ABSTRACT

Objective: to describe the implementation of a pilot project to attract blood donors among the caregivers of patients admitted to surgical clinics. Method: exploratory descriptive study to evaluate the implementation of the project, carried out in two phases: attracting donors from the caregivers of patients admitted to surgical clinics, followed by the identification of the participant’s attendance at the hemotherapy service to assess the effectiveness of the proposed intervention. Results: the participants in the study were 44 caregivers; 65.9% had never donated blood. The caregivers’ adherence resulted in 11.4% of effective donations. Considering the comparison between the quarterly averages of attendances and donations of the service, we observed that the difference between the averages was not statistically significant at the level of 5%. Conclusion: many potential donors accepted to participate in the project and few came to donate blood, which demonstrated the fragility of the awareness and encouragement of potential donors, reinforcing the need to spread the culture of donation.

Descriptors: Perioperative Nursing; Blood Donors; Hemotherapy Service; Epidemiology.

RESUMO

Objetivo: descrever a implementação de projeto-piloto para captação de doadores de sangue entre acompanhantes de pacientes internados em clínicas cirúrgicas. Método: estudo descritivo
exploratório de avaliação da implementação do projeto, realizado em duas fases: captação de doadores dentre acompanhantes de pacientes internados em clínicas cirúrgicas, seguida da identificação do comparecimento do participante ao serviço de hemoterapia para avaliação da efetividade da intervenção proposta. **Resultados:** participaram do estudo 44 acompanhantes; 65,9% nunca tinham doado sangue. A adesão dos acompanhantes resultou em 11,4% de doações efetivas. Considerando a comparação entre as médias trimestrais de comparecimentos e doações do serviço, observou-se que a diferença entre as médias não foi estatisticamente significativa ao nível de 5%. **Conclusão:** muitos potenciais doadores aceitaram participar do projeto e poucos, de fato, compareceram para doar sangue, o que demonstrou a fragilidade da sensibilização e encorajamento de potenciais doadores, reforçando a necessidade da propagação da cultura de doação.

**Descritores:** Enfermagem Perioperatória; Doadores de Sangue; Serviço de Hemoterapia; Epidemiologia.

**RESUMEN**

**Objetivo:** describir la implementación de un proyecto piloto para atraer donantes de sangre entre acompañantes de pacientes ingresados en clínicas quirúrgicas. **Método:** estudio descriptivo exploratorio para evaluar la implementación del proyecto, realizado en dos fases: captación de donantes de los acompañantes de pacientes ingresados en clínicas quirúrgicas, seguida de identificación de la asistencia del participante al servicio de hemoterapia para evaluar la efectividad de la intervención propuesta. **Resultados:** 44 acompañantes participaron del estudio; el 65,9% nunca había donado sangre. La adhesión de los acompañantes resultó en el 11,4% de las donaciones efectivas. Considerando la comparación entre los promedios trimestrales de asistencias y donaciones del servicio, se observó que la diferencia entre los promedios no fue estadísticamente significativa al nivel del 5%. **Conclusión:** muchos donantes potenciales aceptaron participar en el proyecto y pocos llegaron a donar sangre, lo que demostró la fragilidad de la conciencia y el estímulo de los donantes potenciales, reforzando la necesidad de difundir la cultura de la donación.

**Descritores:** Enfermería Perioperatoria; Donantes de Sangre; Servicio de Hemoterapia; Epidemiología.

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1 Nurse. Public Health Specialist. PhD in Epidemiology in Public Health. Professor of Nursing. State University of Rio de Janeiro. Rio de Janeiro, RJ, Brazil, [https://orcid.org/0000-0002-8043-2350](https://orcid.org/0000-0002-8043-2350).

2 Nurse. PhD in Biosciences. Professor of Nursing. Federal University of the State of Rio de Janeiro. Rio de Janeiro, RJ, Brazil, [https://orcid.org/0000-0002-7648-8634](https://orcid.org/0000-0002-7648-8634).
INTRODUCTION

Blood donation must be a spontaneous, voluntary, and unpaid action. With the science evolution, the process of donating and receiving blood has become a completely safe procedure for the donor with the use of disposable and sterile materials. There is also a service protocol, from data collection to the final act of donation, in which the donor’s clinical and serological screenings are performed to ensure blood collection and transfusion.¹

Researchers have implemented strategies aimed at promoting blood donation with an educational and social marketing focus. The educational process can generate changes, encourage society and strengthen new concepts, resulting in co-responsibility for the health process and expansion of blood donations.²

A study developed in a hemotherapy service in Rio Grande do Sul, Brazil, used social marketing as a strategy to increase the number of blood donors, with repercussions in health services, and it has generated a statistically significant increase in the number of donations (p=0.039) when compared to the same month of the previous year.³

However, there is still a gap between the strategies used for uptake and the low blood stores in blood centers, represented by the low frequency of donors. Social marketing emerges as a possibility to contribute to the process of attracting new donors by encouraging blood donation aiming at an adequate supply of blood centers.²

Low adherence to be a blood donation volunteer is a public health problem due to the scarcity of blood bags in blood centers, which impacts the difficulty of distribution to health institutions. These problems can be commonly represented in difficulties in the optimization of clinical treatment,
delay, or even cancellation of surgeries. In young donors, researchers have identified that the population of young university students is the main profile of this group. However, knowledge about blood donation is still scarce and when present it is not related to the act of blood donation.

In line with this situation, the role of the nurse at that moment is to welcome the caregiver and encourage him to donate blood, among other skills and duties in hemotherapy.

Considering the scarcity of publications and the gaps in the scientific literature on this topic, the motivation for carrying out this study is to contribute to a closer relationship between students and nursing professionals with the theme, seeking to assess how much the caregivers of hospitalized patients for surgical reasons would be sensitive to adhere to donating blood. We also considered the importance of the professional nurse in health education and attracting donors in a hospital environment.

Therefore, the following research problem arises: would the caregivers of patients hospitalized for surgical reasons be sensitive to uptake for blood donation? Bearing in mind that such an act is not part of the routine of most of the population, it is essential to problematize the object of this study. We need to focus on the planning and implementation of social marketing strategies to attract donors, aiming at the transformation and solidification of blood donation culture, which justifies the development of this research.

**OBJECTIVE**

To describe the implementation of a pilot project to attract blood donors among caregivers of patients admitted to surgical clinics.

**METHOD**

This is a descriptive exploratory study to evaluate the implementation of a pilot project to attract blood donors among caregivers of patients admitted to surgical clinics, with an assessment of the effectiveness of the proposed intervention, following a descriptive quantitative approach and non-probabilistic sampling (convenience sample).

The convenience sample consisted of 44 caregivers of patients admitted to surgical clinics, who agreed to participate in the study during visiting hours for inpatients. No sample calculation was carried out because we applied a pilot project, depending on the acceptance or refusal of the caregivers present during visiting hours, and also on the availability of the researcher for data collection.
The inclusion criteria were to be a caregiver of an inpatient (family, friends, and other caregivers); be over 18 years old and under 69 years old. We excluded from the study caregivers who had any restrictions for donation, detected by the researcher in the first scenario.

The research was developed in two scenarios and two phases. The first phase was developed from April to June 2018 and had three surgical clinics (vascular, thoracic, and general) at a university hospital located in the city of Rio de Janeiro, where the pilot project entitled “Acompanhante Sangue Bom” (Good Blood Caregiver) prepared by the authors was tested, specifically to develop this research.

The pilot project “Acompanhante Sangue Bom” was conceived in 2017, based on situational observations of the routine of a university hospital, showing the need for blood transfusions to inpatients. The purpose of the project is to attract blood donors in the intra-hospital environment, aiming to maintain a safe stock of blood bags for the blood center of the university hospital and, consequently, for patients undergoing surgeries that may determine the need for blood replacement.

The team was initially composed by one of the authors of this study, who worked as a resident of Nursing in Surgical Clinic at the referred hospital, in partnership with the team of the university extension project “Sangue: vencendo o medo, garantindo a vida” (Blood: overcoming fear, guaranteeing life) coordinated by the first author of this manuscript and integrated, at the time, by four scholarship students and volunteers, graduating in Nursing from the Faculty of Nursing of the State University of Rio de Janeiro.

The clinics listed as scenarios for the implementation of the project in its first phase (April/June 2018) had patients with specific pathologies with varying levels of complexity and a routine need for blood transfusions, totaling 31 active beds. The hospital visit is carried out daily, from 2 pm to 4 pm. The second phase, developed in July 2018, had the setting of the hemotherapy service of the respective university hospital.

Data collection was carried out in two phases, in the scenarios already described. In the first phase, the pilot project was implemented in the wards, with the patients and their respective caregivers, to recruit potential donors at the three aforementioned surgical clinics, based on verbal and individual guidance, during the visit time, and guided by a pre-structured script prepared by the researchers.

The script had the presentation of the researcher and the project “Acompanhante Sangue Bom”, as well as guidance on technical regulations for blood donation. The period for the hospital visit was designated for the application of the intervention, as it concentrates a greater number of accompanying persons present. Such definition was possible through the approval of this project by
the Research Ethics Committee of the institution and agreement with the nursing managers of each of the three clinics.

Each of the scenarios (surgical clinics) lasted 40 minutes of approach totaling the two hours of visit defined by the institution (2 pm to 4 pm), three times a week. After verbal guidance, the team responsible for the research offered informative folders based on the recommendations of the Ministry of Health regarding blood donation. Also, the researcher gave a card previously filled out at the time of the caregiver’s approach, for later delivery in the second scenario (hemotherapy service of the institution) to identify whether the caregiver recruited by the project would effectively attend the service as a candidate for donation.

The data collection of the caregivers who agreed to participate in the research took place through a pre-structured instrument, with questions about their profile, containing the following variables: gender; birth date; age; education level; occupation/profession; bond with the patient; the number of previous blood donations; actual donation (yes/no); donation date; and reason for the inaptitude. The process of the first phase ended with the registration of the caregiver who was included in the donation criteria in a list of recruited participants, with no refusal to participate in the research.

All participants recruited in the first phase were eligible for blood donation, considering the criteria established by the Ministry of Health. Therefore, the identification of their attendance in the second scenario (hemotherapy service) and the effective donation in the second phase of the study was used as a measure of verification of the effectiveness of the proposed intervention.

In the second phase of data collection performed in the hemotherapy service, a nominal search was performed for each of the participants recruited during the first phase of the research, in the records of the secondary database of the blood bank to identify which ones of the participants attended the service to make the donation effective. The researcher also obtained, from the service’s database, information regarding the absolute number of candidates for donation (appearances) and actual donations, both in the quarter before the implementation of the pilot project (January to March/2018) and in the quarter of implementation of the intervention in surgical clinics (April to June/2018).

Through the collection of these data, we could identify how many of the 44 potential donors recruited went to the service to donate and, also, if there was an increase in the absolute number of donors who came to the service after the implementation of the project. This observation is justified, since the recruited caregiver, even though he or she did not attend the donation, may have acted as an indirect recruit, inviting other family members and friends of the patient to donate blood.
Five of the 44 study participants attended the service and donated blood. However, based on the guidelines provided, we expected that, even if they had limitations for the donation, they could act as indirect recruiters.

The data were tabulated using the Microsoft Excel® program, version 2013, and analyzed using descriptive statistics techniques using the Statistical Package for the Social Sciences® software, version 18.0. In the data analysis, the profile of the participants during the application of the pilot project was described and we compared the quarterly averages of appearances and actual donations, considering the total absolute number of people who attended and/or donated blood in the service (including in this number the research participants who attended). We compared the quarter before the application of the project in surgical clinics (January to March/2018) with the quarter of project implementation (April to June/2018) to assess whether there was a significant difference between the periods.

To compare the two pairs of quarterly averages, we used the Student’s t-test, with statistical significance at the level of 5%. To assess the effectiveness of the applied intervention, we used the indicators “number of blood donation candidates/month” and “number of effective donors/month”. We observed their absolute frequency, quarterly average, and respective standard deviation (SD), aiming to establish a comparison between the second quarter of 2018 (corresponding to the first phase of application of the pilot project) with the first quarter of the same year (before the application of the project).

The research project was submitted to the Research Ethics Committee of the Hospital Universitário Pedro Ernesto and approved with opinion 2,531,770/2018 and CAAE number 82767817.1.0000.5259. The participants signed the Informed Consent Form, and the study respected the formal requirements contained in the national and international regulatory standards for research involving human beings.

**RESULTS**

There were 33 visits at the end of the 3 months of application of the pilot project, recruiting 44 caregivers for the donation of blood (1.3 caregivers recruited/visit), during the period of application of the intervention. Although 44 caregivers were recruited during the application of the project (first phase), 39 (88.6%) did not attend the blood bank for the donation to take effect. Only 5 (11.4%) caregivers attended and were identified by the researcher in the consultation by nominal search to the secondary database of the service. Therefore it is not possible to identify the reasons
for the low adherence of the research participants to blood donation.

In the profile of the caregivers recruited in the first phase of the pilot project, the age ranged from 18 to 63 years old, with an average of 40.8 years old (SD ± 12.994) and a median of 38.5 years old. Among the participants, the female gender was predominant. The occupation “with remuneration” was more frequently observed. The largest share of participants (75%) had an education level of up to high school and had never donated blood. Regarding the bond with the patient, there was a predominance of family members and the highest frequency of participants occurred in general surgery, with 45.4%, followed by thoracic surgery (36.4%) (Table 1).

**Table 1** - Sociodemographic characterization of the study participants. Rio de Janeiro, RJ, Brazil, 2018.

<table>
<thead>
<tr>
<th>Variable</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>27 (61.4)</td>
</tr>
<tr>
<td>Male</td>
<td>17 (38.6)</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>27 (61.3)</td>
</tr>
<tr>
<td>Not paid</td>
<td>17 (38.7)</td>
</tr>
<tr>
<td><strong>Education level (years)</strong></td>
<td></td>
</tr>
<tr>
<td>≤ 4</td>
<td>2 (4.6)</td>
</tr>
<tr>
<td>&gt; 4 and ≤ 8</td>
<td>31 (70.4)</td>
</tr>
<tr>
<td>&gt; 8</td>
<td>11 (25)</td>
</tr>
<tr>
<td><strong>Previous blood donations</strong></td>
<td></td>
</tr>
<tr>
<td>No donation</td>
<td>29 (65.9)</td>
</tr>
<tr>
<td>One donation</td>
<td>9 (20.5)</td>
</tr>
<tr>
<td>Two or more donations</td>
<td>6 (13.6)</td>
</tr>
<tr>
<td><strong>Bond with the patient</strong></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>33 (75)</td>
</tr>
<tr>
<td>Friend</td>
<td>11 (25)</td>
</tr>
</tbody>
</table>
The adherence and attendance of the caregivers to the blood bank after the application of the project resulted in five effective donations (11.4% of the total raised), all of which were assessed as “fit for donation”. Of the five donors who attended the blood bank, four were enrolled in thoracic surgery and one in general surgery.

We compared the second and first quarters of 2018, using the indicators “number of blood donation candidates/month” and “number of effective donors/month”. The quarter from January to March/2018 comprised the pre-intervention period and the quarter from April to June/2018 comprised the period of implementation of the pilot project. Table 2 compares the quarterly averages of candidates for donation/month and actual donors/month. These results refer to the total number of appearances and donations in the institution’s hemotherapy service in both quarters; in the second quarter, donors recruited by the project in the first phase of the survey are included.

Although only 5 (11.4%) of the 44 caregivers attended the service, they were encouraged, during the orientation carried out at the reception, to invite family and friends to attend the service for the donation to take effect. Such attendance by indirect recruitment could not be measured, since the caregiver may have disclosed and invited people in different social media, with no prior identification of these individuals by the researcher. However, we could obtain data and compare the total absolute number and the average number of appearances and donations between the two quarters (before and during the application of the project). Based on the comparison between the two pairs of quarterly averages, the result showed that the difference between such averages was not statistically significant at the 5% level (Table 2).
Table 2 - Comparison of the averages of the total number of appearances and actual donations in the January/March and April/June quarters. Rio de Janeiro, RJ, Brazil, 2018

<table>
<thead>
<tr>
<th>Indicator</th>
<th>January/March</th>
<th>April/June</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Candidates (n=997)</td>
<td>Candidates (n=1,048)</td>
</tr>
<tr>
<td></td>
<td>Donors (n=760)</td>
<td>Donors (n=805)</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>332.33</td>
<td>349.33</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>56.01</td>
<td>8.96</td>
</tr>
<tr>
<td><strong>t</strong></td>
<td>-0.424</td>
<td>4</td>
</tr>
<tr>
<td><strong>df</strong></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>p-values</strong></td>
<td>0.693</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Donors/month</th>
<th>Donors/month</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>253.33</td>
<td>268.33</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>34.99</td>
<td>6.94</td>
</tr>
<tr>
<td><strong>t</strong></td>
<td>-0.595</td>
<td>4</td>
</tr>
<tr>
<td><strong>df</strong></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>p-values</strong></td>
<td>0.584</td>
<td></td>
</tr>
</tbody>
</table>

* SD: Standard Deviation; †: Student's t-test; ‡: df: Degrees of freedom; §: p-value (t-test)

**DISCUSSION**

The study showed that social marketing is an adequate tool for the creation of new public policies that aim at more efficient practices in attracting and retaining donors. The main contribution occurs when there is social change, in the individual's perception of value regarding voluntary donation.

A survey carried out in Ethiopia showed a low prevalence of donors (18.4%); 81.6% of participants had never donated blood. Of those who donated before, 61% were voluntary donors, while the rest, 39%, substituted donors.\(^7\)

Studies carried out on the profile of the blood donor showed that men donate blood more frequently than women.\(^6,9\) However, in the sample of this study, the females were the ones with the highest frequency of adherence to the project, as well as blood donation. A study carried out at the Federal University of Sergipe, which identified the profile of potential blood donors in a campaign to raise awareness and recruitment also found that females corresponded to the largest portion (65.2%) among respondents, most frequently in the age group between 18 and 25 years old (70.7%).\(^10\)

This study identified that more than half of the caregivers recruited had never donated blood. A study developed from a regional perspective, in Spain and Brazil, found that the blood donation rate was 36.62 per 1000 inhabitants in Spain, while in Brazil this index corresponded to 18.20 per 1000 inhabitants,\(^11\) showing a much lower rate national level.

In the in-hospital scenario, where there is a continuous transfusion demand, donor recruitment ends up being primarily focused on replenishing stocks. Therefore, the findings of this research
reinforce the need to search for new strategies and focus on groups of potential donors. Some characteristics such as age, gender, and education level are factors that contribute to a greater chance of becoming a donor and returning to new donations. The promotion of events held in blood centers can also be opportune for the increase of fundraising among family members and friends of donors.

Among the caregivers captured who made the replacement donation, three were first-time donors, which highlights the need to encourage and raise awareness among the population to overcome fears and myths. In addition to overcoming subjective issues, the professionals inserted in the bank's blood donors must create strategies to encourage donor loyalty, such as reduced waiting times, extended service hours, entertainment, extended listening, greater availability of external collections and staff, and the offer of a convenient and accessible place for donation.

The pilot project counted on the participation of its team members in guiding/attracting potential blood donors in surgical wards, highlighting the need to include projects that disseminate the topic and the culture of voluntary blood donation in the hospital environment, which highlights its differential and the need for its long-term and continuous application.

It is essential to know the characteristics of potential blood donation candidates, their motivations for donation, and the factors associated with the quality of the service since such information can be a subsidy for planning future actions and collection strategies. In this perspective, there is an instrument validated in Brazil to assess the satisfaction of blood donors, taking relevant information for managers and hemotherapy services in improving care to meet the expectations of blood donors.

Like these strategies, the state of Goiás, in Brazil, conferred specific benefits on legislation to voluntary and systematic donors, such as the acquisition of half-price in all state public places of culture, sport, and leisure; availability of bus tickets for the expense of going to the blood center; priority to health care and scheduling exams. Likewise, the Osvaldo Cruz Hospital Institute, in São Paulo, created the “Clube dos Doadores” (Donors Club), in which every ten donations the donor receives personalized cards. The Sírio-Libanês Hospital, on the other hand, established a similar strategy, in which the donor is automatically inserted in the donor club.

Strategies to increase the prevalence of blood donors and repeat donations must be innovative and adapted to the culture and environment of each country. It is necessary to consider ways to further encourage the female public, to reduce the blood donor's minimum age to 16 years old (as Brazilian legislation already sets up), and to introduce the theme of voluntary donation in the syllabus of schools, since elementary school.
This study has limitations inherent to the sectional study design, in which the data collection takes place in a single moment in time, with no follow-up by the participants. Therefore, the collection of information with potential donors took place in a single moment, with no follow-up in the act of donation, hindering quantifying the reasons that led them to donate and measuring issues related to low adherence. The data collection in the second scenario consisted of a nominal search of the participants in the secondary database of the blood bank, which includes only information collected routinely by the health establishment.

Some situations limited the implementation of the project and blood donation, such as the absence of caregivers on some days of the hospital visit; little bed turnover of surgical patients and their caregivers; live away from the blood center; incompatibility of the time of the donation with the time of the hospital visit; disinformation about the worker’s right to donate blood; and the non-adherence of some caregivers to the recruitment. As a limitation, we highlight the short period of application of the pilot project (3 months), needing to extend its implementation in the long term to achieve significant results. Another limitation, intrinsic to convenience sampling, is the possible occurrence of selection bias, which occurs when the study sample is not representative of the general population. That is, the results observed in the sample that accepted to participate in the study cannot be generalized for the entire population.

The implementation of the pilot project to attract blood donors among caregivers of hospitalized patients demonstrated, however, the possibility of achieving broad long-term results, such as the interaction of professionals with the theme and the greater dissemination of the culture of voluntary blood donation in the hospital environment.

CONCLUSION

Many potential donors agreed to participate in the pilot project and few came to perform the blood donation, which confirmed the fragility of the awareness and encouragement of potential donors, reinforcing the need for the propagation of the blood donation culture. In this sense, the possibility is perceived by the nurse to expand the collection of future blood donors among the caregivers of hospitalized patients in surgical clinics, since educational practices need to be constantly reinforced in the daily practice.

We emphasize the importance of disseminating information on the subject to contribute to a change in the common sense of the population, towards a practice of voluntary, habitual, and altruistic blood donation.

CONTRIBUTIONS
Tatiana de Araujo Eleuterio: Conception and design; analysis and interpretation of data; writing of the article and relevant critical review of the intellectual content; final approval of the version to be published. Aline Affonso Luna: Conception and design; writing of the article and relevant critical review of the intellectual content; final approval of the version to be published. Daniel José Coutinho Vieira: Conception and design; analysis and interpretation of data; writing of the article and relevant critical review of the intellectual content; final approval of the version to be published. Priscilla Alfradique de Souza: Relevant critical review of the intellectual content; final approval of the version to be published. Cintia Silva Fassarella: Relevant critical review of the intellectual content; final approval of the version to be published.

CONFLICT OF INTERESTS

The authors declare that there are no conflicts of interest.

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Corresponding author:
Tatiana de Araujo Eleuterio
E-mail: tatirodriguesaraujo@yahoo.com.br

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