Transfusion and Apheresis Science ■■ (2015) ■■–■■

Contents lists available at ScienceDirect

Transfusion and Apheresis Science

journal homepage: www.elsevier.com/locate/transci

Whole blood and apheresis donors in Quebec, Canada: Demographic differences and motivations to donate

Johanne Charbonneau *, Marie-Soleil Cloutier, Élianne Carrier

Centre Urbanisation Culture Société, Institut National de la Recherche Scientifique, Montréal, Canada

ARTICLE INFO

Article history:
Received 13 May 2015
Received in revised form 4 June 2015
Accepted 8 June 2015

Keywords:
Apheresis donors
Motivations
Sociodemographic variables
Questionnaires

ABSTRACT

This study sought to compare demographics and donation motivations among plasma/platelet donors (PPDs) and whole blood donors (WBDs), in a voluntary and non-remunerated context. Motives to donate blood and demographic characteristics were collected through questionnaires completed by 795 WBDs and 473 PPDs. Comparison of WBDs and PPDs under chi-square tests showed that 17 out of 23 motivators were statistically different according to various demographic variables. These results demonstrate the existence of specific donor profiles both for WBDs and PPDs. Agencies should develop new recruitment strategies tailored to these donors, especially if they wish to convince WBDs to convert to apheresis donation.

1. Introduction

A thorough understanding of donor motivations and behaviors is necessary to the development of effective strategies for recruiting new blood donors and inducing them to continue the practice of blood donation over the long term. Numerous factors (aging population, strict donor deferral criteria, new therapeutic treatments, and the limited shelf life of blood products) contribute to the need for constant renewal of the blood donor population [1–5]. The situation is especially critical with regard to plasma-derived therapeutic products [6–8]. Most plasma around the world currently comes from US commercial centers that collect blood plasma from paid donors [6,8,9]. Héma-Québec, the organization responsible for blood-product supply in Quebec, is attempting to increase its degree of self-sufficiency by appealing to non-remunerated volunteer donors [10]. Demand for IVIG in Quebec has increased annually by 8.3% since 2003 [11] and in 2013–2014, the rate of IVIG self-sufficiency was only 14.5%. According to the most recent annual report, one of Héma-Québec's aims is to open new permanent blood centers devoted to the collection of plasma for fractionation [11]. Also, a fractionation plant is due to open in Montreal in 2019 [12].

In such a context, recruitment to the active pool of plasmapheresis donors becomes a crucial issue. Apheresis donation differs in many ways from whole-blood donation (WBD). Whereas a whole-blood donor may donate once every 56 days, a plasma donor may donate every 6 days, and a platelet donor every 14 days. In addition, plasma and platelet donation (PPD) processes take longer (a minimum of 45 minutes for plasmapheresis and up to 3 hours for plateletpheresis as compared to 15 minutes or less for whole-blood donation), due to the return of saline and red blood cells (RBC). In Quebec, 86% of the agency's blood supply is obtained through 2000 annual mobile drives held locally across the province. This grassroots collection system is based on community drives organized on a volunteer basis by local associations in residential areas, municipal services, the educational sector or businesses. As for apheresis donation, it is only offered at five fixed sites, in major cities or nearby suburbs. Fixed sites are located in shopping centers

* Corresponding author. Centre Urbanisation Culture Société, INRS, 385, Sherbrooke Est, Montréal, Canada. Tel.: +1 514 499 6603, +15144994000; fax: +1 514 499 4065.
E-mail address: johanne.charbonneau@ucs.inrs.ca (J. Charbonneau).

http://dx.doi.org/10.1016/j.transci.2015.06.001

(4 out of 5), near a residential neighborhood (Montreal), main workplaces (Quebec) or highways. Two of these sites were opened recently. Given these differences, it is reasonable to suppose that whole blood and apheresis donors may also differ in terms of their socio-demographic characteristics and motivations.

Few analyses have examined the socio-demographic profile of plasma and platelet donors. A number of studies have been conducted in contexts of PPD remuneration [13–16]. These surveys have observed that plasma and platelet donors in these contexts are most frequently young male students with high levels of education and low income, who are primarily motivated by remuneration.

In surveys conducted in the context of volunteer, non-remunerated donation [17–22], researchers have observed higher proportions of men among apheresis donors. According to Bove et al. [17], data compiled by the Australian Red Cross Blood Service reflected a higher proportion of older, retirement-aged men in the active pool of plasmapheresis donors. Higher proportions of men among platelet donors have also been noted [19,22,23]. However, a survey conducted by Veldhuizen and van Dongen [21] revealed equivalent numbers of men and women among plasma donors registered in the program for 3 years or less. Indeed, some researchers have observed a higher rate of discontinuation of the practice among women due to their greater number of complications and reactions following plasma donation [24,25]. It should also be mentioned that in Quebec, women with a history of pregnancy are no longer able to donate platelets by apheresis. Nevertheless, they can continue to donate whole blood and plasmapheresis, but their plasma will be used for drug products such as albumin and immunoglobulins. Overall, beyond the question of gender, there has been little interest in the socio-demographic characteristics of PPDs.

Studies focusing on WBDs usually provide socio-demographic profile comparisons of WBDs (first-time and repeat donors), lapsed blood donors (LBDs), and/or non-donors, or they present surveys that take only specific characteristics, such as gender, into account when analyzing donor motivations [26–35]. Such analyses have tended to stress, for example, the fact that there were fewer blood donors among 30- to 39-year-olds and 40- to 49-year-olds, or that there were more women and people over the age of 35 years among LBDs. According to Piliavin and Callero [32], as well as Glynn et al. [19], there were fewer regular donors in populations with lower levels of education. On the contrary, Germain et al. [28] noted that there were more people with a higher level of education among LBDs than among regular donors. In comparing WBDs, LBDs and non-donors, Alessandrini [35] noted fewer WBDs among parents of young children.

Few researchers have cross-analyzed socio-demographic characteristics with donor motivations [19,25,27,30, 33,34,36,37]. Existing studies have shown that women tend to be more motivated by the fact that blood donation helps improve receiver health [27], and tend to give blood for altruistic and humanitarian reasons as well as to help meet the need for blood products [19,21]. Men appeared to be influenced more by a need for recognition [25], by their spouse/partner [21], or by the impression that donating blood is good for their own health [19,30]. Sojka and Sojka [33], however, observed no motivational differences between men and women in their survey. Guiddi et al. [36] observed that men and women's motivations became increasingly similar as the number of donations increased. External influences (e.g.: family or peers) or practical considerations (e.g.: convenience) appeared to be more important to young donors [19,30], while the oldest donors seemed motivated more by altruism or a sense of duty [30,37]. According to Nguyen et al. [30], less-educated individuals were the most interested in achieving high donation goals. Glynn et al. [19] observed that telephone reminders were important for the oldest donors as well as for women. The only surveys that cross-referenced the socio-economic profiles of apheresis donors with their motivations were those conducted in the context of remunerated donation. Since money is the main motivation for remunerated donors, it becomes difficult to compare these results with voluntary and non-remunerated donor motivations.

As noted by Bednall and Bove [38], few researchers have attempted to study apheresis donation in the context of volunteer non-remunerated donation. Our review of the existing work showed that even less research has examined the socio-demographic profiles of such donors. Studies that have used these profiles to analyze donor motivations are rarer still. Those that do exist are primarily or only interested in comparing men's and women's motivations. In response to these gaps in the literature, our study seeks to compare donor demographics and motivations for donation among plasma/platelet and regular whole-blood donors.

2. Materials and methods

2.1. Sample selection

Sampling was done by accessing and extracting information from Héma-Québec's donor information system (Progesa, Mak System, Paris, France). Since 1987, this computerized database has included personal information such as date of birth, gender, home address, dates of all previous donations, types of donations, previous and current deferrals, and screening-test results for all donors. Two[1] groups of donors were defined on the basis of their donation history: current whole-blood donors (WBDs) were those who had given two allogenic donations during their previous history and one donation during the 6 months preceding the survey; current plasma and platelet donors (PPDs) were those who had given three plasma or platelets donations during their previous history and one during the 6 months preceding the survey. For the purpose of this study, we applied two additional criteria. We restricted sample selection by retaining only individuals aged 18–55 years, and we oversampled the number of women. This survey had two objectives, one of which one was to better understand the integration of blood donation into daily life and especially any barriers to the practice and reasons for its discontinuation. Thus, we were very interested in the

[1] A third group of lapsed donors was also recruited for this survey but was not used in the present analysis.

Please cite this article in press as: Johanne Charbonneau, Marie-Soleil Cloutier, Élianne Carrier, Whole blood and apheresis donors in Quebec, Canada: Demographic differences and motivations to donate, Transfusion and Apheresis Science (2015), doi: 10.1016/j.transci.2015.06.001