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Cities, villages, and suburbs: What sets them apart when it comes to giving blood?

Élianne Carrier

Centre Urbanisation Culture Société, Institut National de la Recherche Scientifique

Marie-Soleil Cloutier

Centre Urbanisation Culture Société, Institut National de la Recherche Scientifique

Johanne Charbonneau

Centre Urbanisation Culture Société, Institut National de la Recherche Scientifique

Correspondence to/Adresse de correspondance: Marie-Soleil Cloutier, INRS-Centre Urbanisation Culture Société, 385, Sherbrooke Est, Montréal (QC) H2X 1E3. Email/Courriel: marie-soleil.cloutier@ucs.inrs.ca

International literature on blood donation has revealed a preponderance of individual characteristics describing the ‘typical’ donor, but little has been done to explain differences in donation rates between territories. The objective of this study is to explore in greater depth, using a qualitative approach, the reasons inhabitants of rural, urban, and suburban environments show distinct donation-related behaviours. The proposed analytical framework is based on two theoretical models: one seeking to explain health-related behaviour using Cohen’s ecological structural approach and one following the approach of Scannell and Gifford, seeking to explain place attachment using individual variables. Fifty-seven face-to-face interviews were conducted throughout Quebec with donors living in urban, rural, and suburban environments. The results suggest that the extent to which social structures (very strong in rural environments), accessibility (very strong in all environments, but in different ways), and place attachment (very strong in rural and urban settings) affect blood donation behaviour varies greatly depending on where individuals reside.

Keywords: blood donation, place attachment, health-related behaviour

Key Messages:

- Blood donation in rural areas is highly affected by local culture.
- Accessibility to blood drives greatly affects blood donation, regardless of place of residence.
- Donors from suburban environments put their family and children at the centre of their motivation for giving blood.

Comment se distinguent les villes, villages et banlieues en matière de don de sang?

La littérature internationale met en évidence les caractéristiques individuelles propres au donneur de sang « typique », mais elle a peu abordé la question des différences des taux de don entre les territoires. Cette étude est l'occasion d'explorer plus à fond et dans une perspective qualitative les raisons pour lesquelles les populations des milieux ruraux, urbains et suburbains présentent des distinctions lorsqu'il est question de don de sang. Une grille d'analyse a été définie en intégrant deux modèles théoriques : le premier vise à expliquer les comportements de santé en s'appuyant sur l'approche structurelle écologique de Cohen, tandis que le second, partant de l'approche de Scannell et Gifford, vise à expliquer l'attachement au lieu au moyen de variables individuelles. Cinquante-sept entretiens ont été menés en face-à-face à travers le Québec auprès de donateurs vivant dans des milieux urbains, ruraux et suburbains. Il se dégage des résultats que l'ampleur de l'incidence sur le comportement de don de sang que peuvent avoir les structures sociales (très solides en milieu rural), l'accessibilité (très élevée partout mais variable entre les milieux) et l'attachement au lieu (très fort dans les milieux ruraux et urbains) varie considérablement selon le lieu de résidence.

Mots clés : don de sang, attachement au lieu, comportement de santé

Introduction

To date, international literature on blood donation has revealed certain individual characteristics that describe the ‘typical’ western donor in the context of non-remunerated donation: a white male, in his forties, with a relatively high education level and who is a member of the more affluent social classes (Gillespie and Hillyer 2002; Hollingsworth and Wildman 2004; Alessandrini 2007a; Greinacher et al. 2010; Cloutier et al. 2011). In fact, healthy adults willing to give blood need to comply with several conditions and restrictions in order to become blood donors: most blood agencies will ask questions about medical history as well as travel activities and personal lifestyle, in order to control the quality of the ‘product’ and the safety of the receiver. The under-representation of women among career donors is partly due to physiological reasons (e.g., low haemoglobin on-site, pregnancy, etc.), while that of young people appears to be related to a lifestyle (e.g., frequent moving, piercings and tattoos, travel, etc.) that makes it difficult to recruit and retain them as regular donors (Piliavin and Callero 1991; Crawford et al. 2008; Misje et al. 2008; 2010; Lattimore et al. 2015). Another factor that seems to directly impact donor rates is the presence of ethnocultural communities. This is mainly due to the fact that, for cultural or religious reasons, the members of these communities tend to be less inclined to donate blood (Cimaroli et al. 2012; Tran et al. 2012). Immigrant populations are also affected as a result of medical exclusions that have been adopted by blood agencies—for example, potential donors are rejected if they originate from countries where malaria or other diseases are present.

In addition to examining how socio-demographic characteristics impact blood-donation rates, past studies have taken behaviour theories into consideration as well (Ajzen 1991; Bandura 2001; Prochaska et al. 2008; Godin 2012). Several of these studies have demonstrated how variables such as moral standards, anticipated regrets, or intentions can impact individual blood-donation history (Amponsah-Afuwape et al. 2002; Giles et al. 2004; Godin et al. 2005; Lemmens et al. 2005; France et al. 2007; Masser et al. 2012; Bednall et al. 2013). The research confirms the importance of intention in a person’s decision to take action (i.e., to give blood) but also highlights the central role that self-efficacy plays in this process: an individual must be convinced that he/she has the capacity to go through difficulties in order to choose or change his/her behaviour. Such self-efficacy is usually measured at the individual level. The idea here is not to revisit these behaviour theories, but to explore if other approaches integrating socio-spatial context measured outside individual questionnaires could lead us to complementary results when it comes to understanding blood-donation behaviour at a broader territorial level.

More recently, as a partial response to this lack of spatial context in research, several authors have taken an interest in the geographical aspects of blood donation by examining socio-demographic characteristics at varying territorial scales. Some of these works corroborate the abovementioned results, particularly regarding the influence of education, income, or immigration on donation rates when these variables are measured by geographical unit (census tract or municipality) (Saberton et al. 2009; Cloutier et al. 2011). Other research has exposed important differences in donation rates and noted a positive rural area effect. Simon (2003) and Piliavin and Callero (1991) have demonstrated that rural regions in the United States show higher donation rates than urban areas; they have not, however, advanced any clear explanation concerning the reasons for this imbalance,

except perhaps the presence of stronger normative structures in smaller, rural communities. In Canada, Cloutier et al. (2011) have found that rural regions record higher donation performance in Quebec, while Saberton et al. (2009) have noted that large metropolitan areas (outside Quebec) donate considerably less blood than smaller urban regions, when calculated proportionate to the number of inhabitants. Similarly, European studies (Germany and the Netherlands) demonstrate that people living in scarcely populated regions donate more blood (Bekkers and Veldhuizen 2008; Greinacher et al. 2010).

Despite these statistical facts, very few of these studies have empirically tested reasons for these differences. The present study therefore aims to investigate how environmental factors such as place of residence influence individual blood-donation behaviour. In other words, we wish to further explore why inhabitants of rural, urban, and suburban regions appear to exhibit distinct donation behaviour, using a qualitative approach.

A ‘hybrid’ framework for studying blood donation based on place of residence

The approach advanced in this study draws on theoretical frameworks for both health-related behaviour and place attachment, proposing an original framework and testing it empirically through a qualitative analysis of blood donors’ points of view. The question at the heart of the present research study is: Does both blood donation-related structure and place attachment encourage individuals living in different areas to give blood?

Blood donation as a health-related behaviour

Although blood donation remains a gesture made by individuals for the benefit of others, we here propose that it be considered under the population health framework, where an individual’s health is affected by personal characteristics and environmental context (Dahlgren and Whitehead 1991). The idea of ‘contextual effect’—a central theme in health geography—may well be a contributing factor when it comes to blood donation. Note that blood donation can easily be considered as health behaviour, defined as an “action by individuals that produces certain consequences (positive or not) on their health” (Encyclopedia of Public Health 2002).

The reasons we chose to base our analysis on ecological health-related behaviour models are threefold. First, some of the factors motivating donors are considered medical in nature (e.g., belief in health benefits, opportunity for a health check-up) (Gillespie and Hillyer 2002; Glynn et al. 2002; Hupfer et al. 2005). Alessandrini (2007b) stated that blood donors actually grant more importance to their health than non-donors do—a result also echoed in our recent study in which a substantial group of donors made a direct connection between blood donation and their health (Charbonneau et al. 2015). Second, some studies prove that donation does indeed have actual health benefits, particularly for male donors (Zheng et al. 2005). And, for some, albeit a very small number of donors, bloodletting remains a popularly held myth (Charbonneau and Tran 2013). Lastly, the public continues to view blood-related needs as an important health issue, particularly in territories with aging populations (and donors) (Zou et al. 2008; Drackley et al. 2012).

The structural model of Cohen et al. (2000) is rooted in an ecological vision of health which hypothesizes that by modeling its living environment, a given population can ultimately adopt or change a targeted behaviour, and hence create conditions conducive to better health. The model evaluates the importance of variables related to four structural dimensions of an environment, and has been used to analyse other health-related behaviours such as physical activity (Sallis et al. 2003; Dominick et al. 2014). We hypothesize that each of these four dimensions could be related to the act of donating blood:

- **Availability** refers to the access an individual has to a given product in his/her surrounding environment: the more available a product is (e.g., tobacco), the easier its consumption. In the present case, we wanted to explore the availability of blood, both in terms of future needs and possible shortage. The key question is: Will blood be available when it is needed? This underlies the hypothesis that blood donors' perceptions on these issues could foster their intention to give;
- **Accessibility** is represented by built environment, encouraging behaviours such as walking—the most common example related to this particular dimension. Our measurement of this dimension is based on the particular clinic locations visited by donors, and the proximity of these clinics. Ours is a more geographical interpretation than the one provided by Cohen et al. (2000), who named it the “physical dimension,” but never really insisted on its geographical aspect. Our purpose is to understand how access and proximity to physical structures motivates participants to give blood;
- **Social structures**, as it is used in the study by Cohen et al. (2000), relate solely to peer pressure. Previous research, however, has clearly shown that social structures are far more complex in nature. And, given the impact they have on health behaviour, including blood donation, we felt that including social norms and neighbourhood relations as part of this dimension was essential for a proper analysis (Charbonneau et al. 2015). Questions answered by participants here will allow us to learn more about how social structures affect their behaviour as donors (e.g., accompaniment, the family's influence), but also as neighbours (e.g., community knowledge, social implications);
- **Media and cultural messages** contribute to the dimension that looks at the way society at large perceives the health behaviour itself. Two elements are under study here: donors' perception of the blood agency (Héma-Québec) and of blood donation's image in society. We hypothesized that these perceptions are a reflection of the media and of cultural messages related to blood donation, and that these perceptions might encourage or hinder the donor's intention to give blood.

Place attachment and health behaviour

The relationship between environmental characteristics and health issues (Macintyre 2002) has long been established by health geographers, among others. Despite this fact, place attachment—defined as the power a place can have on people's healing and well-being according to their attachment to said place (Gesler 2003)—has been given little focus in any research other than therapeutic landscape studies in recent years. According to Kearns and Gesler (1998), the study of this sense of place can provide a great deal of insight into the connection between mind, body, and society—three elements closely related to blood donation—regardless of the fact that others tend to be more important than oneself when it

comes to blood donation. By combining place attachment with the structural model provided by Cohen et al. (2000), we wish to put forth the idea that places can influence not only the well-being of people on an individual level, but also their decision to adopt specific health behaviour for the benefit of others (i.e., blood donation). To our knowledge, no previous study has used blood donation behaviour as an empirical example. Using this particular approach therefore lends a unique character to our study.

Over the past few decades, studies on place attachment have led to in-depth questioning both of the very definition of place, and of the elements that lead individuals to become attached to one place rather than another (Low and Altman 1992; Creswell 2004). A consensus has emerged, however, that a form of bonding or attachment exists between people and the places where they live, based on individuals' history, culture, and experiences. Going one step further, Scannell and Gifford (2010) have suggested a model explaining place attachment under three dimensions, dimensions resulting from their analysis of the last decade's abundant literature. Their first objective in creating this model was to set common ground for future studies: "According to our person-process-place (PPP) framework, place attachment is a bond between an individual or group and a place that can vary in terms of spatial level, degree of specificity, and social or physical features of the place, and is manifested through affective, cognitive and behavioral psychological processes" (Scannell and Gifford 2010, 5).

The first dimension, person, includes experiences that an individual (or a community) has with a place: they tend to predict their attachment to this specific place (e.g., if it evokes memories, if they are involved in their community, etc.).

The second dimension, psychological process, looks at the manner in which people establish their relationship with a given place, whether this be through an emotional connection, beliefs and knowledge, or concrete actions. In their model, Scannell and Gifford (2010, 2) named these processes the "affect", the "cognition" and the "behaviour". Here, participants' residential history should reveal details as to whether they do indeed experience these three processes throughout their life course rather than simply throughout their blood-donor career.

The third dimension relies on the definition of place itself, which materializes at different levels and depends on physical as well as social characteristics. The types of places to which people become attached can vary tremendously—they can be houses, neighbourhoods, or natural landscapes and they can be described differently at each of these levels. Moreover, people are attached to places that facilitate relationships and enable the creation of a group identity, a community. This is where sociology meets geography: places can foster or hinder the creation of these relationships just by their configurations—businesses and amenities found nearby, places to get together, etc.

Having presented these theoretical frameworks, we propose to combine them in order to study factors influencing blood donation in urban, rural, and suburban environments. Figure 1 presents the seven components of our analytical framework, all taken from the dimensions proposed by Cohen et al. (2000), and Scannell and Gifford (2010). Since this article aims to empirically explore this new model using qualitative data, Figure 1 illustrates all the dimensions that equally influence blood donation. Our empirical results may establish the existence of direct relationships between these dimensions and blood donation, but may also serve to highlight indirect relationships.

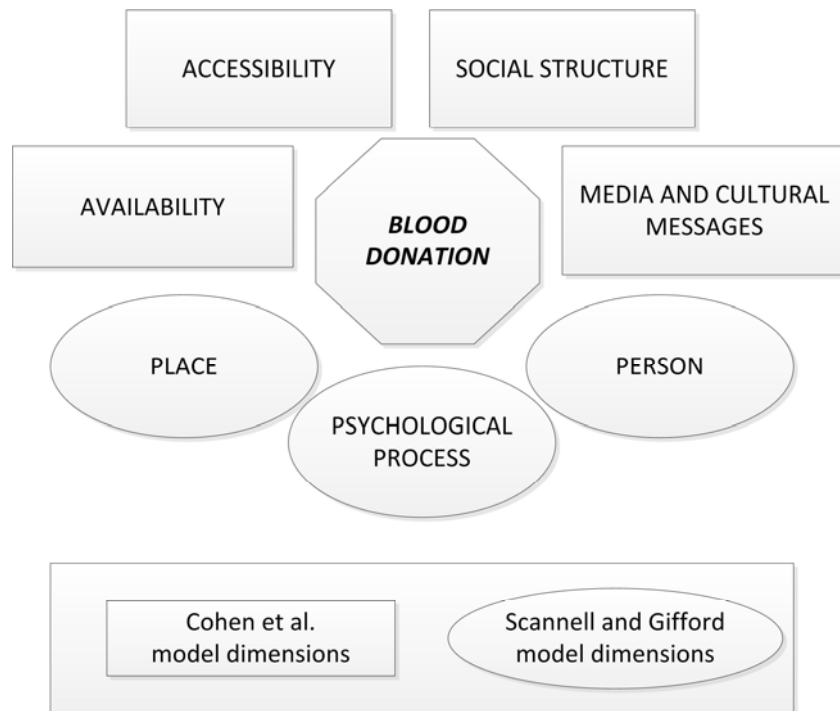


Figure 1: Exploratory conceptual framework of blood-donation determinants according to both structural and place attachment models

Methodology

Our project involved four phases: 1) selecting study areas throughout Quebec based on the socio-demographic profiles of specific territories; 2) creating the Interview Guide and recruiting participants; 3) conducting semi-structured face-to-face interviews with donors; and 4) analysing participant discourse with reference to each environment, based on our analytical framework.

Chosen territories and definition of living environment

To ensure socioeconomic homogeneity in our sample, territories to sample donors from were selected using the Regional County Municipalities' (RCMs) typology, established by Apparicio et al. (2009) in a previous project on the geography of blood donation. This typology includes ten distinct and equally homogenous profiles based on five census-based socio-demographic variables (age structure, population density, immigration, income, and educational level). The four profiles we used were selected mainly because of their contrast in terms of donation rates, as shown in a database covering a five-year donation period. While the rate for the province overall was 58 donations per year per 1,000 inhabitants for 2003-2008, Montreal's urban core had only 41 donations per 1,000 inhabitants; urban RCMs other than Montreal (Quebec City and others) had a rate of 70 donations; mid-sized cities with a young age structure (typical suburbs) had 77

donations on average; and slightly aging rural regions had a rate of 68 donations.

The *urban* environment status was assigned to every donor living on the Montreal Island (profile A) and in downtown Quebec City (according to municipal administrative boundaries, profile B); the *suburban* environment status was assigned to all other donors in the census metropolitan area (CMA for Statistics Canada) of Montreal and Quebec City (profile B); lastly, the *rural* environment status was attributed to any participant who did not fit into the urban or suburban categories (profiles C and D). Table 1 presents mean values for each variable included in the typology, for each chosen profile, and for the province overall. Each of the profiles below—except for the second profile, which was divided into urban and suburban environments—was assigned to only one living environment. A sub-sample of RCMs was visited for each of the profiles, according to the randomly selected participant’s place of residence.

Table 1: Socio-demographic profile of the Quebec territory and visited RCMs

Profile	A Montreal urban core	B Urban RCMs other than Montreal	C Mid-sized cities with a young age structure	D Slightly aging rural regions	Province of Quebec
Total number of RCMs per profile	3	15	21	23	98
Donations per 1000 inhabitants (2003-2008)	41	70	77	68	58
Age structure*	-1.0	-1.4	-0.5	0.5	0
Population density (inhab/km ²)	2 191	355	59	23	143
Immigrants (%)	22.1	4.5	2.1	1.5	11.5
Individual median income (\$)	25 378	29 719	23 624	21 108	24 430
University diplomas in population aged 20–64 years population (%)	33.8	24.9	14.4	13.1	26.2
Number of RCMs visited	1 (urban)	1 (urban) 9 (suburban)	5 (rural)	8 (rural)	24

*This variable is the first factor of a principal component analysis based on age categories: the higher the value, the older the population.

Interviews and participant selection

The Interview Guide used was divided into three parts: blood donation experiences, health issues, and place attachment. It was created using three sources: 1) a review of literature on blood-donation motivation both at the individual and community level (note that limited

research is available on motivation at the community level); 2) a review of literature that integrates Cohen et al. (2000) and Scannell and Gifford's models (2010); and 3) preliminary results and existing interview guides from other projects undertaken by the Research chair on social aspect of blood donation. Table 2 provides examples of the questions used, along with their corresponding dimensions (for a full version of the Interview Guide, please contact the author). Six pre-tests were conducted to ensure accuracy of the Interview Guide, and most of the resulting changes affected only question order. As such, the interviews conducted as part of the pre-test were retained for the final analyses.

Blood collection agency Héma-Québec provided a randomly selected list of names and contact information for a subset of donors meeting specific criteria: residing within the pre-selected RCMs, age between 30 and 45 years old, and eligible for blood donation (we excluded anyone who was forbidden from donating at that time). Additional donor status information was also provided. Those who had not given blood in the last three years were considered lapsed, and the sample included an equal number of active and lapsed donors. Since blood-donor status was not an issue of concern in this study, we included every donor in our analysis regardless of his or her current status.

Participants on the list provided by Héma-Québec were contacted by phone to plan a face-to-face interview. Most interviews, which lasted approximately one hour, were held at the participant's home or workplace, on university campuses or in a café/restaurant chosen by the participant. A team of four—the principal investigator (PI) and three research assistants—conducted the interviews between August 2010 and March 2011. Pre-test interviews were conducted by the PI and one research assistant. The research assistants were provided with recordings of past interviews and an Interview Guide, including follow-up questions. They were also accompanied by the PI during the first two interviews and debriefings in order to ensure consistency of the interviewing process. All participants were provided with the same Interview Guide, the sole exception being an additional question for lapsed donors on the reasons they had stopped giving blood. All interviews were recorded, and later transcribed. This project was approved by both Héma-Québec and Institut National de la Recherche Scientifique ethics committees before any participants were contacted. To protect participants' confidentiality and respect ethics committee approvals, pseudonyms have been used in the Results section. All interviews were conducted in French. As such, the extracts presented herein have been translated from the original French interviews.

Table 2: Topics covered in the Interview Guide and their corresponding dimensions

Framework dimension	Examples of questions	Examples of keywords provided in answers
Availability	If you or a member of your family needs blood one day, do you think it will be available? Why? Have you ever received blood?	Blood supply shortage
Accessibility	Blood drive location: Any preferences? Has it changed over time? Why? Do you know of any collection sites nearby?	Routine Waiting time Collection frequency
Social Structure	First donation: Why, when, where, with whom? Have these characteristics changed over time? On-site services: Were they welcoming? Do you know people working there?	Children (bringing them, thinking about them) Be accompanied Knowing people who donate
Media and cultural messages	What does “blood donation” represent? For you, for your family, for society in general? What media images of blood donation can you think of?	Personal reward “Giving life” Advertising and HQ phone calls
Person	Current home: How long have you lived there? Why did you choose to live there?	Moving Family and friends nearby
Psychological process	Sense of place: What is your definition of “being at home”? Would you say this is true of where you live? Where do people like you live? Would you say where you live accurately reflects who you are?	Home
Place	Neighbourhood: Do you know your neighbours? How would you describe your neighbourhood to strangers? Living environment comparison: What are the differences between urban, rural and suburban environments?	Safety Vibrant and/or peaceful

Analysis

Our first team brainstorm after the interviews led to the creation of a classifying grid, based mostly on our analytics framework. Information gathered was then integrated in three different grids according to each participant’s living environment (urban, rural, and suburban) by one research assistant and validated by the PI. Each of these grids was subdivided into seven dimensions (see Table 2) and words and statements from participants were attributed to as many corresponding dimensions as applicable. This analysis aimed to identify any relationships between dimensions and blood donation as well as between the dimensions themselves, using an iterative process as we worked through the data. Strength and direction (positive, negative, and neutral) of these relationships were determined by keyword frequency count (i.e., repetition of words) but also to the importance participants gave to their answers (e.g., emphasis on specific points, similarities between participants

from the same environment, etc.). Such an approach is derived from qualitative methodology standards, where researchers try to transpose collected data into a subset of themes and dimensions related to the project context (Paillé and Mucchielli 2008). As Ryan and Bernard recall (2003), with such qualitative methodology (i.e., the semi-structured interview), it is impossible to anticipate all the relationships that might emerge before actually analyzing the data. In the present case, this transposition also created new relationships between dimensions, beyond their connection to blood donation. This will be explained in more detail in the Results Section that follows.

Results

Sample description

Fifty-seven (57) interviews were analyzed, including pre-tests. Our sample comprised men (27) and women (30) between 31 and 46 years old, almost equally divided among the three environments (urban: 23, rural: 18, and suburban: 16), and between active (29) and lapsed (28) donors, although participants in this last category were more difficult to recruit (See Table 3). Participants came from 24 different RCMs along the Saint-Lawrence River Valley, from Beauce and the Lower Laurentians to Quebec City and Montreal.

Table 3: Sampling of donor and lapsed donor interviewees according to demographic variables and environment

Living environment	Age (mean)	Men	Women	Active	Lapsed	Total
Urban	38	12	11	11	12	23
Rural	39	7	11	10	8	18
Suburban	38	8	8	8	8	16
Total	39	27	30	29	28	57

Table 4 and Figure 2 illustrate the most important relationships found in participants' discourses, according to their living environment. Details of these results are presented below according to our three selected environments: rural, suburban and city dwellers. The + sign indicates dimensions positively related to blood donation while blank cells are dimensions without conclusive results.

Table 4: Important dimensions according to donors' discourse

Framework dimension	Environment type		
	Rural	Suburban	Urban
Availability		++	
Accessibility	--	-	-
Social Structure	++		
Media and cultural messages	+	-	+ and -
Person			
Psychological process	+		+
Place	+	-	-

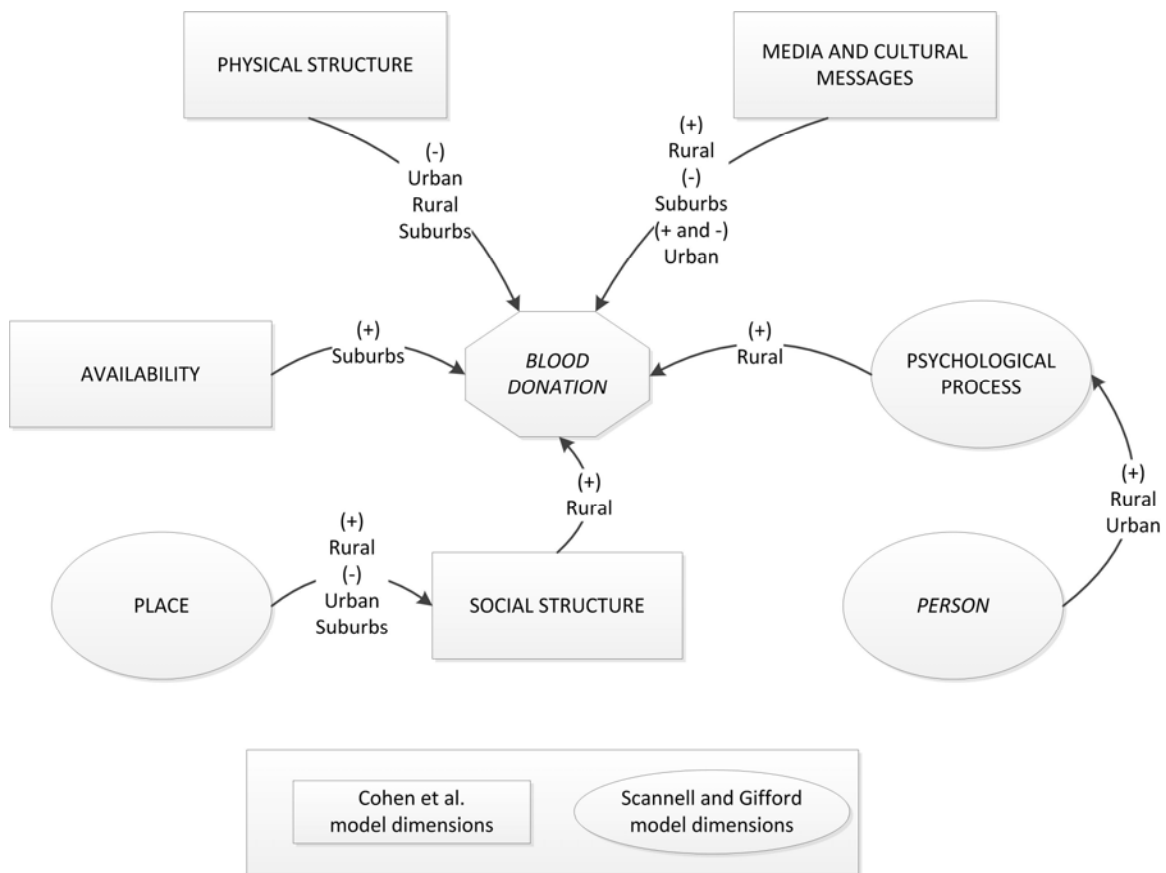


Figure 2: Blood-donation factors by living environment, according to our analytical framework

Rural

Rural respondents' discourse shows the greatest number of dimensions positively related to donation (Table 4 and Figure 2). The only negative effect pertains to

accessibility, and concerns the limited number of collection days. Respondents deplore being limited to donating only once or twice a year on mobile collection days, as mentioned by Gaston, an active rural donor: “Well, I would like to have a full-time blood-collection site here... I think... I would look at my card [donor recall card] and I would take the time to go...”

Several respondents even suggested that rural areas introduce permanent blood-donation sites such as regional hospitals. Respondents’ willingness to donate blood was also demonstrated in the positive relationship between their donation behaviour and media and cultural messages. Almost unanimously, when asked about risks associated with giving blood, they stated that they trust Héma-Québec. Those who were still active donors stated that they do not hesitate to contribute when Héma-Québec calls them.

The importance of social structure for these rural residents is highlighted by the fact that almost all of them, whether active or not, knew other blood donors or said they had been convinced or accompanied by a close acquaintance (e.g., spouse, friend) during collections. Moreover, their statements indicated that the act of giving blood was valued by those around them, and they were proud to tell their family and community they had given blood. Marie, a lapsed rural donor said: “Well, not pride, but a feeling of happiness... Because of the result: people say, ‘Really, you did it!’ (Laugh) It’s a good thing [to give] and it’s well perceived by everyone. (...) That’s the comment we usually got: ‘Wow, you’re good! I can’t give blood.’ (...) It’s rewarding.”

This positive effect of the social network seems to be closely related to a community vision of place where personal experiences (the person dimension: e.g., to be raised somewhere) led to self-actualisation of the status of rural people (the process dimension) (Figure 2). This is demonstrated in their discourse when they talk about values and roots associated to people first, then to places, therefore creating a direct link between the process dimension and blood donation (Table 4). For rural participants, values of sharing and community involvement make a difference when it comes to giving blood: “I think it is how you see life that influences you to give blood: family attachment, roots attachment. If you were raised alone and don’t care about others, then you will not want to give blood... Yes... Where your roots are is important.” (Michel, rural lapsed donor).

The importance of people and psychological process dimensions found in this last sentence is a good example of the indirect connection between the place dimension and blood donation, through the social structures dimension (Figure 2). Participants from rural environments spontaneously confirmed their strong sense of belonging to their village or region when asked where home was, but they mostly referred to their rural attachment through family, friends, and support and described these elements as being the reason why living there was good: “Everyone knows each other here... So everyone wants to help! You know, mutual support is very strong here, you might have heard about it before... We are known for being mutually supportive, I can guarantee you that!” (Eve, rural active donor).

Suburbs

The dimensions that stand out among our suburban respondents are completely different from those of other environments and are often related to family life with young children. The negative link found between accessibility and blood donation (Table 4) is

related to the recurrent family's lack of time, again related to family obligations: waiting and donation times at collection sites can be long, thus frustrating the intention to donate at a specific place and time. Respondents, especially parents, preferred to give spontaneously when their children were not with them. They also often referred to their busy schedules: "Sometimes, you know, an hour is difficult to fit into the schedule of a mom with two kids! (Laugh)... Who is working and everything..." (Johanne, lapsed suburban donor).

The importance of family plays a key role in their behaviour as it relates to the availability dimension (Table 4): suburban respondents said they donate in the hopes that blood would be available for them or their children in case of need. Donating blood in anticipation of needing it one day might be considered by some as being a selfish motivation (Pinker 2006). However, these donors are aware that the blood they give today will not be the blood they receive in the future. But, they are convinced or hopeful that other donors will do the same for them, and this is reason enough to give: "Well, now, I give blood and I think about my daughter, you know, I tell myself that if one day she needs some, well, it will help her. That's it... For me, you know, it's an important thing to do." (Patrick, active suburban donor)

The fear of shortage even led some to say that Héma-Québec should stress this aspect more in the media to encourage more people to donate. Several participants from the suburban environment were concerned about this issue, and wished the rest of our society would be made more aware of the need, through mass media, for example (Table 4).

Their community involvement and interactions with neighbours is closely linked to their children. Accordingly, their place attachment is mostly based on their feelings about their house and street, an entirely different territorial scale than in the two other types of environments: "Our attachment to our house is strong! You know, when I was telling you earlier that we were thinking about moving, it's definitely not because we don't like our house anymore." (Ariane, active suburban donor).

Following this definition of place, we suggest that there is little connection between place attachment and blood donation for suburban residents, but, as for rural respondents, the development of their social network around their children's activities led to an indirect negative link between these two dimensions, through social structure. In fact, they did not know other people who gave, and they did not tend to talk about donation with family and friends: it was just not something they discussed, which is in line with the results of the urban donors (see below). Again, it was not so much the fact that they had moved often—from the country to the city (for studies) and then to the suburbs, for example—that explained the kind of social structure they described, but more the family life cycle they were in. In fact, their sense of safety in the suburbs is what made them choose their current place of residence over another, as attested to by the following participant: "Because in the city, life is in the fast lane, and well, it's not an ideal location for raising a child. The suburbs are better. Because... it's beautiful, it's peaceful. And you know... it's family-oriented, that's why we like the area." (Natasha, lapsed suburban donor).

Urban

Answers from urban participants were more heterogeneous, a reflection of urban-population composition. As in the suburbs, many respondents, particularly lapsed donors, mentioned lack of time for giving blood, lending (negative) importance to the accessibility dimension (Table 4). A second aspect that reinforces the importance of physical structures is the greater number of collection sites available every day, which might have an adverse effect, as individuals can always postpone a potential donation and end up never giving blood at all. In fact, many respondents told us they did not necessarily plan ahead when it came to donating blood since there is always a blood drive going on somewhere in the city. Gilbert, a lapsed urban donor summarizes the situation here: “It has to be easy: don’t ask me to drive for an hour and wait for another... When I know it’s easy, then I do it. But when it’s too complicated, it’s one of the first things that I remove from my agenda.”

Among city respondents, the dimension of cultural messages and media emerged for the first time as having dual effects (positive and negative). Indeed, the rigid nature of the donation questionnaire—including all the reasons for deferrals—seems to be a point that particularly bothers urban respondents, as they repeatedly mentioned knowing people who could not donate (homosexuals, immigrants). Some even went so far as to stop donating out of solidarity for their friends:

Why did I stop giving? Well, I realised that Héma-Québec was discriminating against certain donors, ok... There’s a new colleague at my office, he’s Haitian. He told me that the entire black community and Haitians are systematically excluded. When he became aware of this, he stopped giving. He told me, ‘It’s not worth it. I’m wasting my time. They are throwing my blood away because I am black.’ Ok?
(Anne, lapsed urban donor)

As for place attachment, urban respondents placed emphasis on a lifestyle connected to the local neighbourhood: they appreciated things like being able to walk everywhere (e.g., grocery shopping, children’s school), having access to public transit, and playing with their children in the alleyway—all related to the place, person, and process dimensions. This strong sense of place is reminiscent of the one seen in rural donors’ interviews but does not automatically translate into recurrent blood donation. However, the idea that blood donation was considered a ‘duty’ was recurrent in urban donors’ discourse—pointing to what might be the real motivation of urban dwellers, outside of place attachment: “It is not a topic of discussion... blood donation, you know... It is not something that I would discuss with friends: ‘Oh well, you know, I did my duty, I gave blood’. (...) You know, I don’t know if people around me give or not...” (André, lapsed urban donor)

Discussion

The analysis of blood-donor discourse according to blood donors’ living environment demonstrates that all dimensions from Cohen et al. (2000) are raised by one sub-group of respondents while the place attachment model from Scannell and Gifford (2010) has little to do with blood donation for suburban respondents, is indirectly related

for urban respondents, and is a strong influence on blood donation for rural people. For example, the accessibility dimension always has a negative effect on blood donation, but for different reasons: lack of collection sites for rural people, lack of time for suburban dwellers, and proximity for urban residents. These limitations in terms of accessibility are highly specific to blood collection in Quebec, which relies almost entirely on mobile collection. This result, especially for rural donors, raises an issue already recognized by Héma-Québec, that of whether implementation of permanent collection sites might be a way to increase donations in certain regions.

There are two particular dimensions that seem to have a different influence, depending on place of residence. First, the media and cultural message dimension is both positively and negatively related to blood donation. While rural people's confidence in the blood agency fosters more donations, the discriminatory questionnaire and society's underestimation of existing blood needs respectively hinder urban and suburban donors from giving more. Second, the social structure dimension is strongly and positively related to rural donors, and indirectly and negatively related to urban and suburban donors through place definition. The strong social structure demonstrated in rural areas echoes that found in studies demonstrating the positive role peers can play with regard to blood donation, both in terms of first-time donation as well as throughout a donor's career (Gillespie and Hillyer 2002; Glynn et al. 2002; Hupfer et al. 2005; Misje et al. 2008; Nguyen et al. 2008). Accordingly, both suburban and urban donors did not know other people who gave, and they did not tend to talk about donation with family and friends: it was just not something they discussed, which is in line with the results of Ferguson and Chandler (2005). In fact, the missing link here is that strong identification with the urban and suburban ways of life does not influence social structure in the same way as it does in rural environments: even if they knew their neighbourhood very well, most suburban participants, and some urban respondents, did not have a strong social network nearby outside of family members. This is consistent with numerous studies stating that the suburbs appear a preferred location to raise a family (Knox and McCarthy 2005; Walker and Fortin 2011).

Another significant aspect of the social structure for rural people concerns how much these individuals value giving blood. Such pride represents what Ferguson et al. (2012) called "warm glow giving," where donors give partly for the personal benefit they derive from donating, in terms of positive emotional gain. This warm glow is expressed by the direct link they make between their behaviour as a donor and the feedback they receive from their significant others.

Conclusion

Our conceptual approach allowed us to explore how blood donation-related structures and place attachment are associated to the decision to give blood. Several of our hypotheses were confirmed and our results highlighted important differences among urban, rural, and suburban donors. The social structure and accessibility dimensions seem to play an important role in the choice to donate, in all types of environments. On the other hand, participants' discourse demonstrates that place attachment is not directly related to blood donation; it is the close connection between place and social structure that seems to make a difference when it comes to giving blood.

For these reasons, we argue here that our results are in line with Valentine's (2005) definition of blood donation as both a public and a private act: "Blood donation makes literal the place of the private self in the public space of the blood bank, of the public uses of the private body (p. 118)". Valentine (2005) argues that blood donation enables membership in a collective identity—that of 'blood donors.' This blood donor identity is closely akin to Piliavin and Callero's (1991) idea about the relationship between communities and personal norms: "If a relatively strong normative structure supporting blood donation is perceived [in a specific community], individuals are more likely to develop a sense of personal moral obligation to give (p.187)." Our contribution to this idea lies in adding a spatial dimension to this collective identity, over and above the act of giving blood.

As with any qualitative project, we cannot claim to be able to generalize our results for each type of environment, even if the number of participants is considerable for this type of study. Furthermore, we observed during interviews that our environment classification did not always correspond to the vision inhabitants had of their own environments. For example, some of the participants from a mid-sized city categorized as a rural environment told us they lived "in the city" while other participants from the far eastern tip of the Island of Montreal described themselves as suburban inhabitants even if they are geographically attached to the island as downtown dwellers. Finally, it is important to mention that similar research using quantitative methods such as questionnaires could possibly lead to marginal effects for the same dimensions. However, this study is part of a continuum of research on the social aspects of blood donation. As such, results found here that foster further reflection on the links between place attachment and social belonging, or between social capital and blood donation, appear to us a promising avenue for advancing both the knowledge and cause of blood donation.

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