Talk-Centered Blood Donation: Tracing the Path to Becoming a Blood Donor

Eulàlia Puig Abril
Life Sciences Communication
University of Wisconsin-Madison

Hernando Rojas
Life Sciences Communication &
School of Journalism and Mass Communication
University of Wisconsin-Madison

Address correspondence to:
Eulàlia Puig-i-Abril
Life Sciences Communication, Hiram Smith Hall
1545 Observatory Dr., Madison, WI 53706
Phone: (608) 239 2328, Email: epabril@wisc.edu

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Abstract

This paper explores the role of personal predispositions, mass media use, interpersonal relationships, civic behaviors and conversation as antecedents of altruistic blood donation. Path analyses show that talking about blood donation is central to voluntary blood donation. The direct effects of conversation on past voluntary blood donation as well as on future blood donation intentions are significant, and most importantly, talk mediates the contribution of other variables in the model including media and pro civic behaviors. Differences with a model predicting blood donation in emergency situations are discussed. A talk-centered model of blood donation is proposed and its implications assessed for future blood collection programs.
Talk-Centered Blood Donation: Tracing the Path to Becoming a Blood Donor

A country’s health system needs a continuous, stable and dependable supply of human blood to function efficiently. In industrialized countries, it is estimated that one in ten patients who enter a health care center needs a blood transfusion. The World Health Organization (WHO) estimated that less than 45% of the world’s annual blood donation in 2006 was collected in developing and transitional countries, while these countries had 80% of the world's population (World Health Organization, 2008a). Moreover, the crucial aspect in blood donation is that donation is voluntary. Donors who give blood voluntarily have the lowest prevalence of HIV, hepatitis viruses, and other blood-borne infections, as compared to people who donate via reposition (donation from a family member or friend as a barter for one’s transfusioned blood), or in exchange for money (World Health Organization, 2008a).

Despite all these indicators attesting to the necessity of a steady flow of voluntary blood donation, the literature has yet to understand the mechanisms thorough which voluntary blood donation takes place. On the whole, most studies have relied on demographic indicators, on altruistic norms and behavior, and on blood donor profiles to predict first-time donors or habitual ones (Masser, White, Hyde, & Terry, 2008; McMahon & Byrne, 2008; Piliavin & Callero, 1991), with past blood donation always being a strong predictor of future blood donation (Godin, Conner, Sheeran, Bélanger-Gravel, & Germain, 2007; Schlumpf et al., 2008). Yet, these results have not been translated into successful campaigns that have increased the pool of habitual donors, or donors in general on a global scale; or into actual increases in blood collection, which has not increased dramatically over the last years (World Health Organization, 2008a).

Multiple studies have posed the need to study the communicative aspects of donation more systematically (Bettinghaus & Milkovich, 1975; Glynn et al., 2002; Thomson et al., 1998),
but little advance has been made in this respect (Piliavin, 2005). A study in 2006 by the authors indicated that mass media variables had no direct effect on blood donation, but that social capital as well as having volunteered and donated money in the past were positively associated; still, these results were limited in that conversation and the possibilities of indirect effects were not accounted for (Authors, 2006). A recurrent theme in the blood donation field is that interpersonal communication matters (Geyer, 2005); blood donation is more likely in people who associate themselves with others—and supposedly talk in social groups or associations, while volunteering for a community project, or simply via email contact.

Talking about blood donation, be it with friends or family members, over the phone, via email, or face-to-face, is an important factor that has not been researched in the literature of transfusional medicine. However, it has shown to have strong predictor power in other types of health-related donations such as organs (Bresnahan et al., 2007; Morgan, Harrison, Afifi, Long, & Stephenson, 2008). Moreover, talk is also a predictor of civic life indicators, (Kim, Wyatt, & Katz, 1999; Kwak, Williams, Wang, & Lee, 2005). This study analyzes the paths to blood donation with an analysis of how actually talking about blood donation with family members and friends can channel people’s attitudes and predispositions into voluntarily donating blood.

Finally, this paper ventures into an especially captivating area, that is, the contrast of how blood donors may systematically vary under different circumstances, such as past blood donation vs. willingness to donate in the future, vs. willingness to donate when there is a major disaster. Bearing in mind that the need for blood is especially acute in developing countries (Bagozzi, 2006), we have placed our inquiry in this domain and tested our models in such a place: Colombia.
Blood donation antecedents

The WHO recommends that the blood available for each 1000 citizens be from 40 to 50 units. In Colombia, the national average is of 10 units for each 1000 citizens—dangerously below the recommended standard (Camacho Rodriguez, 2004), even though recent findings show improvement in Colombia (World Health Organization, 2008b). The most successful countries and regions in promoting blood donation have moved toward voluntary blood donation systems that have proven more effective for ensuring the quantity of blood supply as well as reducing the risks and costs of the blood collection process.

In areas where voluntary blood donation has not been sufficiently stimulated, donation through reposition or purchase prevails, in spite of the existing evidence about the limited quality of these methods—see Healy (1999), Oswalt (1977), Vallejo, Quiceno, Ospina, Fajardo, & Valencia (2004).

In the Colombian case, the move toward an entirely voluntary blood donation has not been reached. Some organizations like the Pan American Health Organization (Pan American Health Organization, 2004) estimates that only 20% of the total blood collected in Colombia is really from voluntary donors. However, the World Health Organization estimates that this percentage has risen to 61% (World Health Organization, 2008b). This estimate would place Colombia well below the Latin American and Caribbean average. However, other organizations such as the Colombian Association of Blood Banks and Transfusion Medicine (ACOBASMET, for its Spanish acronym), indicates that 50% of the blood collected in Colombia comes from voluntary donation (Camacho Rodriguez, 2004).

Even though the difference between these estimates is important and should be analyzed, our intention is rather to underscore that there is a long and important road to travel regarding
voluntary blood donation in the case Colombia, and that it is important to continue supporting donations that are voluntary. To accomplish this, it is necessary to understand which factors motivate or restrain voluntary blood donation.

Several studies on blood donation have gravitated toward the following topics: (1) establishing personal predispositions associated with blood donation and whether there exists a blood donor profile; (2) analyzing how some crises stimulate blood donation; and (3) studying the impact of social networks on blood donation.

Concerning donors’ personal predispositions, the donation literature has pointed out certain pro-social values such as inherent altruistic motivations, which bring about blood donation (Glynn et al., 2002; Lee, Piliavin, & Call, 1999). These altruistic values have been considered especially important in the context of converting occasional donors into regular donors (Belda Suárez, Fernández-Monroy, Rodríguez-Fernández, López-Berrio, & Cillero-Peñuela, 2004; Boe & Ponder, 1981; Lee et al., 1999; Piliavin & Callero, 1991; Royse & Doochin, 1995). The process goes through an assimilation of norms and values through repeated blood donation, akin to a virtuous cycle of virtue acquisition (Piliavin & Callero, 1991). However, although not empirically tested, this seems more like an outcome of repeated donation, and not so much a predisposition—an aspect that was stressed already in Piliavin’s seminal book.

Most studies in the health literature have centered around how to improve donor return, i.e., how to convert donors into habitual donors. Even though altruistic behavior, empathy, and social responsibility predicted intentions to donate, they did not predict *actual* return (Schlumpf et al., 2008).
Furthermore, a recent report using the same data (Author, 2008) studied blood donation patterns for the city of Bogotá.¹ The author sought to establish the existence of a donor profile comparing non-donors, occasional donors, and habitual donors. ANOVAs were run to test the existence of differences among these groups in socio-economic status and demographics, psychological indicators and attitudinal variables. The results showed that the different groups only differ in talk (about blood donation), their need for association (to a donor organization), and fear (regarding the donation process). All these variables are also used in this paper, though the last one (fear) is part of a composite variable (self attitudes). Talk was significantly higher in both occasional and habitual donors compared to non-donors, yet the difference between occasional and habitual donors was not significant. The same pattern was observed for the variable need for association, but for the variable fear, the differences were between non-donors and habitual donors, while occasional donors were not significantly different from non-donors or habitual donors. None of the variables typically used to define a donor profile (attitudes on altruism and solidarity both at the individual and societal level, knowledge regarding blood donation, and personal and societal satisfaction) were found to significantly differ among any of the groups.

To sum up, on the one hand there seems to be a donor profile with altruistic values in the literature, but the causality of the process is not clear, i.e. whether donors possess these values before they give blood, or whether they become altruistic thorough blood donation (Piliavin & Callero, 1991). On the other hand, possessing these altruistic values does not necessarily predict blood donation (Schlumpf et al., 2008), which ultimately may point to the direction of these

¹ The city of Bogotá contains 38.8% of the sample used in this study and represents the largest proportion among the 10 cities–followed by Medellín holding 16.4% of the sample.
qualities being developed as donors evolve rather than being pre-existing traits (Piliavin & Callero, 1991).

External factors like the occurrence of certain natural disasters or social tragedies have also been associated with citizen mobilization and increases in blood donation (American Red Cross, 2005). Although these factors are important in that disasters do mobilize people into donating blood, disasters do not guarantee a steady supply of blood donors, which is what is usually needed in a health system. However, it could be that certain latent characteristics in some people emerge under these circumstances and help make the decision to donate blood. Therefore, it is critical to compare blood donation as a regular act vs. when there is a disaster.

Finally, the importance of family and social networks has also been noted in past studies. It is more likely to donate blood if people belong to dense social networks, in which other people in the network also donate blood (Godin et al., 2007; Healy, 2000; Royse & Doochin, 1995; Thompson, 1993). Gillespie and Hillyer (2002) conclude that 75% of donors have family members or friends who have donated blood—at least once. These social networks have an enormous capacity to pass on information about the experiences of donating blood, and can act as peer pressure (Boe & Ponder, 1981), or as socializing devices into donating blood (Lee et al., 1999). The relationship between social networks and donation is consistent with the results of (Smith, Kopfman, Massi Lindsey, Yoo, & Morrison, 2004), which showed how the levels of intra-family conversation about donation are positively related to becoming organ donors—and aspect that is central to this study.

Despite the emphasis that different studies lay on the importance of transmitting effective messages, selecting appropriate mechanisms to contact donors, and of interpersonal communication between people involved in the collection of blood and the potential donor,
remarkably, little is known about these topics. This unawareness is even more puzzling if one takes into account that communication is a central element in the majority of blood donation campaigns. One major missing factor very connected to social capital and networks is people’s talk regarding blood donation.

Talk-centered blood donation

The literature on health communication and organ donation has long identified the importance of talking about health issues to spur positive behaviors. This talk involves talking with family about donating an organ and finally signing up for it (Afifi, Morgan, & Stephenson, 2006; Morgan, 2004), or intending to do so (Bresnahan et al., 2007). Moreover, some health campaigns may actually spur more talk rather than the very behavior they are seeking to address, such as talking about HIV and condom use (Sood, Shefner-Rogers, & Sengupta, 2006), but keeping in mind that talk may actually encourage the very protective behavior the campaign was seeking. This is why many campaigns for organ donation sign-ups include components that spark discussion of the issue with family members (Morgan et al., 2008).

Very closely related to the link between talk and pro-healthy behaviors is the link between political talk and pro-social behaviors, such as civic and political participation. The relation stems from frequency of talk with friends, coworkers, neighbors and family members (or from expressing opinions) directly to civic participation (Kim et al., 1999; Kwak et al., 2005; Shah, Cho, Eveland, & Kwak, 2005; Shah et al., 2007), with most other mass communication and predisposition variables mediating their effect through political talk.

Considering the strong ties between talking about organ donation and actually considering signing-up for a donor card, and between talking about politics and actually engaging in civic participation in a democracy, it is straightforward to hypothesize a similar
relation between talking about blood donation and actually giving blood. Explaining blood
donation through talking about giving blood has not been studied previously, but has the
potential of not only being a strong explanation of the process, but ultimately, if tested, it can
help shape blood donation campaigns in the future.

The mechanisms proposed, though not tested, for these relationships are similar to those
in the literature of political communication. For instance, political discussion (1) makes
community issues more prominent (Shah et al., 2005), (2) provides information regarding
opportunities for involvement (Shah et al., 2005), and (3) spurs more talk elsewhere, thereby
promoting civic participation (Kwak et al., 2005; McLeod, Scheufele, & Moy, 1999). Similarly,
we propose that talking about donating blood raises awareness about blood donation, provides
information about where and how to donate blood, and makes further talk about blood donation
possible, overall promoting actual blood donation.

The models that we seek to analyze are hypothesized to have a path to donation that is
channeled through talk about blood donation as a mediating process that leads to giving blood.
While our aim is to test such mediating relationship, we are not necessarily theorizing a perfect
mediating relationship (see Baron & Kenny, 1986). Hence, we leave open the possibility that
some attitudes and predisposition may actually have a direct effect on blood donation, above and
beyond their mediating role. Models that have used the theory of planned behavior in predicting
healthy behaviors, have also included direct links from attitudes to behavioral intentions
(Fishbein & Cappella, 2006). Our hypotheses follow.

Hypotheses and research question

Three models will be tested for the hypotheses below, one model that considers past
blood donation as the outcome variable (Model 1), one that examines willingness to donate
blood in the near future (Model 2), and, finally, one that looks at willingness to donate blood in the case of a disaster (Model 3). The diagram below (see Figure 1) reflects our expectation in each of these models.²

The hypotheses that will be specifically tested in all three of the blood donation models (Models 1 to 3) are as follows:

\[ H1: \] The effect of all the independent variables (altruistic attitudes, blood donation predispositions, health news, individual need awareness, societal need awareness, health social capital, past volunteering) on blood donation will be mediated by blood donation talk.

\[ H2: \] In addition, altruistic attitudes and blood donation predispositions will also have a direct affect on blood donation.

\[ H3: \] The effect of all the independent variables and blood donation talk will be positively related to blood donation.

Methods

Data

This study relied on national survey data collected between August 5 and August 31, 2008 in 10 cities in Colombia. The sample was designed to represent Colombia’s adult urban population—76% of Colombia’s 44.5 million inhabitants live in urban areas (Departamento Administrativo Nacional de Estadística (Colombian National Department of Statics) (DANE), 2005).

² The correlations between independent variables have been left out to “de-clutter” the diagram and ease its lecture.
Survey respondents were selected using a multi-step stratified random sample procedure that selected households randomly, proportionate to city size–according to census data. Once the number of households was allocated for a given city, a number of city blocks were randomly selected proportionately to housing districting and strata. Then, individual households were randomly selected within each block. And finally, using the “adult in the household who most recently celebrated their birthday” technique, an individual respondent was randomly identified. Up to three visits to each household were made (if needed) to increase participation in the survey. The data were collected by a local professional polling firm in Bogotá; 1,033 face-to-face completed responses were obtained, for a response rate of 83%. However, for this paper, only 791 responses were used since we excluded from the analyses those participants that could not donate blood for medical or age-related reasons, or because they had engaged in past behaviors that were deemed not suited for blood donation.

**Measurement**

**Controls.** Four demographics and a blood donation variable were used as controls. These were gender (57.4% female); age ($M = 40$, $SD = 14$); education, on a scale from “no formal education” (1) to “postgraduate degree” (8), ($M = 5.1$, $SD = 1.5$); and income (using the proxy house stratus), measured from “stratus one” (1) to “stratus 6” (6) ($M = 2.9$, $SD = 1.1$). Finally, a variable representing whether the individual had donated blood via reposition (yes = 1) was added (43.7% had donated via reposition). The latter control was added to make sure the models only included voluntary blood donation and not blood that had been donated as a barter for treatment (via reposition).

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3 Response rate calculated using AAPOR guidelines.

4 The variable surveyed was house stratus, that is, the stratus of the block in which the household resides. In Colombia, households are designated a stratus, from 1 (lower) to 6 (higher). This is done in order to facilitate tax collection and it reflects the financial stratus of the property, which correlates very highly with income.
Dependent variables. Four dependent variables were used. In each model, blood donation talk (talking about blood donation) was measured with a statement inquiring about whether individuals talked about blood donation with family members and friends, on a Likert scale from “totally disagree” (0) to “totally agree” (5), \( M = 1.80, SD = 1.82 \). In addition, each model had a blood donation variable. The first model had past blood donation, measured asking how many times individuals had donated blood in the past year \( (M = .37, SD = .63) \). The second model had future blood donation intention, measured with the question of how likely individuals were to donate blood in the next six months, on a scale from “not at all likely” (0) to “very likely” (5), \( (M = 2.35, SD = 2.02) \). Lastly, the third model used emergency blood donation, which was measured asking participants whether they would donate blood if there was a disaster and a lot of people needed blood, on a scale from “not at all likely” (0) to “very likely” (5), \( (M = 3.75, SD = 1.85) \). Thus, all four dependent variables were measured using single item indicators.

Independent variables. Seven variables, representing altruistic attitudes, blood donation predispositions, health news, individual need awareness, societal need awareness, health social capital, and past volunteering were used as independent variables in the models. Altruistic attitudes was gauged through averaging five standardized items (because they had different scales): Two semantic differential items, asking how participants associated blood donation with being “indifference” (1) or “solidarity” (7), and “business” (1) or “altruism” (7); and three items that included (a) to receive blood is a citizen’s right, (b) to give blood is a duty to all citizens in conditions to do so, and (c) to give blood should be one of many good social habits; on a Likert scale from “totally disagree” (0) to “totally agree” (5), \( (M = -.00, SD = .72; \text{Cronbach’s } \alpha = .76) \). Blood donation predispositions was measured averaging the standardized items (because of different scales), two semantic differential items that inquired about the degree to which
participants associated blood donation with being “difficult” (1) or “easy” (7), and “fear” (1) or “tranquility” (7), and one item requesting whether people wanted to be part of a (hypothetical) blood donor organization, on a Likert scale from “totally disagree” (0), to “totally agree” (5), 
\[(M = -0.00, SD = 0.76; \text{Cronbach’s } \alpha = 0.63).\]

*Health news* was measured with a single item that inquired about how much attention participants paid to news about health topics, on a scale from “no attention” (0) to “a lot of attention” (5), \[(M = 3.47, SD = 1.41).\] *Individual (blood) need awareness* was measured with a single item that asked participants whether they knew anybody who had needed a blood transfusion (yes = 1), (44.6% knew somebody). *Societal (blood) need awareness* was gauged also with a single (reversed, to make its relationship to blood donation positive) item, which asked people whether they thought that blood reserves in hospitals and blood banks were “scarce” (0) or “abundant” (5), \[(M = 1.73, SD = 1.38).\] *Health social capital* was gauged with one item asking participants whether they were members of a health organization, on a scale that included “no” (0), “yes” (1), and “active member” (2), \[(M = 0.08, SD = 0.34).\] Finally, one general behavior was considered, *past volunteering*, which was measured averaging two items, asking whether participants had done any volunteering work or worked for a community project, (yes = 1), \[(M = 0.19, SD = 0.35; r = 0.57).\]

*Analysis*

Three path analysis models were used to test the hypotheses posed in this study. We used MPlus (version 5.1) with the MLR estimator in all models, which runs robust maximum likelihood estimation (using the Huber-White covariance adjustment).
Results

The model predicting past blood donation had a very good fit to the data (see Table 1). The Likelihood Ratio test (LR) was non-significant (p = .135), which indicated that there was a good fit. Similarly, the Comparative Fit Index (CFI) indicated a good fit (.976), and so did the Tucker-Lewis Index (TLI), (.927). Finally, the Root Mean Square Error of Approximation (RMSEA) also indicated a very good fit (.029).

[Insert Table 1 about here]

The coefficients on the paths in Model 1 are shown in Table 2. Overall, controlling for demographics and blood donation through reposition, the significant paths to past blood donation were talk (β = .050 p < .001), altruistic attitudes (β = -.032, p < .05), and blood donation predispositions (β = .062, p < .01). The significant paths to talk were altruistic attitudes (β = .335, p < .001), blood donation predispositions (β = .425, p < .001), health news (β = .118, p < .01), individual need awareness (β = .401, p < .01), social capital (β = .515, p < .01), and volunteering (β = .396, p < .05). Only societal need awareness on talk was non-significant.

[Insert Table 2 about here]

Results from this model confirmed hypothesis 1, even though one variable was not significant; still the significant ones were all mediated through talk. Hypothesis 2 was supported, with both variables (altruistic attitudes and blood donation predispositions) having also a direct effect on past blood donation. Hypothesis 3 was also widely supported, with all variables being positive except for altruistic attitudes on past blood donation, which was negative, meaning that those individuals who did not see themselves as altruists were more likely to donate blood.

Model 1 explained 6.6% of the (residual) variance through past blood donation and 14.4% through talk. Yet these were residual variances, with demographics and blood donation
via reposition already accounted for. There were no modification indices indicating a significant better fit, and alternative non-nested models proved inferior (higher AICs and BICs).

The model predicting future blood donation intention (Model 2) had also a very good fit to the data (see Table 3). The LR test was non-significant (p = .501), which indicated that there was a good fit. Likewise, the CFI indicated a good fit (1.000), and so did the TLI (1.007). Lastly, the RMSEA also indicated a very good fit (.000). In this model, we added past blood donation as an independent variable, with paths both to talk and future blood donation intention, to control for past donor behavior.

[Insert Table 3 about here]

The coefficients on the paths in Model 2 are shown in Table 4. All in all, once we controlled for demographics and blood donation through reposition, the significant paths to future blood donation intention were talk (β = .167 p < .001), altruistic attitudes (β = .653, p < .001), and blood donation predispositions (β = .523, p < .001). Past blood donation was not related to future blood donation intention. The significant paths to talk were Altruistic attitudes (β = .342, p < .001), blood donation predispositions (β = .360, p < .001), health news (β = .122, p < .01), individual need awareness (β = .401, p < .001), health social capital (β = .365, p < .05) and volunteering (β = .384, p < .05). Past blood donation was also significant (β = .816, p < .001). Societal need awareness was not significant.

[Insert Table 4 about here]

Results from Model 2 supported hypothesis 1; all variables except for societal attitudes were mediated though talk. Hypothesis 2 found full support. Both variables (altruistic attitudes and blood donation predispositions) were significantly associated with future blood donation intention. Hypothesis 3 found support as well.
Model 2 explained 21.1% of the variance through future blood donation intention and 17.9% through talk. A much larger explained $R^2$ than in Model 1. There were no modification indices at all indicating any better fit, and alternative non-nested models also proved inferior (higher AICs and BICs).

The model predicting emergency blood donation had also a very good fit to the data (see Table 5). The LR test was non-significant ($p = .497$), which indicated that there was a good fit. Likewise, the CFI indicated a good fit (1.000), and so did the TLI (1.006). Lastly, the RMSEA indicated a very good fit as well (.000). Like in the model with future blood donation intention, we also added past blood donation as an independent variable to control for past donor behavior.

The coefficients on the paths in the model (Model 3) are shown in Table 6. Generally speaking, after we controlled for demographics and blood donation through reposition, the significant paths to emergency blood donation were altruistic attitudes ($\beta = .928, p < .001$) and blood donation predispositions ($\beta = .209, p < .01$). Neither talk nor past blood donation were significant. The significant paths to talk were general altruistic attitudes ($\beta = .342, p < .001$), blood donation predispositions ($\beta = .360, p < .001$), health news ($\beta = .122, p < .01$), individual need awareness ($\beta = .401, p < .001$), health social capital ($\beta = .365, p < .05$), volunteering ($\beta = .384, p < .05$), and past blood donation ($\beta = .816, p < .001$). Societal need awareness was not significant this time either. However, since talk was not associated with emergency blood donation at all, none of the significant paths to talk ended in emergency blood donation.

Results from Model 3 did not support hypothesis 1. Notably, talk did not mediate the effect of the independent variables to emergency blood donation. Hypothesis 2 was supported,
both altruistic attitudes and blood donation predispositions were directly related to emergency blood donation. Hypothesis 3 was only partially supported, since talk was not significant and hence the independent variables that were supposed to be (only) mediated via talk were no longer associated with emergency blood donation.

Model 3 explained 24.9% of the variance through past blood donation and 17.9% though talk. One more time, a much larger explained R² than the previous models. There were no modification indices at all indicating any better fit, and alternative non-nested models also proved inferior (higher AICs and BICs).

To recap, Table 7 summarizes the results for hypotheses 1-3 for all the three blood donation models. Taken as a whole, talk mediated the effect of the independent variables in Models 1 and 2, but not in Model 3. Moreover, all the direct effects of the independent variables that were hypothesized were significant. Finally, most variables except for altruistic attitudes in model 1 were positively associated with blood donation.

[Insert Table 7 about here]

Discussion

In conclusion, our main result suggest that, in predicting past donation and future blood donation intention, the path from altruistic attitudes, blood donation predispositions, health news, individual need awareness, health social capital, and past volunteering to blood donation is mediated through talking with family and friends about blood donation. However, in predicting emergency blood donation, the mediation of talk is halted, suggesting that either (a) when and emergency strikes, rather than talking about blood donation, almost everybody is aware of it and decides to act upon it; or that (b) everybody talks about the emergency or catastrophe that the variable no longer has any impact. Talk is not the largest predictor of blood donation in either
past or future blood donation but remains a very strong predictor. In the case of model 1, blood
donation predispositions (whether the blood donation process is a tranquil and easy one, and
wanting to be part of a blood donation organization) was the largest effect in the model, and
altruistic attitudes was negative, meaning that the more altruistic one is, the less one donated
blood. Yet in models 2 and 3, it was altruistic attitudes the variable with the largest effect.

This means that actual blood donation, future intentions to donate blood, and blood
donation in case of an emergency are three different concepts that are predicted differently.
Designing campaigns to attract donors has to be centered on how to actually have a stream of
repeated donors (like in past blood donation) and that what matters is not altruism but that the
process of donating blood is viewed as an easy and tranquil one.

In models 1 and 2, paying attention to health news spurs talk about blood, which in turn
increases blood donation. Similarly, knowing about somebody who needs blood has the same
effect, as well as being part of a health group and having volunteered in the past. Knowing about
the blood needs of one’s society (whether there are abundant or scarce blood reserves) has
however no effect whatsoever in donating blood in any of the models.

Thinking about the role of talk in the communication literature, the parallel here is
strikingly similar, as hypothesized. Nevertheless the orchestration of events is different. In the
communication literature, talk predicts social capital and in turn political and civic behavior,
whereas here, health social capital and past volunteering predict blood donation (and not vice-
versa). The rest of the variables (altruistic attitudes, blood donation predispositions, health news,
and individual need awareness) behave equally in both literatures. That is, attitudes,
predispositions, news media use precede talk and behavior (blood donation).
Given our results, it is likely that Piliavin & Callero (1991)’s suggestion that altruism is a quality that may be developed through blood donation is a valid observation. Given the negative effect of altruism on past blood donation but its positive effect on future and emergency blood donation, their proposal gains momentum in our study.

This study has then brought together the literature on transfusion medicine, communication and civic and political participation successfully, and has stressed the difference in models (and strategies) for designing blood donation strategies. Despite our convincing results, however, this study does however have some limitations. Among the most evident limitations is that the central variable of study, talk, was operationalized with only one item involving only family and friends. However, there were no reference to how talk with coworkers or neighbors may also spur blood donation. Given that most blood drives occur at the workplace or around the neighborhood, our models may have underestimated the effect of talk. Lastly, there were no variables indicating the convenience of donating blood, which can be an important factor.

Despite these limitations, we are convinced that this study constitutes an important contribution in the process of characterizing and understanding voluntary blood donation in Colombia. On the one hand, studies like this carry out the development of more effective strategies to create incentives for increasing voluntary blood donation, as well as turning these donors into regular ones. On the other hand, even though our study has a local character, understanding the case of Colombia is particularly relevant for other regions in Latin America.
Figure 1. Diagram of Hypothesized Relationships
Table 1

Past Blood Donation: Model Fit

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Statistic value</th>
<th>p-value</th>
<th>Fit assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likelihood Ratio test (LR)</td>
<td>8.413</td>
<td>.135</td>
<td>Excellent fit</td>
</tr>
<tr>
<td>Comparative Fit Index (CFI)</td>
<td>.976</td>
<td></td>
<td>Excellent fit</td>
</tr>
<tr>
<td>Tucker-Lewis Index (TLI)</td>
<td>.927</td>
<td></td>
<td>Excellent fit</td>
</tr>
<tr>
<td>Root Mean Square Error of Approximation (RMSEA)</td>
<td>.029</td>
<td></td>
<td>Excellent fit</td>
</tr>
</tbody>
</table>

n = 791.
Table 2

*Past Blood Donation: Model Results for Direct Effects*

<table>
<thead>
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<th>Past blood donation on</th>
<th>Estimates</th>
<th>SE</th>
<th>Estimates (std.)</th>
</tr>
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<tbody>
<tr>
<td>Blood donation talk</td>
<td>.050***</td>
<td>.011</td>
<td>.050</td>
</tr>
<tr>
<td>Altruistic attitudes</td>
<td>-.032*</td>
<td>.015</td>
<td>-.032</td>
</tr>
<tr>
<td>Blood donation predispositions</td>
<td>.062**</td>
<td>.020</td>
<td>.062</td>
</tr>
<tr>
<td>Blood donation talk on</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Altruistic attitudes</td>
<td>.335 ***</td>
<td>.078</td>
<td>.335</td>
</tr>
<tr>
<td>Blood donation predispositions</td>
<td>.425***</td>
<td>.085</td>
<td>.425</td>
</tr>
<tr>
<td>Health news</td>
<td>.118**</td>
<td>.046</td>
<td>.118</td>
</tr>
<tr>
<td>Individual need awareness</td>
<td>.401**</td>
<td>.129</td>
<td>.401</td>
</tr>
<tr>
<td>Societal need awareness</td>
<td>.072</td>
<td>.042</td>
<td>.072</td>
</tr>
<tr>
<td>Health social capital</td>
<td>.515***</td>
<td>.173</td>
<td>.515</td>
</tr>
<tr>
<td>Past volunteering</td>
<td>.396*</td>
<td>.201</td>
<td>.396</td>
</tr>
</tbody>
</table>

$R^2$ Past blood donation (residual value) 6.6%***

$R^2$ Talk (residual value) 14.4%***

Significance levels: * p < .05; ** p < .01; *** p < .001; n = 791.
Table 3

*Future blood donation intention: Model Fit*

<table>
<thead>
<tr>
<th>Statistic value/</th>
<th>p-value</th>
<th>Fit assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likelihood Ratio test (LR)</td>
<td>4.346</td>
<td>.501</td>
</tr>
<tr>
<td>Comparative Fit Index (CFI)</td>
<td>1.000</td>
<td>Excellent fit</td>
</tr>
<tr>
<td>Tucker-Lewis Index (TLI)</td>
<td>1.007</td>
<td>Excellent fit</td>
</tr>
<tr>
<td>Root Mean Square Error of Approximation (RMSEA)</td>
<td>.000</td>
<td>Excellent fit</td>
</tr>
</tbody>
</table>

n = 791.
Table 4

*Future blood donation intention: Model Results for Direct Effects*

<table>
<thead>
<tr>
<th></th>
<th>Estimates</th>
<th>SE</th>
<th>Estimates (std.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future blood donation intention on</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood donation talk</td>
<td>.167***</td>
<td>.040</td>
<td>.167</td>
</tr>
<tr>
<td>Altruistic attitudes</td>
<td>.653***</td>
<td>.087</td>
<td>.653</td>
</tr>
<tr>
<td>Blood donation predispositions</td>
<td>.523***</td>
<td>.092</td>
<td>.523</td>
</tr>
<tr>
<td>Past blood donation</td>
<td>.080</td>
<td>.141</td>
<td>.080</td>
</tr>
<tr>
<td>Blood donation talk on</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Altruistic attitudes</td>
<td>.342***</td>
<td>.077</td>
<td>.342</td>
</tr>
<tr>
<td>Blood donation predispositions</td>
<td>.360***</td>
<td>.085</td>
<td>.360</td>
</tr>
<tr>
<td>Health news</td>
<td>.122**</td>
<td>.045</td>
<td>.122</td>
</tr>
<tr>
<td>Individual need awareness</td>
<td>.401***</td>
<td>.126</td>
<td>.401</td>
</tr>
<tr>
<td>Societal need awareness</td>
<td>.078</td>
<td>.041</td>
<td>.078</td>
</tr>
<tr>
<td>Health social capital</td>
<td>.365*</td>
<td>.176</td>
<td>.365</td>
</tr>
<tr>
<td>Past volunteering</td>
<td>.384*</td>
<td>.195</td>
<td>.384</td>
</tr>
<tr>
<td>Past blood donation</td>
<td>.816***</td>
<td>.152</td>
<td>.816</td>
</tr>
</tbody>
</table>

\[ R^2 \text{ Future blood donation intention (residual value)} = 21.1\%*** \]

\[ R^2 \text{ Talk (residual value)} = 17.9\%*** \]

Significance levels: * p < .05; ** p < .01; *** p < .001; n = 791.
Table 5

Emergency blood donation: Model Fit

<table>
<thead>
<tr>
<th>Statistic value</th>
<th>p-value</th>
<th>Fit assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likelihood Ratio test (LR)</td>
<td>4.371</td>
<td>.497</td>
</tr>
<tr>
<td>Comparative Fit Index (CFI)</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Tucker-Lewis Index (TLI)</td>
<td>1.006</td>
<td></td>
</tr>
<tr>
<td>Root Mean Square Error of Approximation (RMSEA)</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

n = 791.
Table 6

*Emergency blood donation: Model Results for Direct Effects*

<table>
<thead>
<tr>
<th>Emergency blood donation on</th>
<th>Estimates</th>
<th>SE</th>
<th>Estimates (std.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood donation talk</td>
<td>.029</td>
<td>.030</td>
<td>.029</td>
</tr>
<tr>
<td>Altruistic attitudes</td>
<td>.928***</td>
<td>.076</td>
<td>.928</td>
</tr>
<tr>
<td>Blood donation predispositions</td>
<td>.209**</td>
<td>.073</td>
<td>.209</td>
</tr>
<tr>
<td>Past blood donation</td>
<td>.100</td>
<td>.090</td>
<td>.100</td>
</tr>
<tr>
<td>Blood donation talk on</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Altruistic attitudes</td>
<td>.342***</td>
<td>.077</td>
<td>.342</td>
</tr>
<tr>
<td>Blood donation predispositions</td>
<td>.360***</td>
<td>.085</td>
<td>.360</td>
</tr>
<tr>
<td>Health news</td>
<td>.122**</td>
<td>.045</td>
<td>.122</td>
</tr>
<tr>
<td>Individual need awareness</td>
<td>.401***</td>
<td>.126</td>
<td>.401</td>
</tr>
<tr>
<td>Societal need awareness</td>
<td>.078</td>
<td>.041</td>
<td>.078</td>
</tr>
<tr>
<td>Health social capital</td>
<td>.365*</td>
<td>.176</td>
<td>.365</td>
</tr>
<tr>
<td>Past volunteering</td>
<td>.384*</td>
<td>.195</td>
<td>.384</td>
</tr>
<tr>
<td>Past blood donation</td>
<td>.816***</td>
<td>.152</td>
<td>.816</td>
</tr>
</tbody>
</table>

R² Emergency blood donation (residual value)   24.9%***

R² Talk (residual value)                        17.9%***

Significance levels: * p < .05; ** p < .01; *** p < .001; n = 791.

---

Table 7

*Blood Donation: Support for the Hypotheses Posed*

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Past</td>
<td>Future</td>
<td>Emergency</td>
</tr>
<tr>
<td>H1: Altruistic attitudes</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>H1: Blood donation predispositions</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>H1: Health news</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>H1: Individual need awareness</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>H1: Societal need awareness</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>H1: Health social capital</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>H1: Past volunteering</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>H1: Conclusion: Talk mediates</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>H2: Altruistic attitudes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>H2: Blood donation predispositions</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>H3: Altruistic attitudes positive</td>
<td>no†</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>H3: Blood donation predispositions positive</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>H3: Health news positive</td>
<td>yes</td>
<td>yes</td>
<td>n/a</td>
</tr>
<tr>
<td>H3: Individual need awareness positive</td>
<td>yes</td>
<td>yes</td>
<td>n/a</td>
</tr>
<tr>
<td>H3: Societal need awareness positive</td>
<td>yes</td>
<td>yes</td>
<td>n/a</td>
</tr>
<tr>
<td>H3: Health social capital positive</td>
<td>yes</td>
<td>yes</td>
<td>n/a</td>
</tr>
<tr>
<td>H3: Past volunteering positive</td>
<td>yes</td>
<td>yes</td>
<td>n/a</td>
</tr>
<tr>
<td>H3: Talk positive</td>
<td>yes</td>
<td>yes</td>
<td>n/a</td>
</tr>
</tbody>
</table>

† The total effect (indirect + direct) was negative

References


Piliavin, J. A. (2005). *Personal communication*


