

## Increasing nondonors' intention to give blood: addressing common barriers

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**BACKGROUND:** Recruiting new donors is a challenging experience for most blood collection agencies. A modest proportion of the population is eligible to give blood and few of these individuals volunteer. The goal of this study was to examine the effects of brief behavioral interventions on nondonors' intention to give blood, by addressing some commonly reported obstacles.

**STUDY DESIGN AND METHODS:** A total of 244 young adults who were eligible to give blood but had never done so participated in the study. They were assigned randomly to an applied tension (AT) instruction condition, a relaxation instruction condition, a Web browsing condition, or a no-treatment control condition. After the 20-minute experimental intervention, half watched three short injection and blood draw videos and the others sat quietly. Intention to give blood and different cognitive constructs associated with blood donation were measured using a Theory of Planned Behavior questionnaire.

**RESULTS:** Participants in all three active conditions had significantly greater increases in intention to donate blood compared to controls, although those who learned AT had greater increases than Web browsing. Bootstrapping tests of mediation indicated particular importance of increased perceived behavioral control in AT and relaxation treatment effects. Follow-up analyses revealed a significant association between degree of within-session increase in intention and subsequent blood clinic attendance.

**CONCLUSION:** These results suggest that simple interventions can be effective in increasing nondonors' intention to donate blood and, perhaps, actual attendance. The mediational analyses suggest that interventions can selectively target different barriers associated with blood donation.

Although there is a sizable literature on the psychosocial aspects of blood donation, it is no match for the tremendous scale of worldwide efforts to recruit, prepare, and retain donors, and many theoretical and practical questions remain. For example, while "impersonal" approaches to donor recruitment such as outdoor advertising and Internet websites are easier to implement and less expensive than direct solicitation, can they produce actual psychological change and increase intention to give blood? Is there any benefit of providing specific donor instruction and preparation as opposed to more altruistic appeals? Relatedly, should recruitment efforts minimize potentially unpleasant aspects of the procedure and focus on the humanitarian benefits of blood donation in an attempt to boost intention?

Recent research<sup>1-7</sup> has been useful and generally supports the value of common advertising, telemarketing, and Internet approaches although some work, especially by France and colleagues,<sup>5-7</sup> has challenged some common assumptions. For example, forthright acknowledgment of some of the unpleasant aspects of blood donation does not inevitably undercut recruitment efforts. Perhaps

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**ABBREVIATIONS:** ANCOVA(s) = analysis(-es) of covariance; AT = applied tension.

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understandably, there has been a tendency to highlight the positive medical, social, and even personal advantages of giving blood and minimize potential negative aspects such as vasovagal symptoms, pain, and the required disclosure of personal information. However, this may or may not be a productive strategy. Most prospective donors are aware of such issues to some degree. If anything, the problem is more likely to be excessive concern about the potential for unpleasant symptoms rather than a lack of awareness about the benefits of donating. The idea that promotion efforts might be improved by offering concrete information and skills is not new. In 1975, Bartel and coworkers<sup>8</sup> argued that "Forthright handling of these fears and concerns by blood collection agencies is advocated."

In a recent study, France and colleagues<sup>7</sup> found that undergraduate students who viewed a website designed to "address common blood donor concerns and suggest specific coping strategies" for 10 minutes expressed larger increases in blood donation intention compared to a group who viewed an American Red Cross donor website. To obscure the focus on blood donation and reduce possible bias in responding due to social desirability, participants were informed only that they were involved in a "website evaluation study." Although this was a positive feature of the methods, it also meant that participants were not exposed to blood donation-relevant stimuli beyond the websites. The lack of an explicit focus on donor preparation could mean that the effects of education on intention were effervescent and might disappear when the participant was confronted with a more realistic depiction of what they would actually experience if they gave blood.

This study was designed to address several related questions. First, can interventions that are brief and impersonal increase intention to give blood and related psychological variables? Second, does instruction in techniques that might reduce donor anxiety increase intention to give blood to a greater extent than self-directed Web browsing? Third, are the effects of Web browsing or instruction on intention maintained following exposure to potentially threatening, needle-related stimuli? Finally, fourth, do any of these interventions and related psychological effects predict the real-world behavior of volunteering to give blood?

## MATERIALS AND METHODS

### Participants

The primary sample (Sample A) consisted of 244 undergraduate students (74% female) recruited by campus advertising. Participants were required to 1) be 18 to 30 years old (mean  $\pm$  SD,  $21.8 \pm 3.1$  years), 2) have no history of previous blood or plasma donation, and 3) be eligible to give blood based on their self-report after examination of the section of the Héma-Québec website on blood

donor requirements. They received either a small class credit or a \$20 honorarium as compensation for their time. In sum, participants were healthy nondonors who were, in principle, eligible to give blood.

Soon after these individuals were evaluated, 94 additional participants (Sample B) were tested as part of another study that used identical dependent measures and several of the experimental conditions discussed below (involving watching videos depicting blood draws and injections). They were also demographically similar to Sample A participants (77% female; mean  $\pm$  SD,  $21.0 \pm 2.4$  years). Since these individuals were not tested at the same time and were primarily part of another study, their within-session psychological data were not combined with the main sample as this would create a confound of experimental condition with time. However, since identical psychological measures were collected and one of the secondary goals of the study was to examine relations between these measures and the likelihood of subsequently volunteering to give blood, this provided an opportunity to increase the sample for the purpose of looking at relations between within-session psychological data and the likelihood of volunteering to give blood for the first time. Ninety-three percent of Sample A and B participants agreed to the release of follow-up data by Héma-Québec (no difference between samples), leading to a total follow-up sample of 314 (i.e.,  $(244 + 94) \times 0.93 = 314$ ).

### Materials and procedure

The study was conducted in a university laboratory. After arrival and completion of the informed consent form, participants completed questionnaires concerning demographics and medical fears. They also completed a baseline Theory of Planned Behavior questionnaire adapted for blood donation.<sup>9</sup> This questionnaire assesses the individual's intention to give blood in the next 6 months, how positively blood donation would be viewed by others who are important to them (social norm), the degree to which they view it as consistent with their moral norms, how rewarding it would be (attitude), and their judgment of how capable they feel of giving blood (perceived behavioral control).

After completing the first packet of questionnaires, participants were assigned randomly to one of eight experimental conditions. First, it was determined whether or not they would view a series of videos depicting blood draws and injections (discussed below) after training. Afterward, they were assigned to one of four treatment groups. Those in the no-treatment control group simply sat quietly for 20 minutes before viewing or not viewing the needle-related videos. The second group, referred to as the Web browsing group, browsed the website of the UK's National Blood Services (NBS) for 20 minutes.

Although given free access, participants were asked to pay particular attention to two sections of the website that seemed especially relevant to prospective donors. The first contains short stories of real people whose lives were saved by receiving blood ([www.blood.co.uk/giving-blood/amazing-stories](http://www.blood.co.uk/giving-blood/amazing-stories)). The second was a “virtual tour” of blood donation ([www.blood.co.uk/virtualsession](http://www.blood.co.uk/virtualsession)).

The third group, relaxation training, browsed the same website for 10 minutes, after which they learned and practiced a mindfulness-based relaxation exercise delivered by audiotape for another 10 minutes. The audio podcast was obtained from the website of the UCLA Mindful Awareness Research Center.<sup>10</sup> Participants were told that this technique might reduce anxiety during the blood donation process. Finally, participants in the fourth group, applied tension (AT) training, also started by browsing the website for 10 minutes. Afterward, they learned AT by watching an instructional video we have employed in a number of studies<sup>11,12</sup> and practiced tensing and releasing the muscles in their arms and legs in 5-second intervals for another 10 minutes. Participants were told that this technique might reduce the likelihood that they would experience vasovagal symptoms during blood donation. The experimenter entered the room periodically during the study to answer questions and observe the participant and observed them through a one-way mirror room when they were not in the room to ensure compliance with instructed activities; for example, all participants remained on the NBS website for the appropriate periods.

After these experiences, half of the participants watched three videos depicting blood draws and intramuscular injections for 10 minutes and were asked to practice the techniques they learned (if applicable). The two first videos involved venipuncture and blood withdrawal. They were filmed from the perspective of the person undergoing the procedure, as if the viewer is experiencing the procedure, and have been found to elicit at least mild anxiety, vasovagal symptoms, and cardiovascular change.<sup>13</sup> A third video was included to lengthen practice time. This educational video created for the US military depicts proper procedures for intramuscular injections in several areas. The only difference in the procedures for Samples A and B is that all Sample B participants watched the videos.

Immediately after these procedures, participants completed the Theory of Planned Behavior questionnaire again. Finally, to see if any of the manipulations or variables predicted real-world blood donation, the informed consent form contained an additional request for permission to obtain information about their subsequent blood donation behavior from Héma-Québec. As noted above, permission was granted by a total of 314 individuals in Samples A and B.

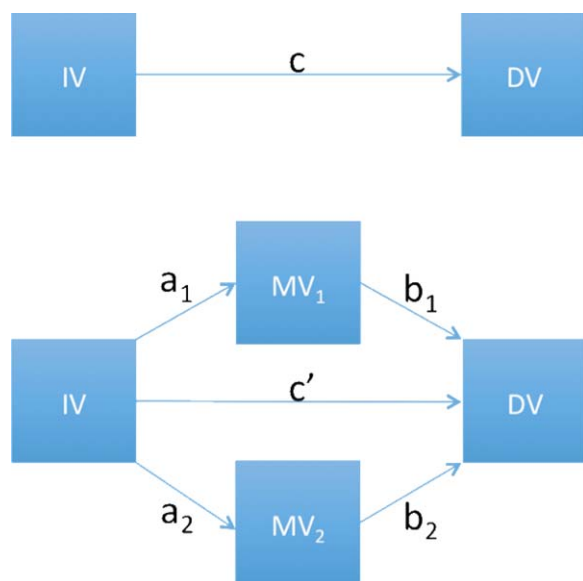
## Statistical analyses

The Theory of Planned Behavior<sup>9</sup> proposes that the primary psychological factor influencing participation in a health-related behavior is intention. Intention, in turn, is influenced by one's attitude toward the behavior, one's social and personal moral norms regarding the behavior, and his or her belief that he or she is able to perform the behavior (perceived behavioral control). As a result, the main dependent variable in this study was intention to give blood, measured at baseline and after the interventions. Intention to donate blood was measured by averaging scores on two items of the questionnaire: “I intend to give blood during the next six months” and “I will try to give blood during the next six months.” The other measures derived from the Theory of Planned Behavior questionnaire were examined as potential mediating variables. To assess the impact of the conditions on the variables, change scores were calculated by subtracting the baseline value from the postvideo value. Using data from Sample A, the primary analyses were 2 Video (yes, no)  $\times$  4 Condition (No Treatment, Web Browsing, Relaxation Training, AT Training) analyses of covariance (ANCOVAs) of these change scores, controlling for the baseline value of the variable. It was decided to analyze change rather than raw scores as they provide more specific tests of the impact of the experimental conditions. However, since change scores can be influenced by baseline values (e.g., ceiling and floor effects), each analysis included the participant's baseline level of the variable as a covariate as a precaution (the results of ANOVAs of change scores conducted without covariates were identical).

To examine possible psychological mechanisms of the effects of condition on intention, follow-up mediation analyses were conducted using the bootstrapping approach of Preacher and Hayes.<sup>14</sup> This is similar to earlier approaches to the evaluation of mediation such as the Sobel and Baron and Kenny tests but with certain statistical advantages. In particular, it provides an explicit test of the “indirect effect” of a variable (such as experimental condition) on an outcome measure (e.g., degree of increase in blood donation intention) as mediated by another variable (e.g., perceived behavioral control). It also allows simultaneous evaluation of multiple possible mediators. In models where significant associations were observed between 1) experimental condition and a change in blood donation intention (Fig. 1), 2) experimental condition and at least one potential mediator of a change in blood donation intention, and 3) the potential mediator(s) and blood donation intention, a bias-corrected 95% confidence interval (CI) was calculated for the indirect effect of experimental condition using 5000 bootstrap resamples. Finally, whether or not participants in the follow-up sample subsequently volunteered to give blood was analyzed by logistic regression.

## RESULTS

The ANCOVA of intention score yielded a significant effect of Condition ( $F(3,235) = 7.56$ ,  $p < 0.001$ ; Table 1, Fig. 2). In general, participants who learned relaxation ( $F(1,108) = 10.95$ ,  $p = 0.001$ ); AT, ( $F(1,114) = 27.00$ ,  $p < 0.001$ ), or simply browsed a blood donation website ( $F(1,113) = 8.88$ ,  $p = 0.004$ ), had significantly greater



**Fig. 1.** Bootstrapping tests for mediation require 1) a significant overall association between the independent variable and the dependent variable (the  $c$  path), 2) at least one significant association between the independent variable and a proposed mediator (an  $a$  path), and 3) a significant association between the mediator and the dependent variable (a  $b$  path). The bootstrapping statistic indicates whether or not the indirect effect of the independent variable on the dependent variable, transmitted by the mediator, is significant. A significant bootstrap test along with a nonsignificant  $c'$  path—the effect of the independent variable on the dependent variable controlling for the mediators—suggests “full” mediation by the mediator. A significant bootstrap test combined with a significant  $c'$  suggests that the impact is only partially transmitted by the mediator.

increases in intention to give blood compared to those who sat quietly during this period, who showed no significant change in intention. However, those who learned AT had significantly greater increases in intention than those who did Web browsing alone ( $F(1,130) = 4.81$ ,  $p = 0.030$ ). Participants who learned relaxation were intermediate to these two groups. Neither the Video main or Video  $\times$  Condition interaction effect was significant in the ANCOVA. On the other hand, given the a priori hypothesis that watching the needle-related videos might dampen intention, three more pairwise tests were conducted examining the effects of condition only among those who saw the videos. Among these individuals, learning relaxation ( $F(1,50) = 5.34$ ,  $p = 0.025$ ) and AT ( $F(1,51) = 11.25$ ,  $p = 0.002$ ), but not Web browsing ( $F(1,54) = 2.32$ ,  $p = 0.134$ ), led to a significantly greater increase in blood donation intention compared to no-treatment control participants, further supporting the belief that the effects of condition were maintained even after exposure to these potentially threatening stimuli.

Interestingly, while three of the four ANCOVAs of intention “mediating variables” also produced significant main effects of Condition, there were different patterns (Table 1). For example, there was no significant effect of Condition (or Video) on social norm. This is understandable as it seems unlikely that any of the conditions would have influenced the participant’s perception of the degree to which someone else, such as friends or family, would approve of blood donation (in fact, the absence of an effect in this case supports the validity of the questionnaire). On the other hand, a significant effect of Condition on moral norm was observed ( $F(3,235) = 3.01$ ,  $p = 0.031$ ). All three “active” conditions produced significant increases in the belief that blood donation is consistent with one’s moral values compared to the no-treatment control condition, with no significant differences among relaxation, AT, and Web browsing alone. In contrast, the significant effect of Condition on having a positive attitude about blood donation ( $F(3,235) = 2.84$ ,  $p = 0.039$ ) was due to significant increases vis-à-vis the no-treatment controls in AT and Web browsing only participants, but not those who looked at the website for 10 minutes and then learned relaxation. Finally, there was a significant

**TABLE 1.** Means and standard errors of within-session change in Theory of Planned Behavior variables by experimental condition\*

Variable	No treatment	Web browsing	Relaxation	AT
Intention	0.16 (0.14) <sup>a</sup>	0.69 (0.12) <sup>b</sup>	0.82 (0.13) <sup>b,c</sup>	10.04 (0.12) <sup>c</sup>
Perceived control	0.05 (0.13) <sup>a</sup>	0.20 (0.11) <sup>a,b</sup>	0.52 (0.12) <sup>b</sup>	0.46 (0.11) <sup>b</sup>
Attitude	0.13 (0.13) <sup>a</sup>	0.50 (0.11) <sup>b</sup>	0.29 (0.12) <sup>a,b</sup>	0.59 (0.11) <sup>b</sup>
Moral norm	−0.11 (0.12) <sup>a</sup>	0.24 (0.11) <sup>b</sup>	0.27 (0.11) <sup>b</sup>	0.35 (0.10) <sup>b</sup>
Social norm†	0.26 (0.12)	0.40 (0.10)	0.38 (0.11)	0.55 (0.10)

\*Means with different superscript letters are significantly different from one another,  $p < 0.05$ .

† Pairwise tests not conducted due to the absence of an overall effect of condition in the ANCOVA.



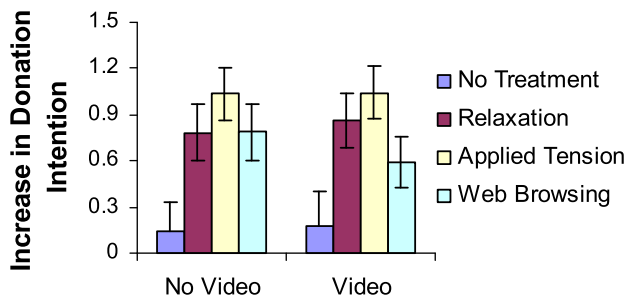


Fig. 2. Within-session change in ratings of blood donation intention among participants in different experimental conditions.

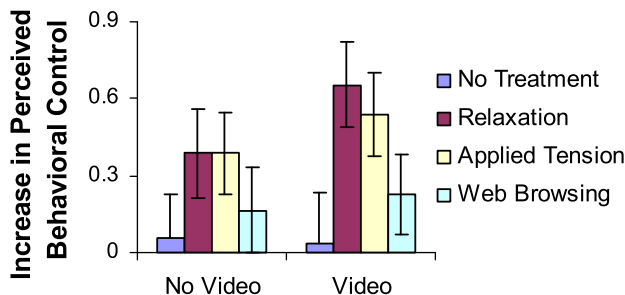


Fig. 3. Within-session change in ratings of perceived behavioral control among participants in different experimental conditions.

effect of Condition on perceived behavioral control ( $F(3,235) = 3.25$ ,  $p = 0.023$ ), due to significantly greater increases in participants who learned specific relaxation and AT skills (Fig. 3).

### Mediation analyses

To examine possible mechanisms of the effects of condition on degree of increase in blood donation intention more carefully, separate mediation analyses were conducted for each active condition comparing its effects to the no-treatment control condition.

#### Relaxation training

Consistent with the univariate results (Table 1), there were significant effects of condition (relaxation vs. no treatment) on degree of increase in perceived behavioral control ( $B = 0.46$ ,  $t(111) = 2.41$ ,  $p = 0.018$ ) and moral norm ( $B = 0.40$ ,  $t(111) = 2.27$ ,  $p = 0.025$ )—the *a* paths—as well as increase in blood donation intention ( $B = 0.66$ ,  $t(111) = 3.38$ ,  $p = 0.001$ )—the *c* path—even after controlling for baseline values of intention and the mediators. However, only the increase in perceived behavioral control, and not moral norm, was significantly associated with an increase in intention ( $B = 0.47$ ,  $t(111) = 4.82$ ,  $p < 0.001$ ). Bootstrapping revealed a significant indirect effect of condition mediated by perceived behavioral control ( $B = 0.21$ , 95% CI = 0.07-0.48) although this did not explain the entire impact of the relaxation training condition as the effect of condition on intention remained significant ( $B = 0.38$ ,  $t(111) = 2.17$ ,  $p = 0.032$ ) even after controlling for perceived behavioral control (the *c'* path).

#### AT training

Once again, consistent with the univariate results (Table 1), there were significant effects of condition (AT vs. no treatment) on degree of increase in perceived behavioral control ( $B = 0.21$ ,  $t(117) = 2.64$ ,  $p = 0.009$ ), moral norm ( $B = 0.21$ ,  $t(117) = 2.80$ ,  $p = 0.006$ ), and attitude ( $B = 0.24$ ,  $t(117) = 3.30$ ,  $p = 0.001$ ), as well as increase in blood donation intention ( $B = 0.43$ ,  $t(117) = 5.08$ ,  $p < 0.001$ ). Further, both the increase in perceived behavioral control ( $B = 0.31$ ,  $t(117) = 3.16$ ,  $p = 0.002$ ) and the attitude ( $B = 0.27$ ,  $t(117) = 2.47$ ,  $p = 0.015$ ) were associated with increased intention. Bootstrapping revealed a significant indirect effect of condition mediated by both perceived behavioral control ( $B = 0.06$ , 95% CI = 0.01-0.16) and attitude ( $B = 0.07$ , 95% CI = 0.02-0.15), although this did not explain the entire impact of the AT training condition as the effect of condition on intention remained significant ( $B = 0.26$ ,  $t(117) = 3.28$ ,  $p = 0.001$ ) even after controlling for the potential mediators.

#### Web browsing

Like the ANOVA-based analyses in Table 1, the regression-based analyses of extended Web browsing showed significant effects on blood donation attitude, moral norm, and intention vis-à-vis the no-treatment control group. However, neither the increase in attitude nor the moral norm was associated with change in blood donation intention. Not surprisingly, the significant effect of Web browsing on intention was maintained even controlling for the potential mediators ( $B = 0.10$ ,  $t(116) = 2.09$ ,  $p = 0.040$ ). Thus, while extended Web browsing significantly increased reports of blood donation intention and some related psychological variables, the impact was not as robust as the two other conditions that added training in specific skills and increased perceived behavioral control.

### Follow-up analyses

Sixteen laboratory session participants (5%; i.e., 16/314 = 0.051) subsequently volunteered to give blood at least once. A logistic regression equation predicting blood clinic attendance (yes/no) from the experimental conditions—whether or not the participant watched the blood draw videos and the nature of prevideo training—indicated that neither variable was significantly related to volunteering (four no-treatment control, five relaxation, five AT, and two Web browsing participants volunteered). However, when degree of within-session change in blood donation intention and baseline intention were added to

the equation, both were found to be significant positive predictors of blood clinic attendance. These effects were maintained with the addition of age and sex as further covariates (OR 2.00, 95% CI 1.03-3.90; and OR 1.67, 95% CI 1.07-2.61 for degree of within-session change and baseline intention, respectively). That is, regardless of how it was produced, people who experienced an increased intention during the experiment were more likely to subsequently volunteer to give blood even controlling for baseline intention.

The relative importance of degree of within-session change in blood donation intention is underscored by the fact that adding changes in the other four psychological measures to the equation produced no further significant effects while change in intention remained the strongest predictor of attendance (OR 2.68, 95% CI 1.26-5.72). On the other hand, it is interesting to note that when only baseline, pretreatment values of the five psychological measures were included in the equation (along with age and sex), the only significant predictor of attendance was perceived behavioral control (OR 2.23, 95% CI 1.20-4.15).

## DISCUSSION

The results of this study were encouraging in several respects. For example, they support those of France and colleagues<sup>6</sup> and others<sup>4</sup> indicating that it is possible to influence intention to give blood in a relatively brief period of time. Further, degree of within-session change in intention was significantly associated with the likelihood of volunteering to give blood. While a direct effect of experimental condition on blood clinic attendance was not observed in this sample, it would be reasonable to predict an effect of such manipulations on actual clinic attendance in a larger sample given the impact of condition on intention.

The mediation results also shed light on possible mechanisms of such interventions on blood donation intention and, perhaps, volunteering. First, they are generally consistent with the Theory of Planned Behavior assertion that intention to execute a health-related behavior is the “final common pathway” through which psychological influences on behavior exert their effects. For example, within-session change in intention was the only change score that significantly predicted volunteering. At the same time, the results also suggest the particular importance of having confidence in one’s ability to undergo the procedure (perceived behavioral control) in determining intention. Learning specific coping skills such as AT or relaxation seems to have been a useful way of increasing perceived behavioral control and, in turn, intention.

This is not to say that sensitizing prospective donors to the humanitarian aspects of blood donation is unimportant. Indeed, it is possible that this is a necessary prerequisite, and interventions based on emphasizing

altruistic motives to give blood have been successful.<sup>4</sup> In this study, this may have been accomplished during the first 10 minutes of Web browsing in all three “active” treatment groups when participants read stories of individuals who had been helped by donations. Nevertheless, not only did participants who also learned AT display the greatest increases in blood donation intention (Fig. 2), but the change was also significantly greater than participants who “only” browsed the website. This finding is consistent with those of France and coworkers,<sup>6</sup> who observed greater increases in intention among participants who browsed a specially designed website focused on donor preparation (e.g., including instruction in AT) compared to a more traditional donor information website. In sum, the results are consistent with the belief that perceived behavioral control is an important target for intervention in nondonors, a view further supported by the results of several survey studies.<sup>9,15,16</sup>

Interestingly, watching needle-related videos did not reduce intention or significantly change any of the other psychological measures. Indeed, these videos even appear to have facilitated change in perceived behavioral control somewhat (Fig. 3). This is not too surprising as there is considerable evidence in the psychotherapy literature indicating the benefit of exposure and desensitization to feared stimuli.<sup>17</sup> While some fears are much more durable, researchers have found that simple exposure to threatening stimuli can reduce modest specific fears (e.g., needle fears) in as little as one session.<sup>18</sup> Thus, this research suggests that it is not necessary to avoid such issues to increase blood donation and, in fact, it may be more useful to address them directly.

At the same time, one of the limitations of the study was the fact that the videos were not especially intense or, more important, personally relevant. While the results indicate that the effects on the psychological measures were “real” and not simply the product of responding in a socially desirable manner (e.g., the associations with blood clinic attendance), the “threat” involved in this study was modest. Future research involving more realistic role plays might be useful. It would have also been useful to have additional experimental conditions. For example, participants in the relaxation and AT groups were asked to browse the blood donation website for 10 minutes before learning these techniques. This was intended to introduce the topic of blood donation and provide context. However, it also means that these participants were exposed to different stimuli (e.g., the amazing stories section of the website) that may have made the psychological profile more complex. Similarly, the practical depiction of blood donation in the “virtual donation” section of the website may have provided some of the benefits of learning relaxation and AT to the extended Web browsing group.

There were several additional limitations of the study related to the sample. First, participants were all college students although the low tuition of Canadian universities (especially Québec) tends to reduce demographic differences between university students and the general population. Still, the sample was also predominantly female. On the positive side, the participants were very representative of the type of individuals of high interest to blood donation organizations, that is, healthy, generally altruistic nondonors. While participants were compensated in some form for their time, the inducements were modest and there is no reason to think that makes them any less altruistic or atypical of common blood donors. In fact, participants selected this study from many other possibilities, some with greater inducements, indicating at least a certain baseline interest or curiosity about blood donation. The fact that the present experimental procedures were able to further increase blood donation intention among “shoppers” is very relevant but this leads to one final limitation related to sample size. That is, while the follow-up results are encouraging, it was acknowledged at the outset of the study that it was not sufficiently powered to detect group differences in this low baseline behavior, at least among current nondonors. It is possible that more robust effects would have been observed in a sample comprised of occasional or lapsed donors who might be a better target for such interventions having already overcome any initial concern about the procedure.<sup>12,19</sup>

Nevertheless, even with many failures, efforts to bring new donors into the system can bring big benefits. Although this is an anecdotal example and it is possible this individual would have begun to donate in any case, it is interesting to note that one individual in the relaxation group went out and gave blood the same day they participated in the laboratory study and four other times during the year. In sum, brief interventions such as learning and practicing AT appear to be able to increase nondonors' intention to donate in the future by addressing common barriers.

#### CONFLICT OF INTEREST

The authors have disclosed no conflicts of interest.

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