

Differences in social representation of blood donation between donors and non-donors: an empirical study

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Background. Both donors and non-donors have a positive image of blood donation, so donors and non-donors do not differ regarding their views on donation but do differ in converting their opinion into an active deed of donation. Several studies have identified altruism and empathy as the main factors underlying blood donation. However, a mixture of various motivational factors mould the complex behaviour of donation. This paper presents an exploratory study on differences of social representations of blood donation between blood donors and non-donors, in order to understand the reasons that bring someone to take the decision to become a blood donor.

Materials and methods. Participants filled in the *Adapted Self-Report Altruism Scale*, *Toronto Empathy Questionnaire* and answered a test of verbal association. Descriptive and correlation analyses were carried out on quantitative data, while a prototypic analysis was used for qualitative data.

Results. The study was carried out on a convenience sample of 786 individuals, 583 donors (mean age: 35.40 years, SD: 13.01 years; 39.3% female) and 203 non-donors (mean age: 35.10 years, SD: 13.30 years; 67.5% female). Social representations of donors seem to be more complex and articulated than those of non-donors. The terms that appear to be central were more specific in donors (*life, needle, blood, help, altruism* were the words most associated by non-donors; *life, aid, altruism, solidarity, health, love, gift, generosity, voluntary, control, needed, useful, needle* were the words most associated by donors). Furthermore, non-donors associated a larger number of terms referring to negative aspects of blood donation.

Discussion. Aspects related to training and the accuracy of any information on blood donation seem to be important in the decision to become a donor and stabilise the behaviour of donation over time, thus ensuring the highest levels of quality and safety in blood establishments.

Keywords: blood donors, representations, word association test, altruism, empathy.

Introduction

In Italy, as in many other European countries, the blood and blood components required to provide basic levels of care in transfusion medicine are based on voluntary, anonymous and unpaid blood donation by periodic donors.

Blood donation is not simply an "individual fact" but a real "social action" characterised by systems of interpretation of reality based on individual-society relations. The literature generally indicates that both donors and non-donors have a positive image of blood donation (donation is a simple action that can save lives...) even though few people are well informed on the various uses of blood and on the real need for blood and blood components^{1,2}. A recent study³ explored the reasons behind the decision not to donate, identifying (in a small sample of subjects) the anxiety and problems

involved in donation as the main factors that differentiate the group of non-donors from donors.

Regarding the motivation of blood donors, several studies have found that *altruism* is the main motivational factor underlying the donation of blood^{4,5}. However, various motivational factors underlie the complex behaviour of donation⁶⁻⁹. Other studies have excluded the potential impact of "economic compensation" on donation behaviour¹⁰.

One study investigated the reasons behind donation in a representative sample of the Italian population¹¹. The results of this study, in line with data from the international literature, show a strong influence of individual factors in the choice of becoming a blood donor.

Empathy and altruism seem to be the psychological variables that best characterise blood donors. Beyond these individual variables, there are "relational" factors (i.e. factors related to contact with other people, family,

and friends, but also medical staff and volunteers) and "social" factors (attitudes and representations) that may influence a potential donor's decision.

The concept of social representation is particularly suitable for exploring these variables. Social representation is a form of social knowledge that helps us to understand the events of everyday life, environmental data and information. It is a tool to understand other people and assign them a place in society. It refers to the skills, knowledge and beliefs that a particular social group constructs, and uses daily, whenever it encounters objects that characterise the social reality^{12,13}.

The structural approach¹⁴ to social representations identifies the presence of central and peripheral system responsible for, respectively, the stability and the coherence of representation and its adaptability to different social contexts.

Practices related to the object of representation are closely linked to the development of the object representation by the social group^{15,16}: individuals who have experience of the object have more structured representations with a high prevalence of descriptive and functional dimensions¹⁷⁻¹⁹ while, when individuals do not have experience of the object, the representation is less structured and it is the evaluative dimension that prevails (i.e. the positions expressed on the object).

The aim of this study was to explore the social representations related to blood donation through word association analysis, highlighting the impact of belonging to associative life and correct information/sensitisation of donors. A specific objective was to compare levels of empathy and altruism and social representations in donors and non-donors, in order to examine the main differences.

It was hypothesised that differences would be detected in the levels of altruism and empathy between donors and non-donors, although we believe that these are not the main differentiating factors between the two groups since, as stated in the literature, the impact of social variables is stronger than individual ones. It was also hypothesised that, according to the assumptions of social representation theory, the social representation would be more complex and articulated in blood donors, because of their greater exposure to the practices of donation.

Materials and methods

Participants

This research was carried out as part of a collaborative project with the Italian Federation of Blood Donors Associations (FIDAS, *Federazione Italiana Associazioni Donatori di Sangue*).

Data were collected anonymously, according to a convenience sampling criterion, using two main methods: (i) direct acquisition through the paper version

of the questionnaire (see Appendix 1), proposed to donors and non-donors by FIDAS volunteers in various different Italian cities; and (ii) via an online form of the questionnaire, sent by e-mail and published on the main social networks. In both cases, the participants were informed about the aims of the study and signed the informed consent form for the management of research data. We excluded all incomplete protocols or protocol with obvious compilation errors from the data analysis.

The study was conducted on 786 subjects, 583 donors from 18 to 80 years old (mean age: 35.40 years, SD: 13.01 years, of whom 39.3% were female) and 203 non-donors (mean age: 35.10 years, SD: 13.30 years, of whom 67.5% were female).

The participants came from all regions of Italy, with a higher prevalence from the regions in southern Italy (45.96% of donors and 61.57% of non-donors). The participants were mainly unmarried (55.7% of donors and 58.1% of non-donors), and most had a high level of education (51.8% high school and 24.7% degree in the donor group, 43.8% high school and 34% degree in the non-donor group).

Data collection

The data collection process involved the participants filling in two self-report questionnaires and responding to a word association test. In the free association test participants were required to state the first three words or expressions that spontaneously come into their mind when hearing the stimulus item "blood donation". This allows us to access the latent dimensions which structure the semantic universe of the term or object being studied.

The participants also filled in two self-report questionnaires: the Adapted Self-Report Altruism Scale²⁰ and the Toronto Empathy Questionnaire²¹. The Adapted Self-Report Altruism Scale²⁰ is a 14-item scale that assesses intentions related to altruistic behaviours. Subjects respond on a 5-point Likert scale (from "never" to "very often") and higher scores indicate more altruistic behaviour. The Toronto Empathy Questionnaire²¹ is a 16-item scale that evaluates empathy as a primarily emotional process. Responses are given using a 5-point Likert scale corresponding to various levels of frequency (from "never" to "always") and higher scores indicate more empathy.

Data analysis

Descriptive (means, standard deviations and Student's *t*-tests) and correlational analyses (Pearson's *r* and Kendall's tau) were conducted on quantitative data to provide an adequate description of the sample as well as indications on the values assumed in the measured variables.

Means differences analysis was conducted between the two groups of donors and non-donors because,

according to the classical theory of social representations the building blocks of the central core of a representation are independent of socio-demographic characteristics of subjects included in a particular social group (donors in our case).

Prototypical analysis was also performed (according to the method proposed by Verges²²) on the results of verbal associations in the two groups. This analysis is used to provide a hierarchy of issues raised by the verbal association test, drawing a distinction between the most frequently cited elements (occurrences) and the least frequently cited elements. In the ranking of elements, words mentioned with a low frequency are in the first positions, whereas those mentioned with a high frequency are among the last listed. Four different categories can be distinguished: the most frequently and earliest mentioned elements (central zone); the least frequently cited elements which, when they are cited, are mentioned early on (contrast zone); elements that are frequently mentioned, though at a later stage (first periphery); and finally, less frequently cited items mentioned at a late stage (second periphery). A binomial test was used to measure the number of words shared by participants and uttered on the basis of a probability differing significantly from a random distribution in the different categories of prototypical analysis.

Finally, a similarity analysis was conducted and two maximum trees (for the two groups) were structured starting from the words with high consensus (only the central zone).

Analyses were conducted using Iramuteq[®] (Pierre Ratinaud, Toulouse, France; <http://www.iramuteq.org/>) and SPSS[®] (IBM Corp., Chicago, IL, USA) software.

It is important to emphasise that a multi-method approach is essential to get reliable results. This study has an exploratory nature and other steps will be proposed in later investigations.

Results

Social representations of blood donation

The words mentioned most frequently are shown in Table I, while Figure 1 depicts the word cloud of the words most associated in the two groups of participants. The words most frequently associated, by all the participants, were words related to the altruistic and symbolic value of donation.

Splitting the words according to whether they were mentioned by donors or non-donors we found major differences and we were able to distinguish two different levels of apprehension concerning blood donation.

Overall, donors produced 583 associations (of which 57.71% were hapax, namely words with an occurrence of 1), while the donors produced 246 words (of which 78.81% of hapax).

Tables II and III show the hierarchical associations to the topic of blood donation proposed by donors and non-donors, divided, in accordance with Verges' prototypical analysis²², according to the number of occurrences and the order of appearance. We chose to use only thresholds at which the binomial test was statistically significant ($p < 0.05$), considering only occurrences for which the consensus among groups was higher^{23,24}.

Social representations of donors seem to be much more complex than those of non-donors, with greater specificity in the concepts. Moreover, it should be noted that non-donors produced a greater number of terms denoting negative aspects related to blood donation.

Altruism and empathy

Good levels of altruism and empathy were found in both groups, with empathy being significantly greater in the group of non-donors (Table IV). The correlation analysis also showed a significant correlation, albeit not strong, between the two dimensions investigated (Pearson's $r = 0.236$, $p = 0.001$) and between the empathy dimension and belonging to the donor or non-donor group (Kendall's tau = 0.091, $p = 0.002$).

Discussion

Our results seem to confirm our hypothesis regarding the complexity of social representations among donors, since the level of articulation of social representations was much more complex in donors compared to non-donors. A social representation is defined as complex when it is full of different elements, which cover all possible areas of reference to the object of the representation itself (emotional, cognitive, etc.). In our case, donors, used a wider variety of words with a higher frequency (high places) and earlier (low rank), making their representation more complex than that of the non-donors.

More information and the practice of donating seemed to affect the quality of the representation (the connotation in an emotional or cognitive sense, which can be positive or negative and could affect the attitude of accepting or rejecting the practice of donation itself), which was characterised in donors by a greater number of positive elements, and different structure (word splitting in the four areas identified by prototypical analysis).

A structural perspective on social representation highlights two main transformation processes that may result from new social practices/changes in existing social practices²⁵ or on the basis of "knowledge" with new insights resulting from influencing social processes^{26,27}.

A new object of knowledge becomes progressively familiar and is gradually integrated into the knowledge commonly used by the members of the social group

Table I - Words with their number of occurrences.

Word	English translation	Occurrences
vita	life	170
aiuto	aid	153
altruism	altruism	119
solidarietà	solidarity	109
salute	health	90
aiutare	helping	78
amore	love	71
ago	needle	70
generosità	generosity	63
sangue	blood	56
dono	gift	56
volontariato	volunteering	50



Figure 1 - Cloud of words associated with donation by non-donors and donors.

Table II - Hierarchy of evocations from "blood donation" among non-donors.

	Low rank <1.85	High rank >1.85
N. of occurrences >30	life	solidarity
	needle	syringe
	blood	generosity
	aid	gift
	altruism	helping
N. of occurrences <30	voluntary	love
	armchair	health
	droplet	hospital
	heart	red
	donation	hope
	avis	camper
	donor	community
	transfusion	important
	doctor	infect
	safety	fluid
	vessel	sick
	cot	death
	goodness	job
		helpful
		lack
	weakness	
	drip	
	sack	
	arm	

Table III - Hierarchy of evocations from "blood donation" among donors.

		Low rank <1.85			High rank >1.85				
N. of occurrences >30	life	gift		red	voluntary	donate	sensibility		
	aid	generosity		blood	satisfaction	safe	happiness		
	altruism	volunteering		neighbour	gratuity	engagement	smile		
	solidarity	control		hospital	well-being	joy	transfusion		
	health	need		necessary	necessity	hope	availability		
	helping	needle							
	love	useful							
N. of occurrences <30	disease	sharing	donation	transfusion centre	meaning	affection	social	meeting	
	responsibility	civilisation	support	consciousness	generous	charity	gratify	modest	
	utility	check	altruism	puncture	fulfilment	wait	organisation	live	
	fair	courage	safety	waiting for life	cure	benevolence	collaboration	willpower	
	voluntary	moral	community	syringe	fear	heart	perseverance	glee	
	important	brotherhood	pain	faint	prevention	family	emotion	advantage	
	friendship	patient	sacrifice	sick	responsible	FIDAS	confidence	nourishment	
	good	exactly	service	child	safe	justice	free	aware	
	sack	anonymous	friend	obligation	society	nurse	group	without food	
	indispensable	action	humanity	personal	goodness	worthy	together	urgency	
	charity	cot	anonymity	draw blood	feel	platelet	return	easy	
	breakfast	needy	healing	easy	civic	power	renaissance	participation	
	exam			action	plasma	give	waiting room	pleasure	
				gift	suffering	be necessary	healthcare	serenity	spontaneity

Table IV - Descriptive analysis and group differences between donors and non-donors.

	Non-donors	Donors	<i>t</i>	<i>p</i>
	Mean (\pm SD)	Mean (\pm SD)		
Empathy	57.01 (\pm 7.49)	55.40 (\pm 6.97)	2.776	0.006
Altruism	21.78 (\pm 8.80)	22.65 (\pm 9.36)	-1.157	0.247

SD: standard deviation.

that is exposed to information related to the object and shared between members of the group²⁸.

Theoretically, donors, who are familiar with the practice of donations, have more structured representations than non-donors, with a high prevalence of descriptive and functional dimensions (*life, aid, altruism, solidarity, health, love, gift, generosity, voluntary, control, needed, useful, needle* and also *sharing, civilization, sack, exam, check*) while, non-donors, who do not have experience of the object, have a less structured representation and evaluative and negative dimensions prevail (*life, needle, blood, help, altruism* and also *pain, fear, sacrifice*).

The individual variables specifically examined (altruism and empathy) were not able to discriminate between the two groups adequately, nor did they provide sufficiently accurate information for the study of the motivations underlying donation. There were no substantial differences in the levels of altruism and empathy, confirming the hypothesis that donation behaviour is not motivated strictly by individual attitudes as much as patterns of behaviour and socially shared values that becomes assets of the individual.

Conclusions

The purpose of this study was to explore the more "social" aspects related to the construction of a representation of a gift which have a strong influence on behavioural practices implemented (i.e., the choice to donate or not).

We found that the core of the representation was more complex and detailed in the group of donors than in the group of non-donors. On the basis of cited literature on social representation and referring to the results of the verbal association test we can assume that the better representation (in terms of quality and structure) among donors is due to the greater contact (i.e., greater knowledge and practice) with concepts and behaviours related to blood donation.

Non-donors also have a representation of donation but, even though they are exposed to the same information and donor awareness-raising campaigns (perhaps with greater intensity, since these campaigns are aimed precisely at recruiting new donors), their less contact with donation makes their representation less structured.

According to our results, training and accurate information on the topic of blood donation seem to underlie the choice of becoming blood donor and stabilising this behaviour over the years, thereby offering the best quality and highest levels of safety in the transfusion medicine through a periodic and responsible donation by "devoted" blood donors.

The main implications of this research lie in the effective possibility of observing the impact of the activities of associations that promote blood donation on the real behaviour of blood donation itself. Donors closer to associations should be better informed on the issues of blood donation and, due to the more complex representation, more inclined to action.

The main limitation of the study is the sample structure: increasing the sample size would allow us to differentiate, within the group of donors, new donors, occasional donors and regular donors and to highlight any differences between donors of different ages. A further limitation is the heterogeneous composition of the groups with respect to gender, marital status and level of education. However, although these elements express individual variability of the representation, this is nevertheless marked by a certain cohesion within the established groups (donors, non-donors).

Subsequent studies will be aimed at further exploration of the aspects related to representations and linking attitudes and behaviours adopted by donors and non-donors. Qualitative in-depth analyses will enable us to improve sensitising/promotional campaigns, giving more importance to those variables considered relevant by people who have persevered in their commitment to give blood. These research results could also help in the arrangement of training events by single members of the federation with the aim of providing further "donors - new potential donors" communication skills to volunteers who already actively work in the associations.

Authorship contributions

CG defined the general research and methodology, translated and drafted the Italian version of the data collection, coordinated the data collection and statistical analysis, and contributed to drafting the "Background", "Materials and Methods", "Results" and "Discussion" paragraphs.

FG and GF provided scientific coordination of the research, contributed to drafting the "Background" and "Discussion" paragraphs and reviewed the work.

AOC contributed to the collection of data enabling the coordination of the various associations involved in the study, contribute to drafting the "Background" section.

ES-W oversaw the drafting of the data collection questionnaire, defined the research methodology,

provided methodological support for the data analysis, contributed to drafting the "Materials and Methods" and "Discussion" paragraphs and reviewed the work.

The Authors declare no conflicts of interest.

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Appendix 1

**DONATE BLOOD: LOOKS CROSS. SOCIAL REPRESENTATIONS,
STRENGTH AND MOTIVATIONS**

PART I

Gender: M F **Age:** _____ **Region of provenance:** _____

Marital status: Single Married/In a relationship Divorced Widowed

Qualification: Elementary Middle School High school
 Degree Post-graduation degree

What is your current occupation?

Student Unemployed
 Employee Manager
 Consultant Freelancer
 Other (specify) _____

Do you usually do volunteer activities? YES NO

If YES, in what kind of association? _____

How do you consider your general health?

Excellent Good Satisfactory Poor

How effective are campaigns/promotion by donor associations to encourage donation?

Very effective
 Fairly effective
 Poorly effective
 Not at all effective

Do you give blood? YES NO

If YES : For how long? _____

What was the date of your last donation (specify if first donation)? _____

Which blood component did you give? Blood Plasma Platelets

How did you become a donor?

Personnel initiative
 A relative need a transfusion
 Contact with voluntary associations that promote donation
 Awareness-raising campaign in newspapers/television, etc.
 Other (specify) _____

PART II

The following is a task of **association of ideas**. Proceed following the signs for the **3 phases**.

Phase 1: Indicate the words that come immediately to mind, without thinking too much, when you think about:

BLOOD DONATION

Write these words or expressions in the order they come to your mind.

① The first three WORDS that came to my mind when I thought about BLOOD DONATION were:

WORD 1 ➡	
WORD 2 ➡	
WORD 3 ➡	

Phase 2: Rewrite the words you have just written and assess as indicated

① I copy the words I thought of the stage 1	② I value each of the words by circling a score from 0 (not at all) to 6 (completely) for each of the three following statements					
	This word indicates an idea , a concept related to blood donation		This word indicates an action , a behaviour in connection with the donation of blood		This word indicates a value , an opinion in connection with the donation of blood	
	Not at all	Completely	Not at all	Completely	Not at all	Completely
WORD 1 ➡	0 1 2 3 4 5 6		0 1 2 3 4 5 6		0 1 2 3 4 5 6	
WORD 2 ➡	0 1 2 3 4 5 6		0 1 2 3 4 5 6		0 1 2 3 4 5 6	
WORD 3 ➡	0 1 2 3 4 5 6		0 1 2 3 4 5 6		0 1 2 3 4 5 6	

Phase 3: Classify the words you have just mentioned

① I rewrite the words that I thought, starting with what I believe to be the most important, to the least, always bearing in mind the relationship with the issue of blood donation.

MOST IMPORTANT WORD	
MEDIUM IMPORTANT WORD	
LEAST IMPORTANT WORD	

PART III

INDICATE HOW OFTEN YOU FEEL THESE SENSATIONS	NEVER	RARELY	SOMETIMES	OFTEN	ALWAYS
When someone else is feeling excited, I tend to get excited too	0	1	2	3	4
Other people's misfortunes do not disturb me a great deal	0	1	2	3	4
It upsets me to see someone being treated disrespectfully	0	1	2	3	4
I remain unaffected when someone close to me is happy	0	1	2	3	4
I enjoy making other people feel better	0	1	2	3	4
I have tender, concerned feelings for people less fortunate than me	0	1	2	3	4
When a friend starts to talk about his/her problems, I try to steer the conversation towards something else	0	1	2	3	4
I can tell when others are sad even when they do not say anything	0	1	2	3	4
I find that I am "in tune" with other people's moods	0	1	2	3	4
I do not feel sympathy for people who cause their own serious illnesses	0	1	2	3	4
I become irritated when someone cries	0	1	2	3	4
I am not really interested in how other people feel	0	1	2	3	4
I get a strong urge to help when I see someone who is upset	0	1	2	3	4
When I see someone being treated unfairly, I do not feel very much pity for them	0	1	2	3	4
I find it silly for people to cry out of happiness	0	1	2	3	4
When I see someone being taken advantage of, I feel kind of protective towards him/her	0	1	2	3	4
HOW OFTEN WOULD YOU EXHIBIT THE FOLLOWING BEHAVIOURS?	NEVER	ONCE	MORE THAN ONCE	OFTEN	VERY OFTEN
I would give directions to someone I do not know.	0	1	2	3	4
I would give money to a charity.	0	1	2	3	4
I would make changes for someone I do not know.	0	1	2	3	4
I would donate clothes or goods to a charity.	0	1	2	3	4
I do volunteer work	0	1	2	3	4
I would help carry belongings for someone I do not know.	0	1	2	3	4
I would delay an elevator and hold the door open for someone I do not know.	0	1	2	3	4
I would point out a clerk's error in undercharging me for an item.	0	1	2	3	4
I would offer my seat on a train or bus to someone who is standing	0	1	2	3	4
I would allow someone I did not know to go in front of me in a queue.	0	1	2	3	4
I would let a neighbour that I do not know well borrow an item of value to me.	0	1	2	3	4
I would voluntarily look after a neighbour's pet or children without being paid.	0	1	2	3	4
I would offer to help a handicapped or elderly person cross the street.	0	1	2	3	4