Effects of narrative-persuasive frames on *Twitter* regarding blood donation: pride versus empathy and people versus numbers

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Abstract

Blood donation in Spain is an altruistic, voluntary and unpaid process. Despite its social and health significance, this process has suffered a standstill in recent years that has been aggravated by the coronavirus pandemic. To promote the generation of new donors, it is necessary to carry out campaigns aimed at younger age groups to improve the information they have and reduce their fears. This research analyses the effectiveness of different frames of a persuasive narrative to increase blood donation. These frames have been constructed from two variables: an emotional appeal (empathy awakened by a recipient protagonist versus the pride experienced by a donor protagonist) and the identification of the beneficiary of the donation (identifiable victim versus generic beneficiary). The manipulated narratives incorporate features of edutainment and are adapted to the tone and language of the target population, young people, in the format of a *Twitter* thread. To test the effectiveness of these narratives, an experimental study was conducted among 600 participants aged 18–30 years. The results show the effectiveness of the emotional appeal, specifically in the threads that are led by a recipient of the blood donation. This appeal induces greater identification among people who perceive themselves as a little or somewhat similar to the protagonist. This outcome in turn positively affects information recall, the intention to share the message and the attitude towards donation, and reduces the perceived risk. All in all, it increases the donation intention. The data confirm a moderated mediation model with identification as a mediator and similarity as a moderator. On the contrary, no statistically significant effects were found regarding the second manipulated variable. No evidence was found that the use of an identifiable beneficiary in the donation appeal obtained better results than the call to donate supported by generic data.

Keywords

Persuasive narratives; Blood donation; Edutainment; Communication campaigns; Health communication; Experimental manipulation; Moderated mediation; Emotive appeal; Message framing; Identifiable Victim Effect; Young population; Social media; *Twitter*.

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1. Introduction

In countries where donating blood is a voluntary, unpaid and anonymous act, communication and awareness campaigns should encourage potential donors to experience a sense of civic duty or social responsibility, bringing the system's needs to the fore and promoting empathy (**Puig-Rovira**; **Graell-Martín**; **Cortel-Mañé**, 2014). However, while altruism is one of the major motivations for blood donation, there are also rewards for donors that need to be valued, such as feeling good about themselves or receiving social approval (**Andreoni**, 1990; **Evans**; **Ferguson**, 2014).

It is increasingly common to use narratives based on edutainment within persuasive communication in the field of health, with a view to encouraging the receiver to identify with the narrative's protagonist. This increases empathy and indirectly affects attitudes (**De-Graaf** *et al.*, 2012; **De-Graaf**; **Sanders**; **Hoeken**, 2016; **Igartua**; **Barrios**, 2012). In addition to the mediation effect of identification in the results, it is necessary to assess the moderation of perceived similarity, produced by the perception of sharing objective and/or subjective traits with the protagonist (**Igartua**; **Fiuza**, 2018).

This research aims to analyse the effects that different persuasive narrative frames in the form of *Twitter* threads with edutainment features have on knowledge and attitudes about blood donation, as well as on the perceived risk of donating, and the intention to donate. It therefore contributes to the advancement of knowledge on how perceived similarity and identification with the protagonist of the story determine the persuasive effect of messages with emotional appeal in the field of health, and to establish the best approaches to the narrative. Two independent variables are used as a starting point, generating four study narratives and groups with a 2 x 2 factorial design. The two variables that form the basis for observing the persuasive results of the narrative message were:

(1) the approach based on emotional appeal (empathic, focused on the recipient's emotions *vs.* pride, focused on the donor's emotions) and

(2) approach based on the donation beneficiary (personalised *vs.* generic or statistical victim).

With the results obtained, blood donation awareness campaigns can be developed to achieve better results in recruiting and retaining young people.

2. From donation needs to awareness campaigns

2.1. Blood donation in Spain

Blood and its derivatives are an essential resource for a country's health systems. They are necessary for surgical interventions, for the treatment of certain diseases such as cancer, and for the production of medicines (*Cruz Roja*, n.d.; *OMS*, 2021). However, as blood is perishable and cannot be artificially produced, availability depends on citizens' donations. In Spain, as in the rest of the European Union, this process is voluntary, anonymous and unpaid, which ensures the quality and safety of the process (**Casado-Neira**, 2003; **Cuadros-Aguilera**, 2017; **Gomes** *et al.*, 2019), but at the same time requires social awareness to achieve a stable pool of donors that meets the needs of the health system.

In recent decades, the low birth rate and the ageing of the population have led to a stagnation in the number of blood donations in Spain. It is therefore essential to both build the loyalty of current donors (but above all, to also attract new ones), and to raise awareness of the need for donation to become a habit rather than being a one-off action (**Martín-Santana**; **Beerli-Palacio**, 2008; **Romero-Domínguez**, 2021). The need to adapt to new audi-

> Blood donation in Spain is a voluntary, unpaid and anonymous act in which only 5% of the population that could donate participates

ences to make a generational transition has been apparent for five years (**Ouhbi** *et al.*, 2015) and has been aggravated by the Covid-19 crisis (**Remacha**, 2021). Figure 1 shows the decrease in the number of donations made in Spain in recent years.

According to data from the *Spanish Federation of Blood Donors*, there were around 1,700,000 altruistic blood donations in Spain between 2015 and 2018 (*FedSang*, 2019). Donations were more common in men than in women, and in the 31 to 45 age group. The Spanish *Red Cross* (*Cruz Roja*, n.d.) has noted that, while one in every two people living in Spain will need blood at some point in their lives, only 5% of potential donors come forward to give blood.

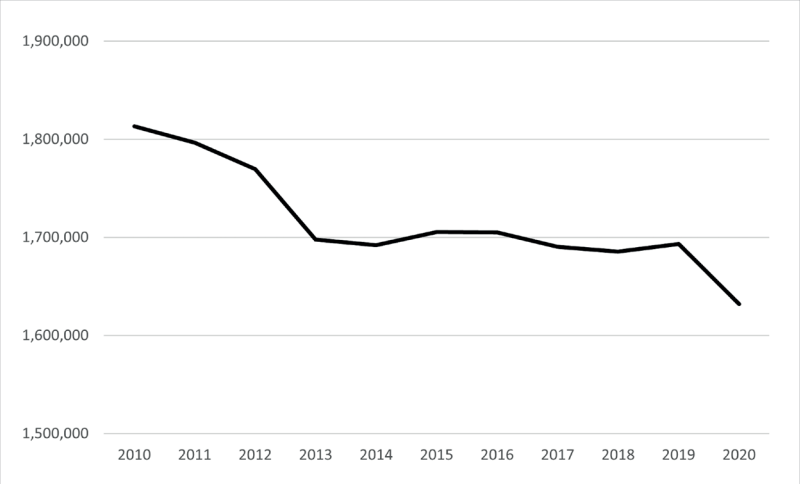

Figure 1. Number of blood donations made in Spain from 2010 to 2020.
Source: Based on data from *FedSang*. Note. The vertical axis has been truncated at 1,500,000 for a better perception of changes over time.

There is a striking contradiction between the general favourable attitude of the population towards blood donation and the recorded donation rates (**Romero-Domínguez**, 2021). According to this author, the main factors that motivate people to give blood include the ease and speed of blood donation; the incentive to save lives; social responsibility; and solidarity. These motivations are shared by donors in countries such as the United States and Canada, as pointed out by **Glynn** *et al*. (2002) or **Smith**; **Matthews**; **Fiddler** (2013). The most frequently reported barriers are the lack of information about the donation process and/or donation sites; lack of motivation; fear of needles or pain; and the possibility of contracting a disease, a myth that still persists (**Martínez-Sanz**, 2021). **Nonis** *et al*. (1996) categorised inhibitors into four dimensions: physical (contagion), psychological (fear), social (moral responsibility) and time (lack of time) risks.

Within this range of constraints, the most influential factor in predisposing people to donate blood is the information that potential donors have about the process involved and the needs and uses of donation. Altruism is an intrinsic motivation, while fear is the factor that leads to the greatest reluctance (**Martín-Santana**; **Beerli-Palacios**, 2008).

Ferguson and **Lawrence** (2016) defined altruism as the desire to maximise the welfare of others at a personal cost, without personal benefit. Whereas the vast majority of research has concluded that altruism is the most decisive motivation for blood donation, it must also be considered that almost no donor presents full, selfless or spontaneous altruism; rather, there are other motivations involved, including the need to feel good about oneself or to receive social approval (**Andreoni**, 1990; **Evans**; **Ferguson**, 2014), which many authors call emotional rewards, impure altruism, or warm-glow. This would explain why donation promotion campaigns that have focused on altruistic and humanitarian messages have not been as successful as expected (**Moussaoui** *et al*., 2016).

In countries where blood donation is voluntary, unpaid and universal, authors such as **Casado-Neira** (2003) consider giving blood as an act that is a gift made to a stranger. Subject to some qualifications, this is framed within gift theory, according to which human beings have a desire to collaborate with their society and implies the hope of some form of reciprocity. For **Cuadros-Aguilera** (2017) and **Gomes** *et al.* (2019), the non-profit principle makes blood donation a civic duty or an act of social responsibility.

> The edutainment-based narrative is an established persuasive mechanism capable of modifying health-related perceptions, beliefs and attitudes

> "Blood donation involves a dynamic act of anonymous empathy: the other is a real but unknown subject' (**Puig-Rovira**; **Graell-Martín**; **Cortel-Mañé**, 2014, p. 147),

which means that potential donors must imagine the person in need and put themselves in their place in order to generate the intention to help. These authors underlined the importance of showing the act of donating in communication campaigns, as it is not really visible in personal or social relations.

2.2. Communication campaigns to attract donors: different approaches

Research on giving and socially responsible behaviour in general has examined the use of positive approaches (the benefits or lives saved, gain-framed appeal) versus negative approaches (the suffering or lives lost, loss-framed appeal). This is the case of the gain *vs.* loss approach studied by **Cohen** (2010); **Hirai** *et al*. (2020); or **Jiang** and **Dodoo** (2021), among others. According to **Erlandsson**, **Nilsson** and **Västfjäll** (2018), as it is easier to induce negative emotions than positive ones in charity appeals, the negative, loss-based or guilt-based approach is more commonly used.

In this vein, research such as that by **Kong** and **Lee** (2021) on organ donation has noted the difference in placing the emotional appeal to the consequences for the victim (promoting empathy and solidarity) in contrast to the consequences for the donor (pride and satisfaction). This is based on the idea that every altruistic action has a sense of personal benefit, albeit intangible. Their results show that perceived similarity moderates the effects of both emotional appeal frames on behaviour, leading to greater intention to publicise the campaign and intention to become a donor.

A similar strand is found in the appeal to the potential personal benefit of the donation when talking about the future ('it may happen to you') versus helping others, who can be divided into known and unknown people (**Jiang**; **Dodoo**, 2021). While advertising in general tends to focus on the benefits for the target audience, charity appeals tend to focus on the consequences for others and, to a lesser extent, for oneself.

Other approaches used in the construction of social campaigns are temporal framing (current *vs.* future effects) as used by **Choi**, **Park** and **Oh** (2012) and **Kim** (2019); (high *vs.* low) emotional content as noted by **Appel** and **Ritcher** (2010); emotional appeal *vs.* more objective information (**Erlandsson** *et al*., 2016); or beneficiary personalisation *vs.* general statistics (**Erlandsson**; **Björklund**; **Bäckström**, 2015; **Van-Esch**; **Cui**; **Jain**, 2021). Likewise, the effectiveness of different narrative formats has been compared with health issues related to our object of study: testimonies *vs.* dialogues (**Kim**; **Nan**, 2019) and narratives *vs.* information (**Liu**; **Yang**, 2020).

Table 1. List of experimental variables studied in social campaign research

Variables	Studies
Emotional appeal gain *vs.* loss	**Cohen**, 2010; **Erlandsson**, **Nilsson** & **Västfjäll**, 2018; **Hirai** *et al.*, 2020
Emotional appeal pride *vs.* empathy	**Kong** & **Lee**, 2021
Emotional appeal self *vs.* others	**Jiang** & **Dodoo**, 2021; **Fisher**, **Vandenbosch** & **Antia**, 2008
Temporal framing (present *vs.* future oriented)	**Choi**, **Park** & **Oh**, 2012; **Kim** & **Nan**, 2019
Emotional content *vs.* information	**Appel** & **Ritcher**, 2010; **Erlandsson** *et al.*, 2016
Personalization (identifiable victim) *vs.* statistics	**Erlandsson** *et al.*, 2015; **Van-Esch**, **Cui** & **Jain**, 2021
Narrative *vs.* non-narrative	**Liu** & **Yang**, 2020
Testimonials *vs.* dialogues	**Kim** & **Nan**, 2019

In specific campaigns to promote blood donation, it is common for the design of persuasive messages to reinforce the importance of the risk perceived by potential donors, both the risk of the donation itself and the risk of not donating, as well as previous experience (**Mohanty**; **Biswas**; **Mishra**, 2021). Positive messages are more effective when participants rate the risk of donating more highly than the risk of not donating. According to these authors, previous experience does not play a role.

Regarding campaigns specifically targeting young people, **Nonis** *et al.* (1996) investigated whether the target students could be further segmented according to their demographic characteristics, perceived risks, and the influence of non-monetary incentives. While significant differences between donors and non-donors in terms of gender were found, blood type, student classification and influence of incentives, no differences were observed between the four dimensions of perceived risk (physical, psychological, social or temporal). Meanwhile, the study by **Gomes** *et al.* (2019) indicated that 80% of the young people surveyed had never donated blood, but were willing to do so if asked. The most common reasons for not having donated before were that they had never thought about it (25%) and that no one had ever suggested that they should do it (36.7%), data that emphasise the need for awareness campaigns to recruit young people.

According to **Martín-Santana** and **Beerli-Palacios** (2008), awareness campaigns to promote blood donation should focus on information about the need for donation and its impact, as well as removing inhibitors associated with fear and risk. To this end, they proposed that campaigns should focus on more rational messages, avoiding overly emotional ones, and that they should use simple and understandable language based on the testimonial style in the expert version.

2.3. Narrative for persuasive purposes: experimental designs for evaluation

In recent years, the use of narrative for persuasive purposes in the field of health has increasingly resorted to edutainment or educommunication (**Moyer-Gusé**; **Nabi**, 2010; **Shen**; **Sheer**; **Li**, 2015), as opposed to traditional informational-persuasive models. This has sought to bring about changes in people's perceptions, beliefs and behaviours that improve their quality of life and the country's health system (**Igartua**, 2011).

In this type of campaign, messages have a clear narrative structure and emotional components that make them more appealing to audiences. **Green** (2006) established that the narrative focuses on a specific event or occurrence, with a beginning, middle and end; its consumption is motivated by the search for entertainment; and

> Identification with the protagonists is a very important mediating variable: the higher the identification, the greater the emotional impact of the narrative

information is provided by the main characters rather than by external sources.

Educommunication for persuasive health purposes has been widely used in national and international research, especially in the prevention of diseases such as AIDS (**Hether** *et al*., 2008) or cancer (**Green**, 2006; **Igartua**; **Cheng**; **Lopes**, 2003), and the reduction of risk behaviours linked to smoking (**Igartua**, 2021), obesity (**Valente** *et al*., 2007), and unwanted pregnancies (**González-Cabrera**; **Igartua**, 2018).

As noted by **Green**, one of the pioneers of the narrative transportation model, narrative-based health campaigns can change knowledge and beliefs and motivate action or change by creating a sense of immersion in the story that reduces fears of unfamiliar medical processes; provides role models; and generates attitudes based on both knowledge and emotions (**Green**, 2006). Another widely used model is the Extended-Elaboration Likelihood Model (E-ELM) by **Slater** and **Rouner** (2002), which, in addition to the need to achieve impact, appeal to or involve the receiver, considers the degree of identification with the protagonist as a variable for achieving greater immersion in the story.

The primary mediators in the field of narrative persuasion are therefore narrative transportation (immersion) and identification. It has been shown that identification with the protagonists is a major mediating variable on the effects: the higher the identification, the more emotional impact the narrative can have, since it is a cognitive-affective process that increases empathy, and indirectly affects attitudes (**De-Graaf** *et al.*, 2012; **De-Graaf**; **Sanders**; **Hoeken**, 2016; **Igartua**; **Barrios**, 2012). Furthermore, as **Igartua** and **Fiuza** (2018) have shown, a moderating variable is that the greater the perceived similarity to the protagonist, the greater the identification, which derives from the perception of shared objective traits (demographic, gender, nationality...) and subjective traits (personality, beliefs or values). However, the meta-analysis by **Tukachinsky** (2014) argued that the manipulation of objective similarity has generally mild and heterogeneous effects on the transportation into a narrative world, and insignificant or heterogeneous effects on identification.

Another result of edutainment in narrative is that a high degree of similarity increases the likelihood that the audience will better perceive the risk (**González-Cabrera**; **Igartua**, 2018; **Moyer-Gusé**; **Nabi**, 2010) which is made explicit in the message ('it could happen to me in the future'), causing attitudinal change. Along these lines, some interesting studies have been conducted on the capacity to take edutainment to a more immersive level that favours greater empathy thanks to the gamification of the narrative (**Gómez-García**; **Paz-Rebollo**; **Cabeza-San-Deogracias**, 2021).

This paper continues the line of research on moderated mediation in persuasive narrative on health issues by investigating the effect of different storyline frames in order to improve the effectiveness of blood donation awareness campaigns aimed at young people.

3. Method

3.1. Presentation, objectives and assumptions

This research aims to analyse the effects that different persuasive narrative frames in the form of *Twitter* threads with edutainment features have on knowledge and attitudes about blood donation, and on the perceived risk of donating, and intention to donate. It therefore contributes to the advancement of knowledge on how perceived similarity and identification with the protagonist of the story determine the persuasive effect of messages with emotional appeal in the field of health, and to establish the best approaches to the narrative. Two experimental variables were used to generate the persuasive frames: (1) an approach based on the emotional appeal (to empathy, with a protagonist that receives donations; *vs.* pride, with a protagonist donor, based on **Kong** and **Lee**, 2021) and (2) an approach based on the beneficiary of the donation (personalised *vs.* generic, based on the 'identifiable victim effect' used by authors such as **Erlandsson** *et al*., 2015 and **Van-Esch**; **Cui** and **Jain**, 2021).

The experimental research design starting from the premise that edutainment stories achieve better results than informative-persuasive ones. Following the characteristics of this type of appeals (**Igartua**, 2011; **Green**, 2003), a narrative was developed with the following features:

- Narrative structure referring to an event, with introduction (the presentation of the protagonist), a problem (the need for blood components) and a solution (the request for donation).
- High presence of emotions and medium-low level of information about donation. In this case, a framework of positive emotions was chosen, based on the ideas of **Martín-Santana** and **Beerli-Palacios** (2008).
- Attractive for the target population thanks to the language and the channel. The *Twitter* thread was chosen as the narrative support, in which the protagonist's story is told in the first person, using friendly, accessible language that is suitable for the platform, including hashtags, emoticons, photos and GIFs (**Strauck-Franco**; **Guillén-Arruda**, 2017). The social network itself (**Pietsch**, 2021), based on a study of its data, has recognised the capacity of generation Z to influence the conversations that take place on *Twitter*, driving certain topics and trends through them, as well as showing a greater willingness to participate.

The storyline created for this experiment sought to raise awareness among the younger population of the need to donate blood as a regular process within the health system; and to promote donation by eliminating the most common fears of this target group, as evidenced in a previous study (**Martínez-Sanz**, 2021).

Figure 2. The beginning of two of the *Twitter* threads that manipulated the empathic appeal based on the character of their protagonist: blood recipient or blood donor.

Translation:
Hey people!
Today I want to tell you how much I owe to #blooddonation.
For those who don't know me, I'm Juan, a normal 21-year-old guy, a sports fan and a Business Administration student in Valladolid.

There goes my pose photo of the day.
Yesterday, for the 1st time, I went to #donate with mine.
For those who don't know me, I'm Juan, a normal 21-year-old guy, a sports fan and a Business Administration student in Valladolid.

The extended-Elaboration Likelihood Model (E-ELM) devised by **Slater** and **Rouner** (2002), in addition to providing an impactful and direct beginning for the story that would involve the receiver, was used to promote identification with the protagonist. To achieve greater immersion, socio-demographic and behavioural traits were employed that were similar to those of the target audience, in addition to using a channel, format and language that was accessible to them.

The choice of the first person (as opposed to third-person narratives) relies on the fact that first-person narratives

> "are perceived as more personal, are easier to understand, increase perspective-taking and identification with the protagonist, and are more effective in inducing risk perception" (**Igartua** *et al*., 2021, p. 248).

Consequently, the starting point was what **Igartua** *et al.* (2021) called the 'optimal reception condition' (narrative that emerges from the testimony of a protagonist that is similar to the audience). However, when considering the perspective of the donation (recipient *vs.* donor) as one of the two main variables of the study, it was estimated that in the stories featuring the recipient, the identification with the protagonist would decrease compared with the donor's testimonies, since the latter's story presents a young person who donates for the first time and faces certain fears and doubts about the donating process (see Appendix). In addition, previous research (**Ooms**; **Hoeks**; **Jansen**, 2019) has suggested that this identification will be moderated by perceived similarity to the protagonist of the story.

Based on the above, some hypotheses are proposed that refer to the independent variable that manipulates the emotional appeal of the approach (empathic *vs.* pride):

H1: The type of emotional appeal will influence the level of identification with the author of the thread and this relationship will be determined by the level of perceived similarity with the author.

- H1a: Emotional appeal based on pride in the donor will generate greater identification than appeal based on empathy with the recipient.
- H1b: The influence of emotional appeal on identification with the author of the thread will be moderated by perceived similarity to the author.

H2: The type of emotional appeal will influence the level of identification with the protagonist, which in turn will be associated with greater effectiveness of the message:

- H2a: in recall of the information,
- H2b: in the intention to share the message,
- H2c: in the attitude towards donating blood, and
- H2d: in the perceived risk of the process.

The second experimental variable was the personalisation of the need for blood in a patient who benefits from donations ('Your donation can save people like Pablo'); as opposed to a general call to donate for the benefit of society, providing generic or statistical data ('With your donation you can save up to three lives'). In this case, it is expected that the most effective narratives will be those that personalise and bring the need closer to home, as research on similar topics has concluded (**Erlandsson** *et al*., 2015; **Van-Esch**; **Cui**; **Jain**, 2021). It is therefore hypothesised that:

H3: The type of beneficiary approach will influence the effectiveness of the message. The approach with a beneficiary personalised as an identifiable victim versus a non-personalised or general benefit will lead to:

- H3a: stronger intention to share the message

H3b: A better attitude towards blood donation

H3c: Lower perceived risk of the process.

In relation to this hypothesis, and due to the lack of previous research, the following research question regarding the interaction effect between the two independent variables was posed:

P1. What is the best combination of emotional appeal and beneficiary approach to achieve greater message effectiveness?

Finally, based on studies of the Theory of Planned Behaviour applied to blood donation by authors such as **France**, **France** and **Himawan** (2007) and **Giles** (2014), the effects of attitude towards donation and perceived risk on the intention to give blood (the ultimate purpose of the story) will be analysed in relation to the frames used. Based on previous research indicating that a better attitude towards donation and lower perceived risk led to stronger intention to donate blood (**Mohanty**; **Biswass**; **Mishra**, 2021), it is hypothesised that there will be an indirect effect on the intention to donate that will be explained by these two variables:

H4: The effect of emotional appeal (H4a) and the beneficiary approach (H4b) on intention to donate blood will be mediated by the attitude towards giving blood.

H5: The effect of emotional appeal (H5a) and the beneficiary approach (H5b) on the intention to donate blood will be mediated by the perceived risk.

The hypothesised model is summarised in Figure 3.

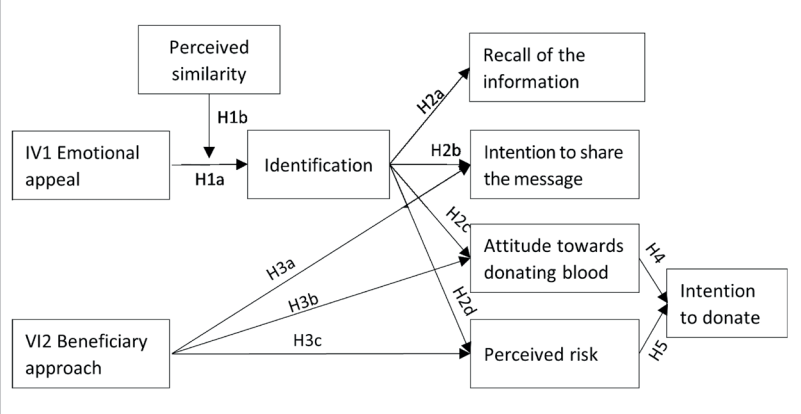

Figure 3. Hypothesised model

Finally, we will also test whether this model works equally well among people who have donated blood before and people who have never donated blood before. That is, whether being a prior donor plays a moderating role in the effect of emotional appeal and the beneficiary approach on message effectiveness will be analysed in order to answer the following research question:

P2. Is the effect of emotional appeal and the beneficiary approach on message effectiveness moderated by the donor status of the participant?

3.2. Design and procedure

To test these hypotheses, an online experiment was conducted between 26 October and 17 November 2021 on a non-probabilistic convenience sample of 600 young people aged between 18 and 30. All participants consumed a narrative message in the form of a *Twitter* thread.

For the experiment, a 2 x 2 factorial design was employed that used independent measures, with four groups and a single post-test measure. As previously indicated, the two independent variables subject to manipulation were: (1) the approach based on the emotional appeal (empathic, focused on the recipient's emotions *vs.* pride, focused on the donor's emotions) and (2) the approach based on the recipient of the donation (personalised *vs.* generic or statistical). Four narratives were generated based on these two variables that were as similar as possible to each other, except for the issues dependent on the variables under study. These stories were then uploaded to *Twitter* and adapted to the format of a message thread with the use of the most common elements in their formulation, such as images, GIFs, hashtags and emoticons. Participants were contacted through a combination of convenience and snowball sampling. They were randomly assigned to one of the four experimental conditions. After giving informed consent, they read the thread to which they had been directed and then completed an online questionnaire.

> "In order to achieve greater immersion, the aim was to promote identification with the protagonist by using socio-demographic and behavioural traits similar to those of the target audience, as well as using a channel, format and language that felt close to them"

Prior to data processing, a two-step quality filter was performed. Firstly, cases were traced where survey responses were inconsistent with each other, showing little interest in participation. Secondly, the combination of the two questions on the effectiveness of the experi-

mental manipulation was used as a control mechanism to observe cases where both questions were answered incorrectly, again indicating poor participant attention. After taking these steps, the total number of responses was 600.

3.3. Narrative and experimental manipulation

A narrative starring a 21-year-old sports enthusiast and university student was constructed in order to encourage the identification of the campaign's target audience and research subjects. The first person was used to explain the needs of blood donation and the characteristics of the process and to address the most frequent fears. This information was common to all four stories (see Annex).

In the experimental manipulation, the following independent variables were used as a starting point:

1. Emotional appeal: empathy (focused on the consequences for the recipient in need of donation) *vs.* pride (focused on the emotional consequences for the donor), based on the studies by **Kong** and **Lee** (2021). This meant that the protagonist was either a recipient or a donor in the narratives and in the feelings that they experienced because of their status.

2. Beneficiaries of the donation: on behalf of whom the request for a donation is made. Following studies on identifiable victims versus statistics (**Erlandsson**, *et al.*, 2015; **Van-Esch**; **Cui**; **Jain**, 2021), the story ultimately appeals for a donation to be made for a personalised victim, of whom an image is shown ('With your donation you can help Pablo'), as opposed to a message that appeals to the generic benefit of all those in need ('You can save up to 3 lives by donating blood').

3.4. Variables structuring the survey

Each participant in the experiment was randomly referred to one of the four versions of the narrative, each associated with an online questionnaire with a common structure and questions adapted to the differences in the four versions. Before starting to read the story, the user was asked about their donor status and reasons for not donating, based on similar studies such as those by **Gomes** (2019) and **Vásquez**, **Ibarra** and **Maldonado** (2007).

After exposure to the *Twitter* thread, participants answered two questions in order to check the experimental manipulation: (1) 'Do you remember who wrote the *Twitter* thread you have just read?', and (2) 'Who is the focus of the donation request message at the end of the thread?'. In addition to socio-demographic data (age and gender), the questionnaire then included questions on the following variables:

- Information recall. To measure this variable, four true/false statements were included that asked about information that had been provided in the thread (e.g. 'It is advisable to donate blood on an empty stomach'). A recall index was created by adding up the correct answers (M = 3.69, DT = 0.54).
- Perceived risk. This variable was measured using the **Chen** (2017) scale, consisting of two items (e.g. 'Donating blood is safe and there is no risk of getting an infection') measured on a 7-point scale (from 1 = strongly disagree to 7 = strongly agree). A perceived risk index was created from the average of the two items (r = 0.20, p < 0.001; M = 5.74, DT = 0.98). A high value for this variable indicates lower perceived risk.
- Attitude towards blood donation. A three-item scale was devised based on **Guglielmetti-Mugion** *et al.* (2021) (e.g. 'I think donating blood is useful'), measured on a 7-point scale (from 1 = strongly disagree to 7 = strongly agree). An index of attitude towards blood donation was generated with the average of the items (α = .55; M = 6.45, DT = 0.65).
- Intention to donate blood. The measurement of this variable used the scale developed by **France**, **France** and **Himawan** (2007) consisting of three items (e.g. 'In the next three months... I intend to donate blood') on a 7-point scale (from 1 = unlikely to 7 = likely). Based on the average of the three items, an index of intention to donate blood was established (α = .95; M = 4.31, DT = 1.99).
- Identification with the protagonist. An adapted version of the scale by **Igartua** and **Barrios** (2012) was used to measure this variable, as was done in the study by **Rodríguez-de-Dios**, **Igartua** and **D'Haenens** (2021). Six items were included (e.g. 'I have imagined how I would act if I were in Juan's place') on a 5-point scale (from 1 = strongly disagree to 5 = strongly agree). Based on these items, an index of identification with the protagonist was constructed (α = .81; M = 3.54, DT = 0.75).
- Perceived similarity to the author of the thread. This variable was measured using the research by **Igartua** *et al*. (2018) as a reference. Two items were used (e.g. 'How similar do you think you are to Juan?') on a 5-point scale (from 1 = nothing to 5 = a great deal). A perceived risk index was created from the average of the two items (r = 0.74, p < 0.001; M = 2.95, DT = 0.80).
- Intention to share the message. The scale developed by **Barbour**, **Doshi** and **Hernández** (2016) was adapted following the study by **Guerrero-Martín** and **Igartua** (2021). Five items were included (e.g. 'I would "like" this *Twitter* thread') measured on a 7-point Likert scale (from 1 = strongly disagree to 7 = strongly agree). An index of intention to share the message was created by averaging the five items.

3.5. Participants

After the quality filter described above, the final study sample consisted of 600 young people (142 in thread 1, 156 in thread 2, 147 in thread 3, and 155 in thread 4), within the 18- to 30-year-old age range. From the total of participants, 61.7% were female, 36.3% were male, 1% identified themselves as non-binary gender and 1% preferred not to say. Fur-

thermore, 74.8% of the sample had not donated blood before, whereas 25.2% had done so, similarly to those identified in the study **Martínez-Sanz** and **Durántez-Stolle** (2021) in Spain, and somewhat higher than those found by **Gomes** *et al.* 2019 among Portuguese young people.

The random assignment of participants to the different experimental conditions was successful. No statistically significant differences were found between the four experimental groups in terms of gender (χ^2 (3, N = 600) = 7.488, p = 0.586), age (F (3, 596) = 1.63, p = 0.181), or previous blood donor status (χ^2 (3, N = 600) = 0.031, p = 0.999).

4. Results of the study

4.1. Preliminary analysis

An analysis of the results showed that the experimental manipulation of the two independent variables was effective. Firstly, participants recognised the emotional appeal of the narrative by correctly identifying the role of its author (χ^2 (1, N = 600) = 504.199, p < 0.001). After reading the thread with the empathetic approach, 95.3% of participants indicated that the author was 'Juan, a blood recipient, a person who has needed transfusions' while 96.4% indicated that the author was 'Juan, a blood donor, a person who has donated blood' when they came into contact with a thread that appealed to donor pride. In addition, participants correctly identified the person on whom the request for a donation was focused (χ^2 (1, N = 600) = 253.923, p < 0.001). Of the participants who accessed a story with a personalised approach, 73.4% indicated that the donation was requested 'for a specific person'. Similarly, 91.0% of respondents indicated that 'help was not personalised. Donations were requested for all the people in need' after reading a thread with a generic approach.

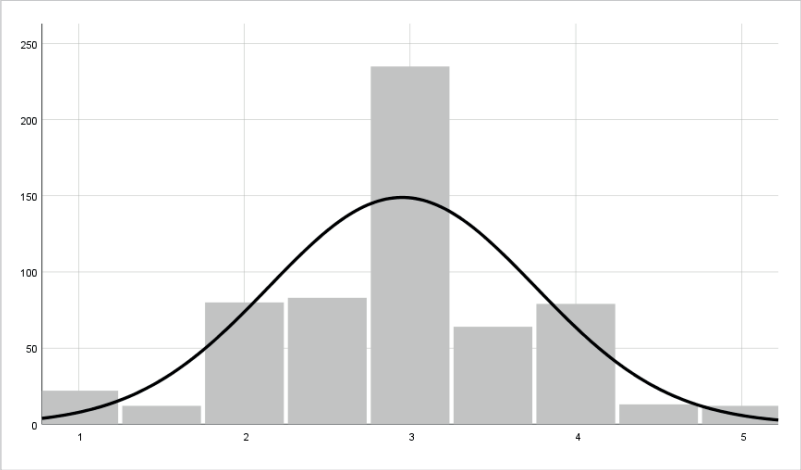

Figure 4. Histogram of perceived similarity to thread author and normal distribution curve

Regarding the study's moderator variable (the perceived similarity with the author of the thread), Figure 4 shows the distribution of this variable among the participants. It was also checked whether there was any relationship between this variable and the socio-demographic variables. A correlation between age and the level of perceived similarity was found, r (598) = .09, p = 0.025. Older participants were therefore perceived to be more similar. In contrast, there was no difference in the level of perceived similarity based on either gender, F (3, 596) = 1.222, p = 0.301 or previous donor status, t (586) = 1.81, p = 0.071.

Finally, the correlations between the mediating variable (identification with the protagonist of the thread) and the dependent variables were analysed in order to test whether the mediating processes showed convergent correlations with the proposed hypotheses. The results presented in Table 2 justify the mediation model formulated.

Table 2. Correlations between mediating and dependent variables

	1	2	3	4	5	6
1. Identification	-					
2. Recall of information	.134***	-				
3. Intention to share the message	.447***	.048	-			
4. Attitude towards donation	.309***	.112**	.386***	-		
5. Intention to donate	.238***	.091*	.253***	.279***	-	
6. Perceived risk	.092*	.154***	.080*	.251***	.304***	-

Note. * p < .05, ** p < .01, *** p < .001 - The data in red was not significant (p = .237).

4.2. Effect of emotional appeal on identification with the protagonist (H1)

The first hypothesis posited that emotional appeal based on the donor's pride would generate greater identification (H1a) and that this effect would be moderated by perceived similarity to the thread author (H1b).

Model 1 of the *Process* macro for *SPSS* (**Hayes**, 2018) was used based on 10,000 samples of bootstrapping and a confidence level of 95% to test this hypothesis. The results show that there was a direct effect of emotional appeal on identification, B = -0.95, p < 0.001. However, contrary to what was hypothesised, it was the message with the empathic emotional appeal (recipient of the donation) that generated stronger identification with the author of the thread. Partic-

ipants who read the thread written by the recipient identified more strongly with the author (*M* = 3.60; *DT* = 0.71) than those who read the thread written by the blood donor (*M* = 3.49; *DT* = 0.79).

The moderation effect was also significant, although in the opposite direction to what was hypothesised, *B* = -.26, *p* < 0.001. The level of perceived similarity with the author of the thread determined the effect of the emotional appeal on identification with the protagonist. However, the empathy-based emotional appeal generated stronger identification among those who perceived themselves as not being very similar to the protagonist (*B* = -0.44, *SE* = 0.08, *p* < 0.001), or somewhat similar (*B* = -0.18, *SE* = 0.05, *p* < 0.001), as opposed to those who perceived themselves as being quite similar (*B* = 0.07, *SE* = 0.08, *p* = 0.363).

4.3. Analysis of the conditional process of indirect effects with identification as a mediator (H2)

The second hypothesis of the study was that the type of emotional appeal would have an indirect effect on information recall (H2a), intention to share the message (H2b), attitude towards blood donation (H2c), and perceived risk (H2d). This indirect effect would be mediated by identification with the protagonist and moderated by the level of perceived similarity. Model 7 of the *Process* macro for *SPSS* was used to test these hypotheses.

There was a statistically significant conditional indirect effect between those participants who perceive themselves as being slightly or somewhat similar in all the analyses (see Table 3).

Table 3. Indirect effects of emotional appeal on dependent variables

Dependent variable	Perceived similarity	*B*	*SE*	95% *IC*	Moderated mediation index
Recall of information	Slightly	-0.04	0.02	-0.08, -0.01	0.02, *SE* = 0.01, 95% *IC* [0.007, 0.047]
	Somewhat	-0.02	0.01	-0.03, -0.05	
Intention to share the message	Slightly	-0.37	0.08	-0.53, -0.22	0.21, *SE* = 0.06, 95% *IC* [0.10, 0.33]
	Somewhat	-0.15	0.04	-0.24, -0.07	
Attitude towards donation	Slightly	-0.12	0.03	-0.17, -0.07	0.07, *SE* = 0.02, 95% *IC* [0.03, 0.11]
	Somewhat	-0.05	0.01	-0.08, -0.02	
Perceived risk	Slightly	-0.05	0.03	-0.10, -0.02	0.03, *SE* = 0.02, 95% *IC* [0.01, 0.06]
	Somewhat	-0.02	0.01	-0.04, -0.01	

As the analyses of the previous hypothesis indicated, emotional appeal based on empathy towards the blood recipient led to greater identification between people who perceived themselves as being slightly or somewhat similar. This second analysis also showed that identification with the author of the thread explained the indirect effect of this empathic appeal on information recall, intention to share the message, a better attitude towards blood donation and a lower perceived risk. Therefore, the thread with the recipient of the donation (emotional appeal to empathy) resulted in a stronger identification, and this in turn had a positive effect on all dependent variables.

4.4. Effect of beneficiary approach (H3)

The third hypothesis of the study was that the type of approach based on the beneficiary (beneficiary personalised as an identifiable victim *vs.* general victim or statistics) would influence intention to share the message (H3a), attitude towards blood donation (H3b), and perceived risk (H3c). To test this hypothesis, a Student's t-test for independent samples was performed. The results showed that the type of beneficiary approach had no effect on the intention to share the message, *t* (598) = -0.14, *p* = 0.887, attitude towards blood donation, *t* (598) = 1.00, *p* = 0.318, or perceived risk, *t* (598) = 1.32, *p* = 0.187.

Therefore, regardless of whether the beneficiary's approach was personalised and focused on one victim, or not personalised and talked about victims in general, the effectiveness of the message did not change. In other words, the type of beneficiary approach had no effect.

A question was posed in connection with this hypothesis to assess whether there was any interaction effect between emotional appeal and beneficiary-based approach (P1). To answer this question, a two-factor Anova test was used which showed that there was no interaction in any of the variables considered.[1] This indicates that the type of beneficiary approach had no direct individual or interaction effect on the dependent variables in this study. Therefore, using one benefit-based approach or another did not affect the effectiveness of the message. Only the type of emotional appeal influenced its effectiveness.

4.5. Analysis of the conditional process of indirect effects on attitudes towards donation as a mediator (H4)

The fourth hypothesis of the study posited an indirect effect of emotional appeal (H4a) and benefit-based approach (H4b) on the intention to donate blood that would be mediated by attitude towards donation. In the case of emotional appeal, this effect would, moreover, be pre-mediated by identification with the protagonist and moderated by the level of perceived similarity.

Model 83 of the *Process* macro for *SPSS* was used to test hypothesis 4a. The results showed a statistically significant con-

ditional indirect effect between participants who perceived themselves as being slightly, *B* = -0.08, *SE* = 0.02, 95% *IC* [-0.13, -0.04] or somewhat similar, *B* = -0.03, *SE* = 0.12, 95% *IC* [-0.06, -0.01]; moderated mediation index, *B* = -0.03, *SE* = 0.12, 95% *IC* [-0.06, -0.01]. In other words, as in the previous hypotheses, the emotional appeal of empathy (blood recipient) generated stronger identification with the author of the thread, which in turn led to a better attitude towards blood donation and, ultimately, a greater intention to donate blood. Therefore, attitude towards donation would explain the effect of empathic emotional appeal on the intention to donate blood.

> The emotional appeal to empathy with the recipient was found to be more effective than the appeal to pride in the donor, regardless of the reader's previous experience. The results of this pilot study will allow the development of better campaigns to promote blood donation among young people

Model 4 of the *Process* macro for *SPSS* was used to test hypothesis 4b. There was neither a direct effect, *B* = 0.13, *SE* = 0.15, *p* = 0.394, nor a statistically significant indirect effect, *B* = -0.04, *SE* = 0.04, 95% *IC* [-0.13, 0.04], of the benefit-based approach on the intention to donate blood. Consequently, as in the previous hypotheses, the type of beneficiary-based approach had neither a direct nor an indirect effect on the variables considered.

4.6. Conditional process analysis of indirect effects with perceived risk as a mediator (H5)

The fifth hypothesis of the study posited an indirect effect of emotional appeal (H5a) and benefit-based approach (H5b) on the intention to donate blood that would be mediated by perceived risk. That is, the effect of the emotional appeal and beneficiary-based approach on the intention to donate blood would be explained by the perceived level of risk. In the case of the emotional appeal, this effect would, moreover, be pre-mediated by identification with the protagonist and moderated by the level of perceived similarity.

Model 83 of the *Process* macro for *SPSS* was used to test hypothesis 5a. The results showed a statistically significant conditional indirect effect between participants who perceived themselves as slightly, *B* = -0.03, *SE* = 0.02, 95% *IC* [-0.06, -0.01], or somewhat similar, *B* = -0.01, *SE* = 0.01, 95% *IC* [-0.03, -0.01]; moderated mediation index, = 0.02, *SE* = 0.01, 95% *IC* [0.01, 0.04]. In this case, participants who read the thread written by the blood recipient (emotional appeal of empathy) identified more with the blood recipient, and this reduced their perception of the risk associated with donation. This reduction in perceived risk in turn led to a greater intention to donate blood.

Model 4 of the *Process* macro for *SPSS* was used to test hypothesis 5b. Again, there was neither a direct effect, *B* = 0.15, *SE* = 0.15, *p* = 0.323, nor a statistically significant indirect effect, *B* = -0.06, *SE* = 0.05, 95% *IC* [-0.17, 0.03] of the manipulation of the beneficiary-based variable on the intention to donate blood. Therefore, as in the previous hypotheses, the type of beneficiary-based approach had neither a direct nor an indirect effect on the variables considered.

The final research question of the study was whether prior donor status would play a moderating role on the effect of the two independent variables considered in the study: emotional appeal and beneficiary-based approach. In order to test whether donor status affected the influence of the emotional appeal and beneficiary-based approach on the dependent variables, a moderation analysis was conducted through Anova testing. However, none of the analyses performed were significant. Consequently, for both prior donors and non-donors, the emotional appeal to empathy in the thread written by the blood recipient was the most effective message.

5. Discussion and conclusions

There is a need to raise social awareness of blood donations, as blood and its derivatives have a limited shelf life, cannot be manufactured, and are widely used in the health system. However, Spanish organisations such as the *Red Cross* have shown that only 5% of the population who could donate do so. This situation reinforces the importance of investing in awareness-raising campaigns to support the behaviour of those who have already donated and to attract new donors, especially young people, to enable a successful generational transition.

The experimental research design used here (2 x 2 factorial design) analysed the effects that different persuasive frameworks had on knowledge and attitudes about blood donation, as well as on perceived risk and intention to donate. An edutainment-based story was used, with a protagonist narrator that had similar traits to the target group (young people) and a channel and language adapted to it (a *Twitter* thread with GIFs, hashtags, emoticons and photos). With the manipulation of the first variable, the effects of the emotional appeal to empathy with the recipient of the donation versus the appeal to the donor's pride were assessed, while also studying how perceived similarity (moderator) and identification with the protagonist of the story (mediator) affected the persuasive effect. With the manipulation of the second variable, the effects of using an identifiable victim in the story, as opposed to

> The narrative written by the blood recipient (the emotional appeal to empathy) promoted greater identification, which improved the attitude towards donation and reduced the perception of the associated risk, increasing the intention to donate

using general data on the beneficiaries of the donation, were observed on the different dependent variables that assessed the effectiveness of the message.

> Donor status (previous experience) did not affect the results of the manipulated variables: for both donors and non-donors the most effective approach was the thread written by the recipient

The experimental study conducted here shows that perceived similarity moderated the persuasive effects of emotional appeal in the two manipulated strands (recipient-empathy and donor-pride) on the thread reader's behaviour and intention to donate, in agreement with the results obtained by **Kong** and **Lee** (2021). However, the prediction that the story appealing to pride, starred a young donor who overcame their fears and donated for the first time (the one closest to the target audience, who had a higher perceived similarity and identification) did not hold true. This may have been due to the fact that participants see donation as a personal and intimate gesture, and not as an act of public display. What might explain the affinity with the protagonist who received the donation, a sick young man, would be the identification with the reaction to a similar situation: uncertainty about the future and the desire to live, as can be inferred from the narrative.

Consequently, the persuasive effectiveness of the appeal to empathy on the intention to donate was confirmed, in line with what was stated by **Puig-Rovira**, **Graell-Martín** and **Cortel-Mañé** (2014), for whom representing the needs of the other, the recipient of blood, encourages the potential donor to put themselves in their place and promote the help sought.

In either case, identification with the protagonist, moderated by perceived similarity, was shown to mediate the indirect effect of the emotional appeal story on information recall, intention to share the message, attitude and perceived risk in accordance with the Extended-Elaboration Likelihood Model (E-ELM) by **Slater** and **Rouner** (2002).

It was also corroborated that the emotional appeal in persuasive narratives that seek to promote altruistic blood donation is affected not only by identification but also by the attitude towards donation and the perceived risk. The empathic approach obtained the best results compared to the pride frame, which means that putting oneself in the place of the other person (the sick person who needs our help) minimises the perception of the main risks attributed to blood donation by young people: the transmission of diseases and the physical pain that blood collection may cause.

In this regard, it is striking that previous experience, that is, having donated before, does not interfere with the effects of the two independent variables considered in the study, emotional appeal and beneficiary-based approach, reinforcing the results of the work by **Mohanty**, **Biswas** and **Mishra** (2021) on perceived risk by donors and non-donors.

Based on the results obtained from this first experimental manipulation, a moderated mediation model is established that shows the statistically significant relationships produced by the emotional appeal on the different dependent variables of the persuasive process for blood donation (Figure 5).

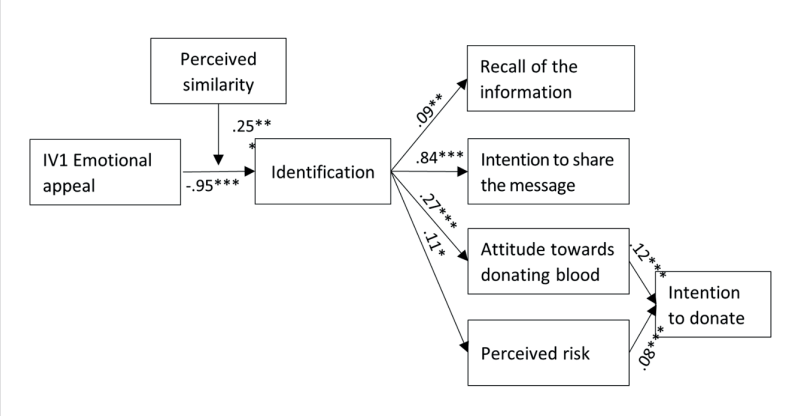

Figure 5. Moderated mediation model.
Note. Non-standardized regression coefficients are shown (*B*)
* *p* < .05, ** *p* < .01, *** *p* < .001.

The study's second independent variable, aimed at manipulating the beneficiary-based approach, did not work as expected in either of the two frames (identifiable victim *vs.* general or statistical victim), as it had neither direct nor indirect effects on the reader's knowledge (assessed in 'information recall') and attitudes about donation or intention to donate. This lack of results was in line with the thesis proposed by **Moussaoui** *et al*. (2016), who found no significant reaction to donor retention messages that relied on the argument of saving lives.

The lack of results in the manipulation of this variable calls for reflection on the reasons why the personalised framework ('your donation can help Pablo'), widely used in solidarity campaigns (**Erlandsson** *et al.*, 2015; **Van-Esch**; **Cui**; **Jain**, 2021), did not have the expected effect when applied to donating blood. Firstly, the difficulty of making the recipient of the message feel that the donation is intended for a specific person must be considered, since most respondents are aware that blood donation is an anonymous process in Spain, which may have led to a lower percentage of correct answers to the control question on the variable 'personalised beneficiary'. Secondly, the part that appealed to donation was at the end of the story, when the reader may have less interest in, paying less attention to, reading, although in the control question on the variable 'generic beneficiary' there was a higher number of hits (91% *vs.* 73.4%). In any case, both issues should be considered to be limitations of the study and be taken into account in future research.

In light of these results, and in order to continue the study of persuasive narrative to promote blood donation in young people, future research could further analyse the appeal from the perspective of the protagonist (donor *vs.* recipient) by combining this variable with the positive or negative emotional appeal, emphasising the frame of lives lost versus lives saved.

With respect to previous research, this experimental analysis advances the existing understanding of moderated mediation models applied to narrative persuasion in health. Specifically, greater effectiveness was found in the emotional appeal to empathy, with a story featuring the recipient of blood donations, as opposed to the appeal to the sense of pride experienced by a donor, effects that occurred regardless of the previous donor status of the reader of the story. These results could have practical application in developing awareness campaigns to improve the recruitment and retention of young blood donors.

6. Note

1. Since all analyses were non-significant, statistical data have not been reported in order to make the text more concise.

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8. Annex

Table 4. Summary of the content of the stories based on the manipulated variables

	Narrative 1	Narrative 2	Narrative 3	Narrative 4
ELEMENTS COMMON TO ALL FOUR STORIES				
Socio-demographic characteristics of the protagonist	- Age (21) -Hobby (sport) - Education Business Management and Administration	Same as Narrative 1	Same as Narrative 1	Same as Narrative 1
Information on blood donation	- Not doing without eating - Duration - Typical uses - Expiry date - Painless process	Same as Narrative 1	Same as Narrative 1	Same as Narrative 1
DISTINCT ELEMENTS, DERIVED FROM EXPERIMENTAL MANIPULATION				
Protagonist (author of the thread) **MANIPULATED VARIABLE 1** (Emotional appeal: empathy with recipient *vs.* donor pride, based on **Kong**; **Lee**, 2021)	Juan, recipient of blood donations	Same as Narrative 1	Juan, blood donor	Same as Narrative 3
Feelings that the protagonist experiences **MANIPULATED VARIABLE 1** (Emotional appeal: empathy with recipient *vs.* donor pride, based on **Kong**; **Lee**, 2021)	- Fear - Hesitation in the face of the unknown - Gratitude for donations - Enthusiasm for life	Same as Narrative 1	- Pride in overcoming fear - Supported by family and health practitioners - Satisfaction in helping	Same as Narrative 3
Beneficiaries of donating from the reader's perspective **MANIPULATED VARIABLE 2** (Identifiable *vs.* generic or statistical victim, based on **Erlandsson** *et al.* 2015; **Van-Esch**, **Cui**; **Jain**, 2021)	'Your donation can save up to three lives'	'Your donation can save the lives of people like Pablo' (photo)	Same as Narrative 1	Same as Narrative 2