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Research Article

Analysis of Motivations and Barriers to Voluntary Blood Donation in the Thessalian Population: Findings from a Quantitative Study

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ABSTRACT

Voluntary blood donation constitutes a cornerstone of public health, ensuring the availability of blood for transfusions and emergency situations. The aim of the present study was to investigate the motivations and barriers associated with participation in blood donation among the population of Thessaly, as well as to utilize these findings for the design of targeted awareness campaigns.

The study was based on a quantitative research design with a sample of 593 participants who completed a 23-item questionnaire. Data were analyzed using descriptive statistics and chi-square (X^2) correlation tests. Results indicated that 60% of donors began donating between the ages of 18 and 24, highlighting the importance of early involvement in cultivating a stable blood donation culture. The predominant motivation was altruism (57%), while the main barriers identified were lack of time and difficulties in accessibility. Statistically significant associations were found between age and motivation (p=0.0112), and between initial motivation and current donation frequency (p=0.0299).

The findings underscore the need for targeted interventions, particularly toward younger individuals, through educational programs, university-based initiatives, and collaboration with local institutions. Furthermore, improving accessibility and strengthening public information emerge as central strategies for the sustainable enhancement of the blood donation culture in Thessaly.

Keywords: Voluntary blood donation; Donation barriers; Thessaly; Altruism; Donor retention

INTRODUCTION

Voluntary blood donation represents one of the most fundamental expressions of social solidarity and humanitarian consciousness within any society. Ensuring an adequate blood supply for transfusions remains a consistent priority for health systems, as the availability of safe blood depends almost entirely on the willingness, awareness, and participation of citizens [1-8]. In Greece, the demand for blood remains high-not only due to chronic hematological conditions such as thalassemia, but also because of acute and unpredictable emergencies including accidents and natural disasters [9].

Thessaly, a region with more than one million inhabitants, constitutes a particularly significant field of study. It encompasses both large urban centers and extensive rural areas, where accessibility to healthcare services varies widely. In recent years, Thessaly has experienced critical events that highlighted the essential role of voluntary blood donation. The spontaneous public mobilization following the 2023 Tempi railway disaster and the severe flood crises demonstrated the social, cultural, and emotional significance of blood donation practices within the local population [7].

Voluntary blood donation is widely recognized in the international literature as an altruistic act and a key indicator of social responsibility. The World Health Organization emphasizes that regular, voluntary, non-remunerated donors constitute the safest and most sustainable source of blood [1]. The theoretical discourse identifies multiple categories of motivations: Altruistic motives related to intrinsic satisfaction; social motives associated with recognition and belonging; and practical motives, such as work leave or medical benefits [3,10].

Conversely, several barriers have been documented that discourage participation, including fear of the procedure, limited time, accessibility difficulties, and insufficient information [5,11]. In Greece, voluntary donations account for approximately 55% of total blood collection, indicating that full self-sufficiency has not yet been achieved [9,12].

International studies consistently underline the importance of educational and communication campaigns in cultivating a long-term donation mindset. Many countries incorporate blood donation awareness into school and university programs, strengthening early engagement and establishing a stable base of regular donors [2,8].

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Within this context, the present study seeks to investigate the motivations, barriers, emotional experiences, and behavioral patterns associated with blood donation in Thessaly, drawing upon quantitative data from 593 participants, and to generate actionable insights for targeted regional strategies.

MATERIALS AND METHODS

The present research was based on the collection of primary data through a structured questionnaire, which was distributed electronically to blood donors residing in Thessaly. The aim was to ensure maximum representativeness of the sample by including individuals from diverse socioeconomic and educational backgrounds. The survey was conducted between January and June 2025, adhering to the principles of anonymity and voluntary participation.

Sample

A total of 593 valid responses were collected and constituted the final sample of the study. Participants represented various age groups and professional sectors. The sample included both active, regular voluntary donors and individuals who had donated blood at least once, allowing for a broader depiction of attitudes, experiences, and barriers.

Participation was entirely anonymous and voluntary, with no form of material or moral incentive. The sample size was deemed adequate for statistical analysis, consistent with comparable behavioral studies.

Data collection instrument

The questionnaire was specifically designed for the purposes of this research, following a pilot test on a small group of respondents to ensure clarity and validity of the questions. It consisted of 23 items, organized into thematic sections covering: demographic characteristics, frequency and history of blood donation, motivations for first and current donation, barriers to participation, emotional experience, and suggestions for improving the donation process.

Most items were close-ended with predefined options, while some allowed open responses for additional comments. The internal consistency of the instrument was tested using Cronbach's alpha, which reached 0.82, a value considered satisfactory for social science research.

Data analysis

Statistical analysis was conducted using IBM SPSS Statistics, version 26.0. Descriptive statistics (frequencies, percentages, means, and standard deviations) were first applied to outline the profile of participants.

Subsequently, chi-square (χ^2) correlation tests were employed to examine relationships between demographic variables (e.g., age, gender, residence) and key dimensions of blood donation behavior (motivations, barriers, attitudes).

The level of statistical significance was set at $p<0.05$, following international standards for socio-health research.

RESULTS

General profile of donors

The main demographic characteristics, donation history, and initial motivations of the participants are presented in (Table 1).

Table 1: Key demographic and donation characteristics of the sample (N=593).

Characteristic	Result
Age distribution	18-24: 13%, 25-34: 12%, 35-44: 26%, 45-54: 37%, ≥ 55: 12%
Donation frequency	Once/year: 22%, Twice/year: 40%, Three times/year: 22%
Age at first donation	18-24 years: 60%
Initial motivation	Altruism: 57%, Relative/friend need: 26%, Peer encouragement: 8%, Campaigns: 6%

Barriers to blood donation

The most frequently reported barriers to participation in blood donation were lack of time, difficulty accessing donation sites, and fear related to the donation procedure.

No statistically significant differences were observed between age groups regarding reported barriers (p=0.0729). However, qualitative interpretation revealed distinct patterns: younger donors (<35 years) more frequently reported organizational barriers, such as limited opening hours and accessibility constraints, whereas older donors (>45 years) more often cited health-related limitations associated with chronic conditions or age-related restrictions.

Emotional experience of donation

The predominant emotional response associated with blood donation was a sense of satisfaction derived from helping others, reflecting the altruistic dimension of the act.

No statistically significant association was identified between donation frequency and reported levels of satisfaction (p=0.0709), indicating that the positive emotional experience was consistent across different levels of participation.

Associations between key variables

Age and initial motivation for blood donation

A statistically significant association was found between age and motivation for first-time blood donation (χ^2=25.57, p=0.0044). Younger donors (<35 years) were primarily motivated by social contribution and awareness raised through campaigns or educational initiatives, whereas older donors (>45 years) more frequently reported personal experiences, family needs, or established donation traditions as motivating factors.

This finding highlights the importance of age-specific awareness strategies, emphasizing educational and community-based approaches for younger individuals and continuity, responsibility, and generational role modeling for older donors.

Initial motivation and donation frequency

The relationship between initial motivation and current donation frequency was statistically significant (χ^2=64.47, df=45, p=0.0299).

Donors whose first donation was driven by altruistic motives demonstrated more consistent donation behavior over time, while those who donated primarily due to a specific personal need tended to exhibit more sporadic participation.

Age at first donation and current donation frequency

The association between age at first donation and current donation frequency was marginally non-significant (χ^2=16.7, p=0.0537); however, a strong trend was observed. Individuals who initiated blood donation between the ages of 18 and 24 were more likely to donate regularly (two to three times per year) in adulthood.

Although not statistically conclusive, this trend supports the hypothesis that early engagement in blood donation contributes to the development of stable donation behaviour.

Reported barriers and perceived ease of the donation process

A highly statistically significant relationship was identified between reported barriers and perceived ease of the donation process (χ^2=544.90, df=424, p=0.0001). Participants who cited time constraints or accessibility issues as primary barriers evaluated the donation process as significantly less convenient.

This finding underscores the need to bring blood donation opportunities closer to citizens' everyday environments through mobile units, pop-up donation stations, and outreach activities in workplaces and educational settings.

Previous donation experience and perceived sense of safety

A strong association was observed between previous donation experience and perceived sense of safety during blood donation (χ^2=160.99, df=12, p<0.001). Participants reporting more positive prior experiences also reported higher levels of perceived safety.

This highlights the critical role of donor experience management, including clear communication, respectful staff behavior, procedural transparency, and cleanliness, in fostering trust and encouraging repeat donation.

Previous experience and willingness to recommend donation

The association between previous donation experience and willingness to recommend blood donation to others was statistically significant (χ^2=24.02, df=9, p=0.0043). Donors with highly positive experiences were substantially more likely to recommend blood donation to friends or relatives, confirming the importance of word-of-mouth advocacy in donor recruitment strategies.

Age and desire for recognition or reward

No statistically significant association was found between age and desire for recognition or reward (χ^2=63.69, p=0.128; χ^2=0.01, p=0.91). Nevertheless, descriptive trends indicated that younger donors (<35 years) favored symbolic or digital forms of recognition, while older donors (>45 years) expressed preference for practical incentives, such as work leave or preventive medical examinations.

Preferred type of reward and desire for recognition

A highly significant relationship was observed between preferred type of reward and expressed desire for recognition (χ^2=113.05, df=65, p=0.0002). Participants who sought recognition were more likely to prefer specific forms of acknowledgment, including certificates, preventive health screenings, or symbolic gifts.

This finding supports the implementation of tiered recognition systems tailored to donor preferences.

Information provided by staff and reminder preferences

Although the association between information provided by staff and preference for reminders was not statistically significant (p>0.05), the majority of participants expressed interest in receiving reminder notifications via SMS or email.

This result emphasizes the importance of sustained communication and digital engagement as complementary tools for supporting regular blood donation behaviour.

DISCUSSION

The findings align with international literature indicating that altruism is a dominant motivator for blood donation while barriers are primarily practical in nature [4,5,10,11].

The significant relationship between age and initial motivation confirms earlier evidence suggesting that younger donors respond more strongly to social and educational influences, whereas older donors are motivated by personal experiences [2,13].

The strong association between positive donation experience and perceived safety corroborates prior research emphasizing the role of donor experience management in retention and advocacy [3,11].

Recognition preferences across age groups support the implementation of multi-level reward systems, as suggested by social-psychological models of donor retention [3,4].

The analysis of the data revealed multiple dimensions of voluntary blood donation among the population of Thessaly, both in terms of motivations and barriers, as well as levels of awareness and long-term engagement with donation behavior. Although some statistical correlations were not significant, the overall findings delineate a clear profile of the Thessalian blood donor and offer substantial practical value for designing targeted interventions and awareness campaigns. The relationship between age and motivation for the first blood donation was statistically significant (χ^2=25.57, p=0.0044). Younger donors under 35 are primarily motivated by altruistic and social factors, perceiving donation as an expression of responsibility and collective solidarity, whereas older donors above 45 tend to be driven by personal or family-related experiences. This distinction highlights the need for differentiated communication strategies, such as digital and experiential campaigns for younger populations and messages emphasizing continuity, family responsibility, and safety for older individuals.

Although age was not significantly associated with perceived barriers (p=0.1447), a clear pattern emerged. Younger participants reported more operational barriers-limited time, restricted opening hours, and accessibility constraints-reflecting work or academic commitments. Older participants highlighted medical barriers, including chronic conditions or medications. These patterns confirm that donation obstacles are not solely psychological but also structural, suggesting the necessity for flexible mobile donation units for younger donors and medical guidance for older adults to promote safe participation.

Recognition preferences did not differ significantly by age (p=0.91), yet nearly 70% of respondents expressed a desire for acknowledgment of their contribution. Younger donors preferred symbolic or digital

forms of recognition, such as certificates or digital badges, while older donors favored more practical incentives, including medical examinations or work leave. These findings support the use of a multi-level recognition system capable of enhancing donor retention across diverse demographic groups.

The relationship between donor experience and perceived safety was strongly significant (p=0.001), confirming that a positive experience-characterized by courteous staff, cleanliness, clear communication, and efficient procedures-greatly enhances trust and repeat-donation likelihood. Donors who felt safe and respected were also significantly more likely to recommend donation to others (p=0.0043), acting as informal ambassadors within their communities. This underscores the importance of investing in donation-site management and donor-centered service design.

The study further indicates that voluntary blood donation functions not only as a health-related act but also as a cultural expression of social cohesion. The development of a "donation culture" is linked to values cultivated from an early age, including cooperation, solidarity, and selfless giving. Reinforcing this culture in Thessaly requires sustained educational efforts and the institutional integration of blood donation into schools, community programs, and local organizations. The finding that individuals who begin donating at ages 18-24 tend to maintain more frequent donation patterns aligns with international evidence supporting early engagement as a formative factor in long-term donor behavior.

Overall, altruism emerged as the strongest motivator, while barriers were predominantly practical. Even where statistical differences were absent, the findings suggest that blood-donation culture can be cultivated across all age groups by tailoring interventions to demographic needs. Regional strategies should prioritize younger populations-who respond positively to social and experiential approaches-while simultaneously reducing structural obstacles that affect donors of all ages.

In conclusion, this quantitative study delineated a detailed profile of Thessalian blood donors, capturing motivations, barriers, emotional responses, and recognition preferences. The multifactorial nature of donation behavior reflects the interplay between individual characteristics (such as age and experience) and broader social determinants (including culture, information, and infrastructure). Although altruism is strong, it has not yet evolved into a fully systematic pattern of repeat donation for many individuals. Younger donors donate in response to situational or social influences, whereas older donors draw motivation from personal or family experiences. The central challenge for regional blood services is to transform occasional behavior into consistent participation through education, accessibility improvements, and meaningful recognition.

Key findings highlight four crucial elements: age influences motivation but not barriers; positive experiences enhance perceived safety and repeat intention; recognition is broadly desired across demographics; and blood donation is deeply embedded in local cultural values of cohesion and trust. Thessaly possesses a strong tradition of volunteerism that can evolve into a regional model for community resilience and civil-protection preparedness.

Based on these insights, several policy recommendations emerge. Educational initiatives should integrate blood donation into school programs and create "donation days" in universities. Accessibility can be improved through mobile units, extended schedules, and enhanced coordination among regional hospitals. Recognition should be approached through a multi-level system that includes digital certificates, annual awards, and symbolic or health-related incentives. Communication strategies must leverage digital platforms for information and reminders, while developing age-specific campaigns that resonate with diverse audiences. Finally, integrating blood donation into regional civil-protection mechanisms can strengthen emergency preparedness and reinforce its role as an act of collective responsibility.

The study is subject to limitations, including reliance on self-reported data and underrepresentation of remote mountain communities where donation infrastructure is limited. Future research could include qualitative interviews and focus groups to better understand non-donor perspectives, as well as longitudinal studies to examine changes in donation patterns over time.

CONCLUSION

Blood donation in Thessaly emerges as a pillar of social cohesion and cultural resilience. The findings of this study provide a solid evidence base for the design of targeted interventions aimed at transforming citizens' goodwill into a sustained habit of giving.

Linking blood donation with civil protection and citizen education in emergency preparedness reinforces its meaning as an act of collective responsibility and readiness.

The vision of a "Donor-Friendly Thessaly"-a region where blood donation is a natural expression of solidarity-is both achievable and realistic, provided that coordinated action is undertaken by state authorities, local governments, hospitals, educational institutions, and citizens alike.

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