



Letter to the Editor

Development of a questionnaire to assess knowledge regarding blood donation in a Brazilian population



Dear Editor,

Comprehensive studies on the knowledge and attitude toward blood donation, considering cultural differences and traditions, are useful for planning strategies in the recruitment of non-remunerated blood donors. Several instruments to assess knowledge regarding blood donation have been presented in the scientific literature^{1,2} such as the instrument proposed by Sabu et al.³ These authors introduced a questionnaire in which the knowledge of blood donation among health sciences students was measured using 12 questions based on the benefits of blood donation, general requirements to become an eligible donor and medical conditions and diseases that restrict blood donation. We developed a 24-item multiple-choice questionnaire, taking into account the specificities of the Brazilian population. This questionnaire was based on some items of the instrument developed by Renzaho and Polonsky⁴ and on the Brazilian legislation regarding blood donation. Named the “Brazilian blood donation knowledge questionnaire” (BDKQ-Brazil), it can be completed by donors if they are literate or administered via interview. It is believed that the BDKQ-Brazil applies to a broad range of population groups.

The content validity of the proposed questionnaire was evaluated by computing a content validity ratio (CVR)⁵ based on experts' ratings of item relevance. A convenience sample of twenty professionals (four men and sixteen women) who were participating in the Master's Course in Hemotherapy and Biotechnology of the Universidade de São Paulo (USP) in Ribeirão Preto was used for evaluation. All participants were informed of the purpose of the research before signing an informed consent form. All these experts completed a healthcare undergraduate course and have professional activities in hematology services or blood donation centers in different Brazilian cities (Belo Horizonte, Brasília, Cuiabá, Curitiba, Florianópolis, Ituverava, Manhuaçu, Recife, Ribeirão Preto and Rio de Janeiro). The mean age of the participants

was 36.1 years (range: 27–56 years) and the mean length of professional experience was 10.7 years (range: 3–30 years). The experts were asked to classify each item on the questionnaire as ‘essential’, ‘useful but not essential’, and ‘not necessary’. For each item, the CVR is given by $(E - n/2)/(n/2)$, where n is the total number of experts and E is the number of experts indicating ‘essential’. The CVR ranges between -1 and 1 . When less than half of the experts rated the item as ‘essential’, the value of CVR was negative. According to Wilson et al.,⁶ when $n=20$ and the CVR is greater than or equal to 0.368, there is evidence that the respective item is substantially useful to represent knowledge regarding blood donation.

Table 1 shows the items of the proposed instrument and their respective CVRs. Only seven items had CVRs greater than 0.368. We can note that items related to the safety conditions for the blood donor (Items 2, 4–10, and 23) or the blood receiver (Items 7 and 16) tend to receive CVRs relatively close to zero. On the other hand, items associated to the overall process of blood donation (Items 3, 14, 17, 21, and 22) and the quality of the donated blood (Item 18) have higher CVRs. However, Item 15 also refers to a safety condition for the blood donor but it has a relatively high CVR. Items related to beliefs (Items 19 and 24) and other understanding about blood donation (Items 1, 11, 12, 13 and 20) had negative CVRs. As all the experts were professionals working in healthcare services in blood transfusion centers, these results suggest that there is a tendency to give greater importance to items related to the quality of the donated blood (Item 3), safety of the donation (Item 14), the donor's well-being (Item 22) and other aspects regarding the context of the donation. Other items suggested by the experts involve the eligibility to donate blood of subjects taking oral contraceptives, drugs users, sexually transmitted disease carriers and individuals with piercing or tattoos, as well as knowledge about serological windows, physical activities that should be avoided shortly after blood donation, adverse reactions to the donation and risk

Table 1 – Items of the proposed instrument and their respective content validity ratios. The items are showed in the same order they appear on the instrument.

No.	Item	CVR
1	Do you know your blood type?	-0.7
2	In order to be able to donate blood, what is the minimum weight that a person needs to have?	0.1
3	Is all donated blood tested in order to verify if it has any disease that can be transmitted to others?	0.8 ^a
4	Can under 16-year olds donate blood?	-0.1
5	Can pregnant women donate blood?	0.3
6	Can a person who has diabetes or high blood pressure donate blood?	0.2
7	Can a person who has or has had any type of cancer donate blood?	0.2
8	Can women who are menstruating donate blood?	0.1
9	Is there a maximum age for blood donation?	0.1
10	Can women who are breastfeeding donate blood?	0.1
11	When a person needs to receive blood, is the blood from only one donor enough?	-0.8
12	When people need to receive blood, do they have to pay?	-0.3
13	Is it true that donated blood must be used within 24 h after the donation, otherwise it is not good anymore?	-0.4
14	Can a person catch a disease by donating blood?	0.7 ^a
15	Is it true that male blood donors can donate every two months and female donors every 3 months?	0.5 ^a
16	In Brazil, is it allowed by law to pay a person to donate blood?	0.1
17	When someone donates blood, does the amount of blood in the human body return to what it was before within 24-48 h?	0.4 ^a
18	If a donor has a fever on the day of donation, can he donate blood?	0.4 ^a
19	Does donating blood make you lose or gain weight?	-0.5
20	The capacity of a little coffee cup is 50 mL. When a person donates blood, how much blood is taken?	-0.3
21	Once a person enters in the donation room to donate blood, how long is the blood donation process?	0.5 ^a
22	In order to donate blood, should the donor be fasting?	0.9 ^a
23	Can smokers donate blood?	0.1
24	Does donating blood thicken or thin the blood?	-0.3

^a Content validity ratios (CVRs) greater than or equal to 0.368.

behaviors. These suggestions may be included in future versions of the questionnaire.

In a future study, we will use the proposed questionnaire to evaluate the association between several variables of interest and the knowledge, attitudes and practices regarding blood donation among users of primary health care services (study supported by the Brazilian agency Fundação de Amparo à Pesquisa do Estado de São Paulo – FAPESP – process number 14/14020-6). We believe that the proposed questionnaire is a simple, easy-to-use and helpful instrument to measure knowledge about blood donation. However, the assessment of other aspects, such as validity and reliability, is important in future studies, considering different populations of Brazilian-Portuguese speakers. Items with small CVRs do not necessarily need to be removed from the questionnaire, but they must be reviewed and, if appropriate, improved. In addition, the classification of the scores and their practical use should be addressed in a future study involving a large study sample.

Funding

The Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) and the Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP).

Conflicts of interest

The authors declare no conflicts of interest.

REFERENCES

1. Ben Natan M, Gorkov L. Investigating the factors affecting blood donation among Israelis. *Int Emerg Nurs*. 2011;19(1):37-43.
2. Lemmens KP, Abraham C, Ruiter RA, Veldhuizen IJ, Dehing CJ, Bos AE, et al. Modelling antecedents of blood donation motivation among non-donors of varying age and education. *Br J Psychol*. 2009;100(1):71-90.
3. Sabu KM, Remya A, Binu VS, Vivek R. Knowledge attitude and practice on blood donation among health science students in a university campus, South India. *Online J Health Allied Scs*. 2011;10(2):6.
4. Renzaho AM, Polonsky MJ. Examining demographic and socio-economic correlates of accurate knowledge about blood donation among African migrants in Australia. *Transfus Med*. 2012;22(5):321-31.
5. Lawshe CH. A quantitative approach to content validity. *Pers Psychol*. 1975;28(4):563-75.
6. Wilson FR, Pan W, Schumsky DA. Recalculation of the critical values for Lawshe's content validity ratio. *Meas Eval Couns Dev*. 2012;45(3):197-210.

Miriane Lucindo Zucoloto, Edson Zangiacomi Martinez*
Universidade de São Paulo (USP), Ribeirão Preto, SP, Brazil

* *Corresponding author at:* Departamento de Medicina Social, Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo (USP), Av. Bandeirantes n° 3900, Monte Alegre, 14049-900 Ribeirão Preto, SP, Brazil.

E-mail address: edson@fmrp.usp.br (E. Zangiacomi Martinez).

Received 31 October 2015

Accepted 9 February 2016

Available online 9 March 2016

<http://dx.doi.org/10.1016/j.bjhh.2016.02.004>

1516-8484/© 2016 Associação Brasileira de Hematologia, Hemoterapia e Terapia Celular. Published by Elsevier Editora Ltda. All rights reserved.