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## Gender differences and frequency of whole blood donation in Italian donors: Even though I want to, I cannot?



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### ABSTRACT

Women are under-represented among blood donors and this difference is particularly strong in Italy. This study explore the reasons for the gender gap using a sample of donors who had stopped donating at least two years previously and analyzing the role of frequency of donation.

No significant gender differences emerged between the reasons provided by subjects but Italy was the country with the longest prescribed interval between whole blood donations for women.

The gender gap is related to the lengthy interval between successive donations of whole blood and reducing this interval could help increase the proportion of women donors.

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### 1. Introduction

The issue of gender differences in blood donation has received little attention in the literature; few studies have analyzed this variable, probably because gender has only recently become a topic of interest for a wider range of disciplinary contexts [1].

A number of studies show that women are under-represented among regular donors [2–6]. Enhanced understanding of the reasons for this phenomenon may facilitate the development of new strategies for the stabilization of women as donors.

Previous research has shown that women experience up to 70% more exclusions from blood donation than men, due to higher rates of anemia, other health problems and adverse reactions [7,8].

Newman [9] found that the percentage of women donors was 49% in Detroit area, but though women

accounted for over 50% (reaching a peak of 58%) between 21 and 30 years, after the third decade this decreased to 44%. The author, on the basis of data reported in the literature, identified two main factors associated with a higher level of drop out amongst female donors: a higher incidence of low levels of hemoglobin (Hb), and a higher rate of adverse reactions.

A recent contribution by Misje and co-workers [2] analyzing the proportion of women amongst Norwegian donors showed that women were over-represented among new donors, but under-represented among stable donors under 45 years of age; the authors attributed the difference to prolonged deferrals due to pregnancy and breastfeeding that reduced the frequency of donations; in fact after the age of 45, women again represented about half of all donors.

A recent contribution [1], however, has highlighted how gender difference is particularly strong in Italy, where women represent around 45% of new donors, but only 32% of the overall donor population, and this gap is even wider for donors over 36 years, when the percentage of women donors falls below 30% [10]. At a European level, in contrast, women account for an average of 40–50% of donors in most cases as highlighted by the recent DOMAINE project [11].

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Greece is the only European country that has a similar percentage of female donors (33%) to Italy, while still lower rates may be found in Middle Eastern countries such as Turkey with 10% [12] or Iran with 14.9% [13] where, however, socio-cultural factors related to the role of women come into play. The phenomenon is not specific to Mediterranean countries because Spain and Portugal have a significantly higher proportion of females donors than does Italy.

On the basis of the data just outlined, the aim of this study was to identify the factors that influence Italian women to become blood donors and as well as those that contribute to the decision to stop donating. In particular, we hypothesized that the gender gap in whole blood donation is due on the one hand to differences in motivational factors in addition to the medical factors studied in the literature to date (lower body weight, lower deposits of iron, lower blood pressure) and on the other to donor management policies (in particular, inter-donation interval and exclusion criteria).

## 2. Material and methods

To assess motivational factors and barriers to donation, we designed a self-report questionnaire composed of 14 items (see [Appendix A](#)). The instrument included multiple-choice questions on the reasons for beginning to donate blood used in a previous study [14], the obstacles encountered in choosing to donate and an open-ended question about the reasons for which the respondent had stopped donating.

The questionnaire was mailed to respondents' homes in late 2008 and early 2009, with a pre-addressed pre-paid reply envelope enclosed.

The target population for the study consisted of 220 donors whose last donation had been made at least 2 years previously with no apparent health reasons for having discontinued (donors who were subject to permanent deferral for health reasons were excluded a priori).

In order to evaluate the donor management variable, the blood collection systems of a representative sample of countries were compared with regard to gender differences, using the information available on the websites of national blood banks, particularly in relation to the permitted frequency of whole blood donation, the amount of blood taken per donation, permitted hemoglobin levels, birth rate in the general population and deferral period for pregnancy.

The study used a cross-sectional design, and data analysis was conducted with SPSS software (version 14.0, SPSS Inc., Chicago, IL).

Data were analyzed using descriptive statistics, chi-square and Mann–Whitney tests for independent samples. All results were expressed as mean  $\pm$  standard deviation, and statistical significance was set at  $p < 0.05$ .

## 3. Results

The questionnaires were completed by 121 subjects (return rate of 55%). Nine respondents indicated that they had

not stopped donating and one questionnaire was incomplete. These were excluded from the analysis, therefore the final sample contained 111 subjects, of which 70 were men (62%) and 41 women (38%) with a mean age of 41.17 years (SD 10.77). The two groups did not differ statistically with regard to age or level of education.

Concerning the reasons reported by subjects for beginning to donate blood, 83% cited “solidarity/help others”, 7.1% “influence of family and friends”, and 8% “social or moral duty”. These data differ significantly from the findings of a previous study with a population of active donors, particularly with regard to the category “solidarity/help others,” reported by only 56% of active donors [14].

Furthermore, the opportunity to check up on their own health was more important to the subjects who had stopped donating, with 16% of subjects reporting it as a reason for donating (compared to 7% of active donors). No gender differences emerged with regard to motivation for becoming a donor.

Subjects' reasons for ceasing to donate blood were evaluated by means of a list of seven suggested reasons to be rated on a Likert scale – from 0 (not important) to 3 (very important). The most important reasons were found to be lack of time (1.35) and work issues (1.14) ([Table 1](#)).

In addition, gender differences were found with regard to changes in lifestyle – no longer compatible with blood donation – and work issues, both significantly more frequently cited by males.

There was a significant difference between the number of donations made by men and women, specifically men stopped donating after a mean of 27 whole blood donations and women after a mean of 10 donations ( $p < 0.000$ ); the frequency of whole blood donation allowed in Italy for men and women is 4 vs. 2 per year, therefore in our sample the men discontinued blood donation six–seven years after their first donation and women four–five years.

Key factors underlying the decision to discontinue blood donation also emerged from subjects' responses to the open-ended question “What were your reasons for discontinuing blood donations?”; the answers were categorized into six areas ([Table 2](#)), generated following the Grounded Theory approach.

Coding was carried out by two independent judges with a satisfactory concordance rate calculated using Cohen's kappa coefficient (Cohen's  $K = 0.77$ ,  $p < 0.000$ ).

The main category, to which 41% of responses were assigned, contains medical reasons or the medical condition of the subject (surgery, drug therapy, etc.); a similar category was “pregnancy” (6.3%) which, however, was kept separate given that it was not due to a pathological condition, but to a physiological state. An important role seemed to be played by time management (23.2%) which encompassed both work and family issues (lack of time, too many work commitments, etc.). Another category, feeling unwell (9.8%), included negative experiences or adverse reactions during or after blood donation that discouraged subjects from continuing to donate. Finally, the category “travel” (9.8%) included all those situations in which frequent trips abroad for business or pleasure required continuous periods of temporary deferral and/or the need to repeat blood tests.

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