



Original article

Development of a blood donor satisfaction questionnaire (BDSQ)



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ABSTRACT

Objective: To develop a self-reporting questionnaire, namely the Blood Donor Satisfaction Questionnaire (BDSQ) in Brazilian Portuguese, to assess the blood donor satisfaction with the service provided by a blood bank.

Method: This study was carried out in three stages: 1) a preliminary version of the instrument was proposed, based on a revision of a previous questionnaire and consideration of the focus groups blood donor perceptions; 2) a content validation to assess the relevance of the items, clarity, domain structure and comprehensiveness of the satisfaction measurement, and; 3) a pre-test of the instrument using a sample of blood donors. All the stages of the research were performed at the Regional Hemotherapy Center in Franca, São Paulo, Brazil.

Results: The 25-item BDSQ being proposed has an additional question on overall satisfaction. Responses to items are presented on a five-point scale, including a neutral answer. The BDSQ has three domains: accessibility and convenience, technical aspects, and interpersonal aspects.

Conclusion: The application of the BDSQ has shown that it can be a useful tool in generating information for managers on specific aspects of blood bank services which need to be improved, monitored or maintained, aiming to provide a service which meets the blood donor expectations and makes him or her feel satisfied with the care received.

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Introduction

Blood banks in Brazil have been facing a series of obstacles in maintaining their blood supply and retaining an adequate number of donors. Since 2015, the prevalence of blood donors

has remained at 1.82 %, considering the general Brazilian population, whereas the World Health Organization recommends a prevalence of around 3–5% of donors in order to meet the blood demand.¹ In view of this scenario, blood banks need effective recruitment strategies for blood donors to attain their retention, as blood from repeat donors tends to be sero-

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logically safer.² Previous studies pointed to three important categories of donor recruitment and retention strategies: welcoming reception, campaigns and educational approaches.³ A welcoming reception is the warm relationship between blood donor and blood collection personnel, in which the donor feels respected, included, cared for and heard by the staff.⁴ Campaigns are characterized as specific strategies that happen at a given moment for specific reasons.⁵ Educational approaches are more effective when they promote positive effects in the short, medium and long term, especially aiming at the development of a blood donation behavior in the young population, by emphasizing that blood donation is an act of solidarity and social responsibility.⁶

In all these contexts, knowledge of the donor beliefs, values and feelings is essential in retaining him or her at the service. In fact, awareness of the donor expectations facilitates the satisfaction of his or her real needs during the act of donation, which contributes to the donor satisfaction and, consequently, increases donor recruitment.³ Therefore, awareness of what makes the donor satisfied when he or she visits blood banks is fundamental, not only to enhance retention at the service, but also to increase the strategies of recruitment by recommending and encouraging blood donation.

There are no specific guidelines in Brazil for the certification of blood banks, but the norm NBR-ISO 9001:2015 is commonly used for the implementation of quality management systems, requiring knowledge and continuous assessment of the degree of donor satisfaction regarding the service provided. Therefore, structured questionnaires are needed to assess the blood donor satisfaction. In the present research, satisfaction is defined as the positive perceptions or feelings that an individual forms or has about the blood bank services and its professional staff as a result of his or her involvement in the blood donation process.

While there are several studies in the literature proposing instruments for measurement of blood donor satisfaction,^{7–11} we did not find any study that presented a validated instrument. Borges et al.⁹ proposed an 18-item questionnaire in Portuguese, but it has a series of limitations that should be considered for the assessment of donor satisfaction. First, it has never been validated for such a proposal. According to the authors, the internal consistency of the questionnaire indicates that the items have an elevated capacity to measure the same objective; however, no further study was conducted to confirm whether this objective is in fact the blood donor satisfaction. Second, the items in the questionnaire consist of statements such as “It’s easy to get to the blood bank” and “The blood bank is a clean place”, and the response categories range from “totally right” to “totally wrong”. Consequently, the questionnaire does not directly measure the satisfaction with the service. Third, the questionnaire was proposed more than 10 years ago and it has never been reviewed and updated. It is important to consider that, for the assessment of donor satisfaction, quality management instruments should be constantly updated accordingly, as some items may be obsolete or need to be modified/adapted, depending on the services provided. In addition, new items may be required over time.

In addition to the questionnaire developed by Borges et al.,⁹ a few instruments on blood donor satisfaction are described in

the literature. Araújo et al.¹⁰ developed an instrument to evaluate the donor acceptance of the donation stages (i.e., service, medical and nursing selection, and blood collection) at a public blood bank in Recife, in northeastern Brazil, with emphasis on the welcoming reception. In their study, the authors did not use the term “satisfaction”, but rather “acceptance”, defined as being the conformity with the services offered in relation to the values and expectations of the users. Cardoso et al.¹¹ proposed an instrument to assess the degree of satisfaction of blood donors in Portugal regarding the services provided by different professionals, as well as cleanliness, comfort, privacy and general infrastructure of the place.

Therefore, the present study aims to introduce a new instrument in Brazilian Portuguese capable of assessing the satisfaction of blood donors regarding their stay at blood banks. Within this objective, the following premises were considered:

- The instrument must be self-administered so that no blood bank staff members are required to collect information or leave their routine work.
- The items included in the instrument are not intended to generate an overall measurement of donor satisfaction, either by using the sum of values assigned to each answer, or by using another equation based on the answers to the items. The purpose of the items is to allow the satisfaction attributes to be well known, so that blood donors can be better served.
- The items in the instrument should refer to quality attributes that can be appropriately modified whenever needed (e.g., there is no point in including items on location of the blood bank if there is no viability in moving it to another, or on physical space if the remodeling of its structure is not feasible).

Methods

Settings

All stages of the research were carried out at the Regional Hemotherapy Center of Franca, a city of approximately 300,000 inhabitants, located in the southern state of São Paulo. In 2017, 12,814 blood donations were made by donors who had visited this facility.

Procedures

This study on the development of a self-reporting questionnaire was performed in three stages. The first stage was the development of a preliminary version of the instrument in which the items of a questionnaire, introduced by Borges et al.,⁹ were updated, based on the perceptions of blood donors participating in focus groups. A preliminary version of the new instrument was then elaborated and, in the second stage, submitted to content validity. Subsequently, the instrument was updated again before being submitted to a pre-test (i.e., third stage) by using a sample of blood donors. The study protocol was approved by the Human Research Ethical Committee

of the Ribeirão Preto Medical School at the University of Sao Paulo, under the protocol number 1.845.298.

Stage 1: development of the instrument

This stage used blood donor focus groups to search for new items that could be associated with blood donation, subsequently using them to revise the questionnaire proposed by Borges et al.⁹ Thirty participants were randomly invited through telephone contact and the meetings were held with groups of 10 donors each in a comfortable room. Illiterate and visually impaired donors were not selected to participate, as the questionnaire was intended to be self-administered. The meetings began with the explanation that the participants could speak freely and that the expression of opinion would not affect their frequenting of the blood bank. The following questions were discussed sequentially: Why do you donate blood?; When you come here to donate your blood, what do you expect?; What makes a donor satisfied?; What makes a donor unsatisfied?; Have you ever donated blood elsewhere?; and; "How was the experience?": Thematic content analysis was applied for data analysis, comprising three phases: ordering, classification and final analysis. From the participant reports, the items of the proposed questionnaire on blood donor satisfaction were distributed into three categories, as proposed by Borges et al.,⁷ namely, accessibility and convenience, technical aspects and interpersonal aspects. For the purpose of this study, accessibility was defined as the ability of donors to get quick access to the facility and convenience, as the donor perception of time and effort required to donate blood. Technical aspects involved the perceptions of the physical structure of the facility and professional competence of the staff. Interpersonal aspects included the relationship between the donor and professionals involved in the blood donation process. The items of the proposed questionnaire were not structured as affirmative statements, as in the questionnaire developed by Borges et al.⁷ Instead, the items were structured based on satisfaction attributes which were assessed by the donors according to their degree of satisfaction on a five-point scale ranging from "completely dissatisfied" to "completely satisfied".

Stage 2: Content validity

The content validity describes the degree to which the elements of an assessment instrument are relevant and representative of the construct to be measured.¹² In the present study, the content validity referred to the assessment of the clarity and relevance of the instrument items by a panel of experts, in order to determine a set of items representing the blood donor satisfaction.^{13,14} Thus, the instrument proposed in the previous stage was evaluated by a group of 12 raters, that is, hemotherapists, physicians, and nurses with at least one year of experience in blood donor service. The raters were not informed about which domain each item was associated with.

Content validity comprises four criteria¹⁵:

- (a) **Relevance of the items.** Experts were asked to classify each item as essential, useful but not essential and not neces-

sary. For each item, the content validity ratio (CVR) was is given by the formula $CVR = (E - n/2)/(n/2)$, where "n" is the total of raters and "E" is the total number of raters who indicated the item as essential. The CVR ranges from -1 to +1, being negative when less than half of the raters assessed an item as essential. According to Table 2 of the article by Wilson et al.,¹⁶ for an item to be retained, an item CVR must be more than 0.566 for a sample of 12 raters.

- (b) **Clarity.** With regard to the wording itself, each item of the instrument was classified by the raters according to three possible answers: "It is very clear", "A small revision is necessary" or "A substantial revision is necessary". If necessary, the experts could write suggestions to improve the wording of each item.
- (c) **Domain structure.** The experts classified each item of the instrument according to its domain: accessibility/convenience, technical aspects and interpersonal aspects. In addition, the raters were allowed to classify an item as belonging to any of these domains. The factorial validity index (FVI)¹³ determines the degree to which the raters correctly associate each item to its respective domain. The FVI of each item is given by the number of raters who correctly associated the item to its domain, divided by the total number of raters.
- (d) **Comprehensiveness.** The comprehensiveness of the satisfaction measurement is indicated by the raters, who suggested items to be excluded from, or included in, the questionnaire. In this manner, the raters were asked to answer two questions: "What items do you recommend to be excluded from the questionnaire on blood donor satisfaction?" and "What other items do you suggest that should be included in the questionnaire on blood donor satisfaction?"

Stage 3: Pre-test questionnaire

A revised version of the questionnaire was self-administered to a convenience sample of blood donors after they signed a free consent form. All donors who visited the facility and completed the whole process of blood donation in a defined period of three days were invited to participate. An alternative option was included in each item in this version of the questionnaire, asking the donor whether he or she had clearly understood the statement. The questionnaire was anonymously filled out by the donors in the blood center cafeteria after the blood collection process was over. The cafeteria is a quiet and cozy environment where the donors were allowed enough time to complete the questionnaire, which was performed at the end of their stay. At this moment, it was presumed that the donors were able to evaluate their satisfaction with the whole process of blood donation.

Results

Stage 1: Development of the questionnaire

Among the thirty blood donors invited to participate in the focus groups, 19 were present at the scheduled time (7 women and 12 men; mean age of 39.4 years; age range of 19–63 years).

Table 1 – Results of content validation of the questionnaire.

Items	CVR	FVI	Need for revision	Suggestions for change	Suggestions for exclusion	Conclusion
1. Facility to reach the blood donation center	0.00	0.75	yes	yes	no	Revised, but not modified
2. Reception service provided by the staff	1.00	0.75	yes	yes	no	Revised, but not modified
3. Care provided by the professional in the pre-screening step (who measured my blood pressure before the interview)	0.83	0.58	yes	yes	no	Modified
4. Time I had to wait to be called for interview (after pre-screening)	0.50	0.42	yes	yes	no	Modified
5. Kindness of the interviewer before blood donation (pre-screening time)	0.83	0.83	yes	yes	no	Revised, but not modified
6. Comfort of the room where I have been waiting to be called to donate blood	0.50	0.25	yes	yes	no	Modified
7. Cleaning of the room where I have been waiting to be called to collect blood	1.00	0.50	no	no	no	APPROVED without review
8. Time I had to wait until being called to enter the blood collection room	0.67	0.50	yes	yes	no	Modified
9. Kindness of the professional who collected my blood	1.00	0.83	yes	yes	no	Revised, but not modified
10. Safety the blood bank conveys to me regarding the material used for blood collection and tests	1.00	0.75	yes	yes	no	Modified
11. Care I feel I am receiving during blood donation	0.67	0.83	yes	no	no	Revised, but not modified
12. Hygiene of the blood collection room	1.00	0.67	no	no	no	APPROVED without review
13. Attention the professional who collects blood has during the procedure	1.00	0.50	yes	yes	no	Modified
14. Comfort of the blood collection room	0.83	0.25	no	no	no	APPROVED without review
15. Cleaning of the cafeteria (where they serve the snack)	1.00	0.58	no	no	no	APPROVED without review
16. Explanations the professionals give to me regarding everything I want to understand	1.00	0.50	yes	yes	no	Revised, but not modified
17. Snack offered after blood donation	0.17	0.58	yes	no	no	Revised, but not modified
18. Number of professionals available to assist me	0.50	0.58	yes	yes	yes	Revised, but not modified
19. Professional competence of the staff in the blood bank	0.67	0.58	yes	yes	yes	Revised, but not modified
20. Service provided by the person working in the cafeteria	0.17	0.75	no	yes	no	Revised, but not modified
21. The whole time I spent in the blood center, from the reception to the end of blood donation	0.33	0.25	yes	yes	no	Modified
22. Availability of professionals to listen to me at any time	0.33	0.58	no	no	yes	Revised, but not modified
23. Blood bank service hours dedicated to the blood donor	0.83	0.67	no	no	no	APPROVED without review
24. Effort of the professionals to make me feel at ease	0.50	0.92	no	yes	yes	Revised, but not modified
25. Respect with which people treat me in the blood bank	1.00	0.75	no	no	no	APPROVED without review

CVR: content validation ratio, FVI: factorial validity index.

CVR values lower than 0.566 are in bold.

Questionário de Satisfação do Doador de Sangue (BDSQ)

Prezado(a) Doador(a),

Com o objetivo de oferecer um serviço de qualidade ao doador de sangue, pedimos sua colaboração em preencher esta pesquisa de satisfação. Sua participação é voluntária e confidencial. Você não deve escrever seu nome nesta folha, de forma que você não será identificado em nenhum momento.

Sexo: ☐ Masculino ☐ Feminino	Idade: _____ anos	Data de hoje: ____/____/2017
Quantas vezes você já doou sangue (contando com essa vez)?		
☐ É a primeira vez ☐ Segunda vez ☐ 3 a 5 ☐ 6 a 10 ☐ Mais de 10 vezes		
Antes desta doação, quando você doou sangue pela última vez?		
☐ É a primeira vez ☐ Há menos de um ano ☐ Há mais de um ano		
Qual é a sua escolaridade?		
☐ Sem escolaridade ☐ Fundamental I completo (1º ao 5º ano) ☐ Fundamental II completo (6º ao 9º ano) ☐ Ensino Médio completo (segundo grau) ☐ Ensino Superior completo ☐ Pós-graduação		
Por qual motivo você veio doar sangue hoje?		
☐ Foi solicitado pelo Hemocentro. ☐ Há um parente, amigo ou conhecido precisando de sangue. ☐ Para ajudar a manter o estoque de sangue do Hemocentro, sem ser para alguém específico. ☐ Doação autóloga, ou seja, para meu uso exclusivo.		
Você pretende retornar para novas doações de sangue? ☐ Sim ☐ Não ☐ Não sei		
Como você chegou ao Hemocentro?		
☐ De carro próprio ☐ Táxi/Uber ☐ Ônibus ☐ A pé ☐ De carona ☐ Outra forma		
Se você veio de carro ao Hemocentro, você conseguiu encontrar vaga para estacionar com facilidade? ☐ Sim ☐ Não ☐ Não vim de carro		
Quanto tempo demorou para você chegar de sua casa, local de trabalho, ou onde você estava, ao Hemocentro?		
Quais destas redes sociais você usa regularmente? ☐ Facebook ☐ Whatsapp ☐ Instagram ☐ LinkedIn ☐ Snapchat ☐ Messenger ☐ Google+ ☐ Youtube ☐ Twitter ☐ Pinterest		

De uma maneira geral, o quanto você ficou satisfeito(a) com o serviço prestado pelo Hemocentro?

				
Completamente insatisfeito(a)	Insatisfeito(a)	Nem satisfeito e nem insatisfeito	Satisfeito(a)	Completamente satisfeito(a)
☐	☐	☐	☐	☐

No verso desta folha, há alguns itens que podem estar relacionados à sua satisfação ou insatisfação quanto ao serviço que você recebeu HOJE no Hemocentro. Por favor, em cada item, marque com um "X" a resposta mais adequada à sua percepção de satisfação.

Fig. 1 – The blood donor satisfaction questionnaire (BDSQ) in Brazilian Portuguese (front).

The thematic content analysis allowed for an appreciation of the interpersonal aspects, such as the service provided by the blood bank staff. Based on the donor perception of what he or she reported to be most important to his or her satisfaction, a new 25-item instrument was thus developed. These items are listed in the first column of Table 1. Items 1, 4, 8, 17, 21 and 23 were designed to be appropriate for the domain “accessibility/convenience”, items 6, 7, 10, 12, 14, 15, 18 and 19, for the domain “technical aspects” and items 2, 3, 5, 9, 11, 13, 16, 20, 22, 24 and 25, for the domain “interpersonal aspects”.

The level of overall satisfaction was assessed by the following question: “In general, how satisfied were you with the services provided in the blood bank?” This question was included in the questionnaire to avoid a possible response bias resulting from a stimulus caused by the content of these items.

Stage 2: Content validity

The questionnaire elaborated in the previous stage was evaluated by a group of 12 raters. Table 1 shows the CVR, FVI,

	 Completa- mente insatisfeito	 Insatisfeito	 Nem satisfeito e nem insatisfeito	 Satisfeito	 Completa- mente satisfeito
A facilidade para se chegar ao Hemocentro	☐	☐	☐	☐	☐
O atendimento do pessoal da recepção	☐	☐	☐	☐	☐
O atendimento do profissional que me atendeu na pré-triagem (que mediu a minha pressão antes da entrevista)	☐	☐	☐	☐	☐
O tempo que eu tive que esperar para ser chamado para a entrevista, depois da pré-triagem	☐	☐	☐	☐	☐
A gentileza do profissional que fez a entrevista antes da doação	☐	☐	☐	☐	☐
O conforto da sala onde fiquei esperando ser chamado(a) para doar sangue	☐	☐	☐	☐	☐
A limpeza das salas que eu estive antes de ser chamado para coletar sangue	☐	☐	☐	☐	☐
O tempo que eu tive que esperar para ser chamado(a) para entrar na sala de coleta	☐	☐	☐	☐	☐
A gentileza do profissional que coletou o meu sangue	☐	☐	☐	☐	☐
A segurança que o Hemocentro me passa quanto ao material usado para tirar sangue (na coleta e nos testes)	☐	☐	☐	☐	☐
O cuidado que eu sinto estar recebendo, durante a doação de sangue	☐	☐	☐	☐	☐
A higiene da sala de coleta	☐	☐	☐	☐	☐
A atenção que o profissional que coleta o sangue tem naquilo que está fazendo	☐	☐	☐	☐	☐
O conforto da sala de coleta	☐	☐	☐	☐	☐
A limpeza da copa (onde servem o lanche)	☐	☐	☐	☐	☐
As explicações que os profissionais me dão em relação a tudo que eu quero entender	☐	☐	☐	☐	☐
O lanche que me ofereceram depois da doação	☐	☐	☐	☐	☐
A quantidade de profissionais disponíveis para me atender	☐	☐	☐	☐	☐
A competência profissional das pessoas que trabalham no Hemocentro	☐	☐	☐	☐	☐
O atendimento do funcionário que trabalha na copa	☐	☐	☐	☐	☐
O tempo todo que passei no Hemocentro, desde a recepção até terminar a doação de sangue	☐	☐	☐	☐	☐
A disponibilidade dos profissionais em me ouvir, em qualquer momento	☐	☐	☐	☐	☐
Os horários de atendimento do Hemocentro ao doador de sangue	☐	☐	☐	☐	☐
O esforço dos profissionais para eu me sentir à vontade	☐	☐	☐	☐	☐
O respeito com que as pessoas me tratam no Hemocentro	☐	☐	☐	☐	☐

Agradecemos a sua participação!

Fig. 2 – The blood donor satisfaction questionnaire (BDSQ) in Brazilian Portuguese (back).

suggestions (if any) for changes and exclusions, and conclusion on content validity. Items 4, 6, 17, 18, 20, 21, 22 and 24 presented the CVR values less than 0.566, that is, their validity is questionable according to the raters. Items 18, 22 and 24 were classified as not necessary by one rater, whereas item 19 was also classified as not necessary by two raters. Meanwhile, we have decided to keep these items in the instrument to describe important aspects regarding the welcoming reception. Table 1 also shows the FVI for each item. One can observe

that items 4, 6, 14 and 21 have FVI values less than 0.5, and only four items (5, 9, 11 and 24) presented FVI values higher than 0.8, suggesting that the instrument may have an unclear factorial structure.

As for the clarity of the items, the raters considered items 1–6, 8–11, 13, 16–19, and 21 not clear enough and thus, in need of revision (Table 1). In these cases, the raters presented suggestions to improve the wording of the items. Based on these suggestions and on the CVR and FVI values, the last column

of Table 1 describes the measures taken in relation to possible modifications in the instrument.

When asked to suggest items that could be included in the instrument, some raters suggested addressing aspects such as entertainment options in the waiting room, Wi-Fi access, car parking, donor communication after donation, efficient campaigns and appointment scheduling service. Although these items are important, we believe they do not meet the needs of all blood donors in general and thus, they can be further assessed by specific studies. One rater suggested inserting blank lines after each item so that the donors could write the reasons for possible dissatisfaction with it. In these cases, however, we believe that the donor should be motivated to use the suggestion box, as the satisfaction questionnaire does not replace other quality management procedures adopted by blood banks.

Stage 3: Pre-test questionnaire

Of the 142 invited blood donors, 28 (19.7 %) refused to participate in this stage. The final sample included 114 blood donors, 50 women and 63 men, aged 18–61 years (mean age of 33 years; standard deviation of 9.7 years). Only one donor reported misunderstanding items 1 and 4 of the instrument. Five donors reported being completely dissatisfied in all 25 items of the instrument and five other donors reported being completely dissatisfied in almost all items. After completing the instrument, these donors reported not paying attention to the option scale, as they thought they were answering completely satisfied, while indicating completely dissatisfied. To avoid this problem in the future application of the instrument, it was decided to add emoticons to the choice scale representing satisfaction categories. Emoticons were also added to the general satisfaction scale. Considering these improvements, Figs. 1 and 2 in the Appendix show the final version of the Blood Donor Satisfaction Questionnaire (BDSQ) written in Brazilian Portuguese (front and back respectively).

Discussion

In the present study, the BDSQ is presented as an extension of the questionnaire developed by Borges et al.,⁹ and the main differences are the following: a) the BDSQ has a question on overall satisfaction; b) its items are not considered non-modifiable or are not intended to be modified by the institution; c) it has 25 items rather than 18; d) answers to the items now refer directly to satisfaction, ranging from completely dissatisfied to completely satisfied; and; e) answers to items are presented on a five-point scale, including a neutral response.

In the development of the BDSQ, focus groups were used to search for satisfaction attributes that could be included in the instrument. As a result, it was observed that the participants highlighted attributes for service, welcoming reception, commitment, professionalism and other aspects desirable for blood bank professionals, with little appreciation for attributes related to the facility structure. This would be evidence that the donor expectations are mainly based on how the staff provides the service, with their satisfaction being more related to how well they are received and welcomed than to the facility.

Thus, it is essential to include different forms of donor care in the BDSQ regarding the whole blood donation process.

The introduction of the BDSQ, considering the absence of validated instruments in Brazilian Portuguese to assess the blood donor satisfaction, must be highlighted as a strength of this study. As a possible limitation of the present study, we have observed that in the content validity stage several BDSQ items obtained a low FVI value from the raters, suggesting an unclear factorial structure. However, this point should be further researched in a future study, including a validation of the BDSQ in a large sample of blood donors.

Conclusion

Given the absence of a validated instrument to assess blood donor satisfaction, this article has described the development of a questionnaire that can be very useful to blood banks or hemotherapy services. The application of the BDSQ has shown that it can be a useful tool in generating information for managers on specific aspects of blood bank services which need to be improved, monitored or maintained, aiming to provide a service which meets the blood donor expectations and makes him or her feel satisfied with the care received.

Conflicts of Interest

The authors declare no conflicts of interest.

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