calculation of the average across the eleven items (α = .93).

Narrative transportation. This was assessed using the *Transportation Scale-Short Form* developed by Appel, Gnambs, Richter and Green (2015), consisting of five items (with a 7-point response format from 1 = *strongly disagree* to 7 = *strongly agree*). The items making up the scale are: "I could imagine myself in the situations described in the narrative", "I felt very involved mentally during the reading of the story", "I wanted to know how the story would end", "The text affected me emotionally", and "while reading the narrative I had a very vivid and clear image of Miguel". A narrative transportation index was constructed from calculating the average across the five items (α = .89).

Counterarguing. A scale consisting of three items created from the counterarguing scale of Moyer-Gusé and Nabi (2010) and Igartua and Vega (2016) was used: "while reading the narrative, I thought that I did not agree with some of the things said by Miguel", "while reading the message, I thought that the information Miguel gave was inaccurate, misleading or exaggerated" and "while reading the story, I tried to find out if there were flaws in the conclusions that Miguel drew on some issues" (from 1 = *strongly disagree* to 7 = *strongly agree*). An index of counterarguing was constructed from calculating the average of the three items (α = .72).

Reactance. This was asessed with the perceived threat to freedom scale by Shen (2015), comprising 4 items: "the message threatened my freedom of choice", "the message tried to make a decision for me", "the message tried to manipulate me", and "the message was trying to pressure me" (from 1 = *strongly disagree* to 7 = *strongly agree*). A reactance index was constructed from calculating the average across the four items (α = .85).

Experimental manipulation check

Perceived similarity with the protagonist. To ensure that the manipulation of behavioral similarity was effective, the participants answered the following questions after reading the narrative: "To what extent do you consider that you have things in common with Miguel?", "To what extent do you think Miguel is like you, considering the amount he smoked before quitting? "(from 1 = *not at all*, to 5 = *very much*). The two items were averaged to create a perceived similarity index (r = .53, p = .001; M = 3.41, SD = 0.84).

Memory of the narrative voice. The participants were asked: do you remember if the story you just read was written in the first person or in the third person? (1 = it was written in first person, "My name is Miguel, I am 35 years old and I started smoking ..."; 2 = it was written in the third person, "Miguel is 35 years old and started smoking ...").

Results

Preliminary analyses

Random assignment of participants to the four experimental conditions was successful. There were no statistically significant differences between the conditions in socio-demographic terms (gender (χ^2 (3, N = 621) = 1.37, p = .712; age (F (3, 617) = 0.04, p = .987) nor in the degree of nicotine dependence (F (3, 617) = 1.05, p = .369).

The manipulation of behavioral similarity was also effective. Moderation analysis (model 1) with PROCESS for SPSS (Hayes, 2018) showed that there was a statistically significant interaction effect between the level of cigarette addiction of the narrative's protagonist and that of the participants (measured with the Fagerström test) on the perceived similarity index (B = 0.19, SE = 0.02, p = .001). The analysis of conditional effects showed that for people with low nicotine dependence (score of 2 or less in the Fagerström test), the narrative in which the protagonist was characterized with low dependence before quitting smoking generated greater perceived similarity than the narration with a protagonist with high dependence (B = -0.58, SE = 0.09, p = .001). Similarly, for people with a high level of cigarette addiction (score equal to or greater than 7 in the Fagerström test) the narrative with the highly dependent protagonist generated greater perceived similarity than the narration with a not very dependent protagonist (B = 0.37, SE = 0.09, p = .001). In contrast, the effect of the protagonist's level dependence on the perceived similarity was not statistically significant among people with moderate levels of addiction (B = -0.01, SE = 0.06, p = .853).

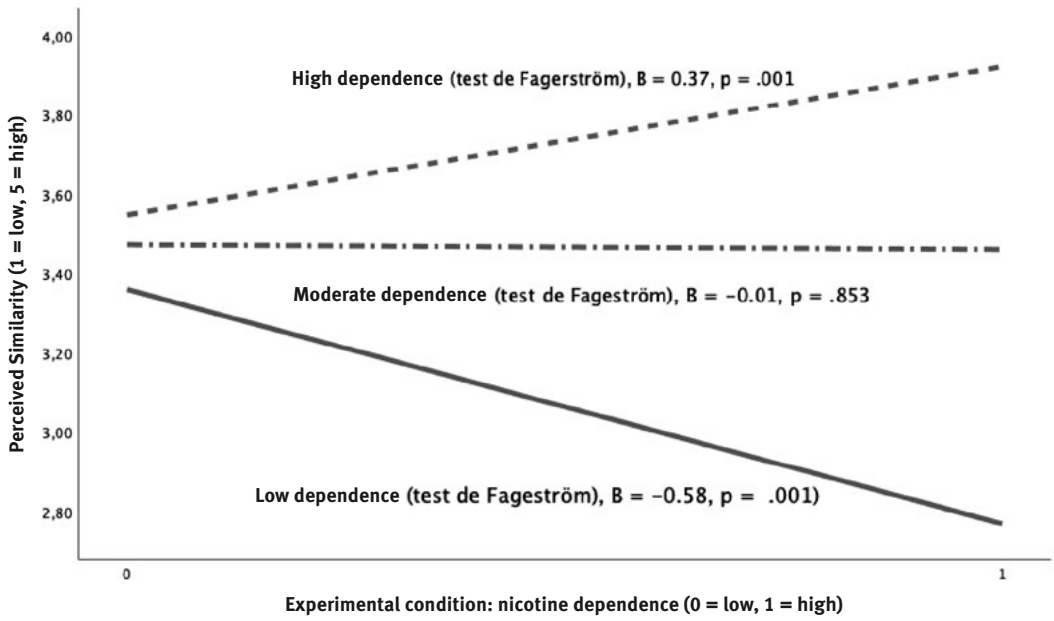


Figure 2. Test of the effectiveness of the manipulation of behavioral similarity. Analysis of conditional effects with PROCESS for SPSS

According to O'Keefe (2003), when intrinsic traits are manipulated in a persuasive message (such as the narrative voice in the present study), it is not necessary to test the efficacy of experimental manipulation. Nevertheless, we checked if there were differences in the memory of the narrative voice depending on the version of the message (third or first person). The results showed that the manipulation of the narrative voice was effective since there were statistically significant differences in the recall of the narrative voice based on having read a third- or first-person narrative (χ^2 (1, N = 621) = 536.58, p = .001).

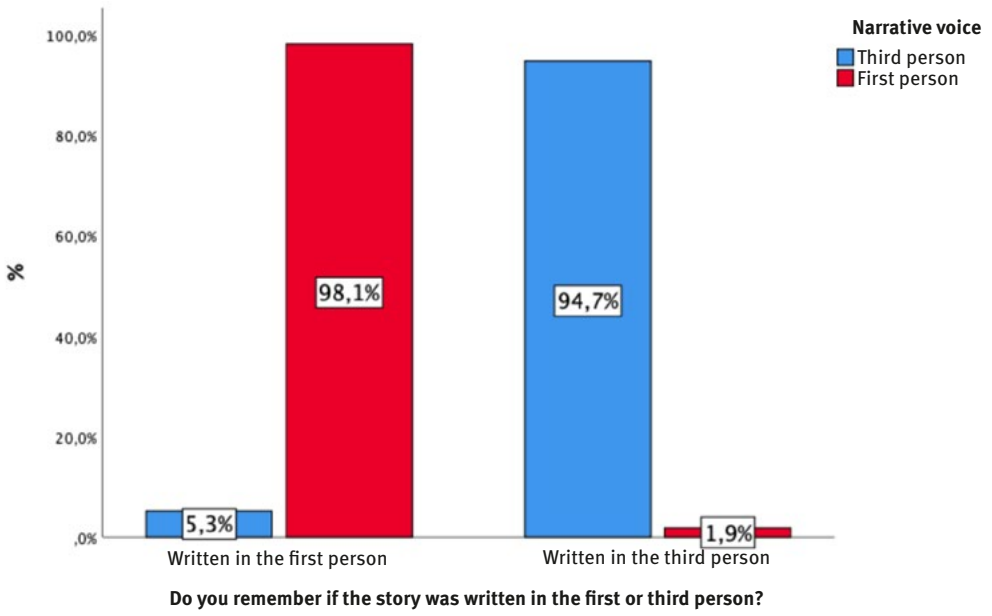


Figure 3. Checking the effectiveness of narrative voice manipulation. Effect on the memory of the narrative voice

Finally, the correlations between the mediating variables and the dependent variables were analyzed. This analysis allowed us to verify that the mediating processes showed convergent correlations with the proposed hypotheses (for example, between identification and narrative transportation with reactance and counterarguing). In addition, we also tested that the mediating processes showed statistically significant relationships with the dependent variables. These results justify the proposed mediational model, which is presented later.

Table 1. *Correlations between mediating and dependent variables*

	1	2	3	4	5	6	7
1 Identification	-						
2 Narrative transport	.85 ***	-					
3 Counterarguing	-.32 ***	-.31 ***	-				
4 Reactance	-.25 ***	-.28 ***	.47 ***	-			
5 Intention to stop smoking	.51 ***	.49 ***	-.19 ***	-.22 ***	-		
6 Expectations of self-efficacy	.09 **	.13 ***	-.05 +	-.14 ***	.32 ***	-	
7 Efficacy of preventive response	.41 ***	.43 ***	-.27 ***	-.27 ***	.39 ***	.31 ***	-
Mean	3.64	5.27	2.72	2.61	4.69	4.55	5.82
Standard deviation	0.79	1.18	1.22	1.40	1.36	1.30	0.91

Note. N = 621. In all variables, higher scores reflect greater intensity of the process in question, from 1= *low* to 7= *high* (except in the scale of identification with a theoretical range from 1= *low* to 5= *high*) + $p < .10$, ** $p < .01$, *** $p < .001$

Joint effect of behavioral similarity and narrative voice on narrative identification and transportation (H1)

It was hypothesized that the participants would experience greater identification with the protagonist (H1a) and greater transportation (H1b) in the optimal reception condition compared to the reference condition. To test this hypothesis, two analyses of variance (ANOVA) were carried out with the experimental condition as an independent variable and identification and transportation as dependent variables, carrying out two planned contrast analyses (post hoc tests) (see Walter et al., 2018, for a similar analytical approach in their Study 3, with a 2 x 2 factorial design, as in the present investigation). The first contrast (contrast coefficients: -1, 0, 0, 1) compared condition 4, or optimal condition of reception, (i.e., reading a first-person narrative with a protagonist of high behavioral similarity to the reader of

the message, coefficient 1) with reference condition 1 (i.e., reading a third-person narrative and low behavioral similarity, coefficient -1). The second planned contrast (coefficients: -1, -1, -1, 3) compared the optimal reception condition with the average of the three experimental conditions.

Regarding identification, statistically significant differences were observed depending on the experimental condition (F (3, 617) = 2.79, p = .040, η_p^2 = 0.013). In addition, the two planned contrasts performed were statistically significant (contrast 1: t (617) = 2.59, p = .010, r = .10; contrast 2: t (617) = 2.30, p = .020, r = .09). Results showed that the optimal reception condition induced the highest levels of identification with the protagonist, confirming H1a (see Figure 4).

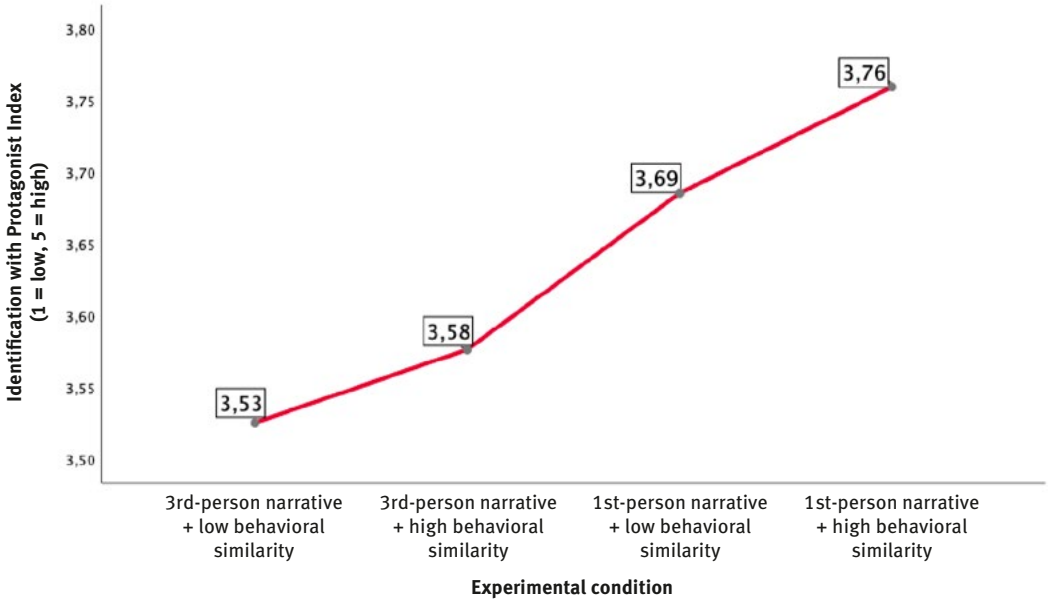


Figure 4. Effect of the experimental condition on identification with the protagonist (H1a)

With respect to narrative transportation, no statistically significant differences were observed according to the experimental condition (F (3, 617) = 1.58, p = .192, observed power = 0.419). Moreover, the two planned contrasts performed were not statistically significant either (contrast 1: t (617) = 1.756, p = .080, r = .07; contrast 2: t (617) = 1.276, p = .202, r = .05); therefore, H1b was not confirmed, although the descriptive results did show that the optimal reception condition induced the highest levels of narrative transport, which is consistent with this hypothesis (see Figure 5).

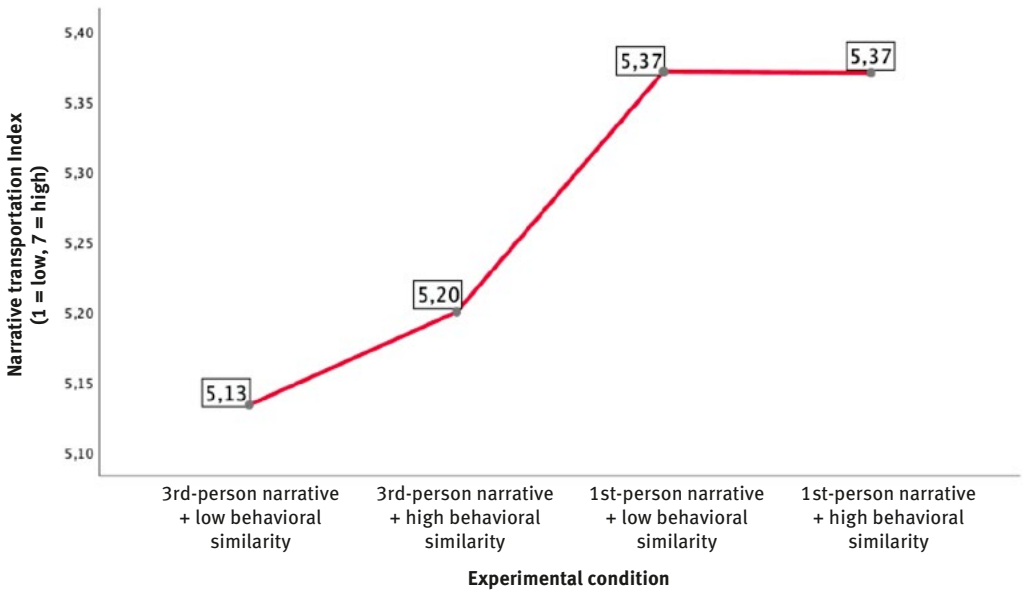
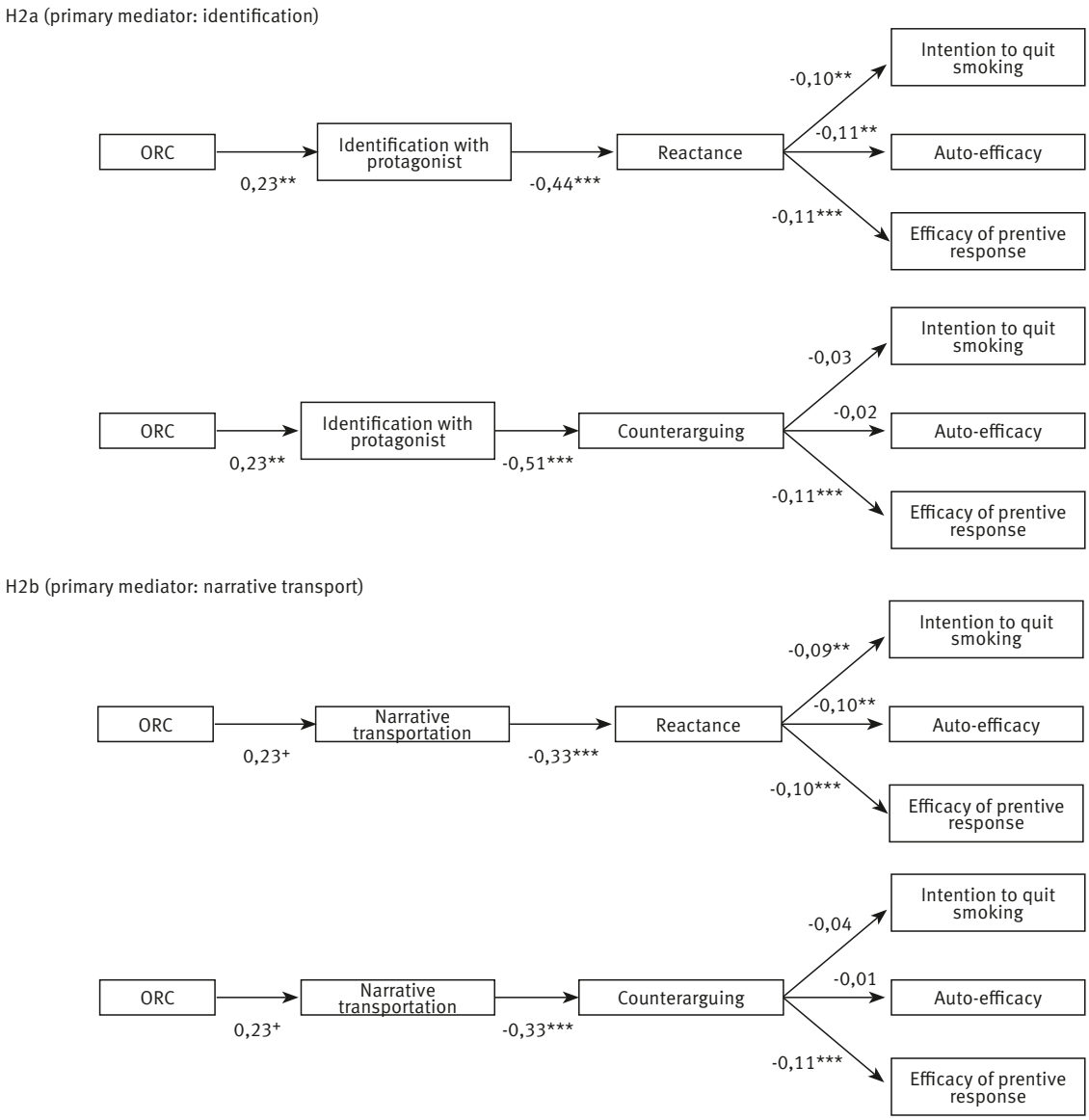


Figure 5. Effect of the experimental condition on narrative transport (H1b)

Mediational analysis (H2)

The second hypothesis predicted an indirect effect of the optimal reception condition on the intention to stop smoking, expectations of self-efficacy and the perception of efficacy of the preventive response, which would be mediated by identification (H2a) and narrative transport (H2b) (primary mediators) and counterarguing and reactance (secondary mediators). To examine whether the optimal reception condition triggered a significant indirect effect on the dependent variables, we used the PROCESS macro for SPSS (Model 6, serial mediation, 10,000 *bootstrapping* samples to generate 95% confidence intervals by the percentile method; Hayes, 2018). The independent variable (experimental condition) was coded as a multicategorical variable, giving rise to three *dummy* variables (X1, X2, X3) and the establishment of the control condition (third-person narrative with a protagonist of low behavioral similarity) as the reference category (for a similar analytical approach, see: Bolkan, Goodboy & Myers, 2017; Walter et al., 2018). This procedure required the estimation of the indirect effect of the optimal reception condition (X3), while the other two *dummy* variables acted as covariates (Hayes & Preacher, 2014). In this way, the regression coefficients which estimate the indirect effect quantify the difference between exposure to a narrative written in the first person with a protagonist of high behavioral similarity as opposed to exposure to a third-person narration with a protagonist of low similarity. The results of the 12 mediational analyses are shown in Figure 6 and Table 2.



Note. COR = Optimal Reception Condition (first-person narrative, plus a protagonist with high behavioral similarity to participant by level of nicotine dependence). The figure shows the non-standardized regression coefficients *(B)*. *N* = 621. + *p* ‹ .10, ** *p* ‹ .01, *** *p* ‹ .001.

Figure 6. Mediational analyses (H2).

It was observed that the optimal reception condition increased identification with the protagonist of the narrative, which in turn reduced reactance and counterarguing. In addition, the reduction of reactance as a consequence of increased identification was associated with a greater intention to stop smoking, more positive expectations of self-efficacy and a greater perception of the effectiveness of the preventive response. However, despite the fact that identification reduced counterarguing, this process was only associated with one of the dependent variables considered: so that the lower counterarguing during the reading of the narrative, the greater the perceived efficacy of the preventive response. Therefore, confirming H2a, we observed three statistically significant indirect effects of the optimal reception condition on the three dependent variables considered which were explained by the increase in identification and the decrease in reactance. Furthermore, we also observed a statistically significant indirect effect of the optimal reception condition on the perceived effectiveness of the preventive response, which was due to higher identification and lower counterarguing.

Table 2. *Indirect effects of the optimal reception condition (ORC) on the intention to stop smoking, expectations of self-efficacy and perception of efficacy of the preventive response (H2)*

Indirect effects	B	Boot *SE*	Boot 95% *CI*
ORC → Identification → Reactance → Intention of stop smoking	**.0108**	**.0065**	**[.0012, .0261]**
ORC → Identification → Reactance → Expectations of self-efficacy	**.0121**	**.0073**	**[.0015, .0297]**
ORC → Identification → Reactance → Efficacy of the preventive response	**.0121**	**.0059**	**[.0027, .0255]**
ORC → Identification → Counterarguing → Intention of stop smoking	.0041	.0057	[-.0051, 0.180]
ORC → Identification → Counterarguing → Expectations of self-efficacy	.0031	.0062	[-.0086, .0167]
ORC → Identification → Counterarguing → Efficacy of the preventive response	**.0138**	**.0069**	**[.0030, .0299]**
ORC → Transportation → Reactance → Intention of stop smoking	.0075	.0059	[-.0009, .0217]
ORC → Transportation → Reactance → Expectations of self-efficacy	.0083	.0067	[-.0010, .0246]
ORC → Transportation → Reactance → Efficacy of the preventive response	**.0083**	**.0056**	**[.0005, .0187]**
ORC → Transportation → Counterarguing → Intention of stop smoking	.0037	.0046	[-.0026, .0154]
ORC → Transportation → Counterarguing → Expectations of self-efficacy	.0009	.0043	[-.0076, .0108]
ORC → Transportation → Counterarguing → Efficacy of the preventive response	.0080	.0060	[-.0009, .0226]

Note. The independent variable was coded with the values 0 = shown a third-person narrative with a protagonist of low similarity (reference category or control group) and 1 = shown a the first-person narrative with a protagonist of high behavioral similarity (ORC). An indirect effect is considered to be statistically significant if the established confidence interval (95% *CI)* does not include the value 0. If the value 0 is included in the confidence interval, the null hypothesis cannot be rejected, as this posits that the indirect effect is equal to 0, i.e., there is no association between the variables involved (Hayes, 2018). The non-standardized regression coefficients *(B)* are shown in the table. The indirect effects which are statistically significant are marked in bold.

As for the role of narrative transportation, the results were less consistent, mainly because the optimal reception condition had a marginally non-significant effect (p = .079) on this process. However, it was observed that narrative transportation reduced both counterarguing and reactance. In turn, the reduction of reactance (thanks to the greater narrative transportion) increased the intention to stop smoking, the expectations of self-efficacy and the perceived effectiveness of the preventive response. However, the reduction of counterarguing due to greater transportation was only associated with greater perceived effectiveness of the preventive response. Therefore, a statistically significant indirect effect was only observed through greater narrative transportation and reduced reactance, which implies partial support of H2b.

Discussion

The present study provides evidence on how smoking prevention interventions aimed at adults can be enhanced. It was possible to verify that the variables related to the construction of prevention messages (in particular, the joint effect of narrative voice and behavioral similarity with the audience) have a significant impact on the intention to stop smoking, on the expectations of self-efficacy and on the perception of the effectiveness of the preventive response thanks to the fact that they trigger processes of empathic involvement which, in turn, reduce resistance towards the persuasive message.

Our research includes two innovative aspects with respect to previous studies: the concept of behavioral similarity and the concept of optimal reception condition. To date, similarity has been manipulated only in socio-demographic terms such as sex, age, nationality or ethnic group, and the results have been contradictory (Cohen et al., 2018; Kaufman & Libby, 2012; Tukachinsky, 2014). In our work, we have verified that it is possible to effectively manipulate behavioral similarity by emphasizing in the narrative that the protagonist of the message shares a "common story" with the audience (about nicotine dependence, in

this case), which was shown to increase perceived similarity. The second original contribution of our study (within the field of narrative persuasion aimed at smoking prevention) is the concept of *optimal reception condition* (first-person narrative with a protagonist with high behavioral similarity to the audience), given that in previous research, the effect of these variables (similarity and narrative voice) had only been analyzed in isolation (eg, De Graaf et al., 2016).

Thus, and in accordance with hypothesis 1, it was observed that the optimal reception condition did indeed induce the highest levels of identification with the protagonist (H1a), but did not significantly increase narrative transportation (H1b). As regards the mediational analyses (H2), the optimal reception condition exerted three significant indirect effects on the dependent variables due to increased identification and reduced reactance. In addition, the optimal reception condition also had a statistically significant indirect effect on the perceived efficacy of the preventive response, which was explained by stronger identification and weaker counterarguing.

These results are convergent with previous studies which established that first-person narratives, by being perceived as more personal (because they encourage greater closeness between the reader and the main character) and easier to understand, enhanced identification with the protagonist (Chen et al., 2016, 2017; Christy, 2018; De Graaf et al., 2012; Kaufman & Libby, 2012; Nan et al., 2015). However, the optimal reception condition exerted a marginally non-significant effect on narrative transportation, something not far removed from previous studies such as Banjerjee and Greene (2012), in which the use of the third or first person did not influence narrative transportation. Likewise, in Tukachinsky's meta-analysis review (2014), it was concluded that while the narrative voice did influence identification, this was not the case with narrative transportation. Moreover, in our study it was observed that both narrative transportation and identification reduced reactance, so these results are consistent with the E-ELM (Slater & Rouner, 2002) and the EORM (Moyer-Gusé, 2008), theoretical models, which are widely applied in narrative health communication. In fact, our study showed that both narrative transportation and identification lead to lower levels of counterarguing. Therefore, in accordance with previous research, and as proposed in our second hypothesis, identification and narrative transportation acted as mediating variables (Cohen, Tal-Or & Mazor-Treerman, 2015; De Graaf et al., 2012; Green & Brock, 2000; Hoeken & Fikkers, 2014; Igartua, 2017; Igartua & Barrios, 2012; Walter et al., 2018).

One of the limitations of this study is not having properly controlled for (in the design of the narrative) the effect of demographic similarity, sex and age of the protagonist. Although the meta-analysis of Tukachinsky (2014) concluded that objective similarity (based on demographic criteria such as sex, age, or ethnic group) did not exert a significant effect on identification (but it does do so on narrative transportation and perceived similarity or homophily), this systematic review was based on 48 experimental studies of narrative persuasion in general. Therefore, it is recommended that future studies test whether this result can be extrapolated to the particular field of smoking prevention.

The results obtained allow us to think about various applications in the field of smoking prevention and treatment. First of all, in Spain, the main prevention approach for the risks involved in smoking are the health warnings on cigarette packets, which can be avoided and cause reactance (Rodríguez-Contreras & Igartua, 2018). We therefore propose that tobacco prevention campaigns should be implemented in narrative form, using the first person and designed to stimulate the behavioral similarity between the protagonist and the audience, since the present research has proven that these variables have a significant impact on the intention to quit smoking, on the expectations of self-efficacy and on the perceived effectiveness of the preventive response thanks to the fact that they trigger mechanisms of *affective connection* with the message (in this case, identification with the characters) which weaken reactance.

We believe that a narrative intervention such as the one proposed may target the treatment of smoking, but also constitute a primary prevention tool, since any attempt to reduce tobacco consumption indirectly seeks to prevent the appearance of smoking-linked diseases or health problems. In this sense, as seen in the *Tips from Former Smokers* campaign (developed in the United States), the experience of a former smoker (i.e., someone who has overcome nicotine addiction) would be used to prevent smoking (i.e., not start smoking) as well as helping active smokers to quit, thus avoiding the harm that this may cause them.

Secondly, a strategy that is increasingly present in the field of health, and more specifically, in the field of smoking prevention, is the development of mobile applications to stop smoking (Iacoviello, Steinerman, Klein, Silver, Berger, Luo & Schork, 2017; Ubhi, Michie, Kotz, Wong & West, 2015). It would therefore be interesting to create mobile smoking prevention applications in which the user is allowed to configure their avatar based on behavioral similarity (since, as observed in previous studies, demographic similarity does not yield conclusive results) and to test whether the fact that the user can choose that the protagonist has similar characteristics to him- or herself makes the application more effective. This type of application would be particularly useful in the prevention of smoking in young people and adolescents, given their intensive use of smartphones. In addition, although smoking has decreased in recent years among 15 to 24-year-olds (Muñoz, Carmona Torres, Hidalgo Lopezosa, Cobo Cuenca & Rodríguez Borrego, 2019), the prevalence of smoking among

adolescents aged 15-18 still stands at 8.7% (Leal-López, Sánchez-Queija & Moreno, 2018).

In conclusion, the present study yields relevant insights for health-related narrative persuasion research showing how certain characteristics of narrative messages (such as the use of narrative voice in the first person and the inclusion of elements establishing similarity between the protagonist and the audience) can be useful in improving interventions for the smoking prevention and treatment.

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Conflict of interests

The authors of this study declare that they have no conflict of interests.

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