Published in final edited form as:

Transfusion. 2017 October ; 57(10): 2433–2439. doi:10.1111/trf.14203.

A motivational interview promotes retention of blood donors with high internal motivation

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Abstract

Background—Based on the hypothesis that self-determined motivation is associated with an increased likelihood of future behavior, the present study examined the ability of a motivational interview to promote internal motivation for giving and future donation attempts.

Study Design and Methods—A sample of 484 recent whole blood and double red cell donors (62.4% female; mean age = 30.2, SD = 11.8 years) were randomly assigned to either a telephone-delivered motivational interview or a control call approximately six weeks after donating. Several weeks before the call and again one week after the call participants completed the Blood Donor Identity Survey, a multidimensional measure of donor motivation, to derive indices of amotivation, external motivation, and internal motivation to give blood. Repeat donation attempts were tracked using blood center records.

Results—Relative to controls, participants in the motivational interview group showed a shift toward more self-determined motivation as indicated by significant decreases in amotivation ($p=0.01$) and significant increases in external ($p=0.009$) and internal motivation ($p=0.002$). Further, those with initially high levels of autonomous motivation were more likely to make a donation attempt in the subsequent year if they completed the motivational interview (71.1%) versus the control call (55.1%).

Conclusion—Motivational interviewing is a potentially useful strategy to enhance retention of existing blood donors, particularly among those who express a greater sense of internal motivation for giving.

Keywords

blood donation; motivational interview; internal motivation; donor retention

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Conflict of Interest Statement: The authors certify that they have no conflicts of interest or financial involvement with this manuscript.

Introduction

Although retention of existing blood donors is both safer for the blood supply and more cost-effective when compared to recruitment of new donors, relatively few studies have focused specifically on the development of better donor retention strategies.^{1, 2} To help address this gap, Sinclair and colleagues³ examined the effects of a post-donation motivational interview on retention of experienced blood donors. Participants who were randomly assigned to the experimental group completed a telephone-based interview that lasted an average of less than 10 minutes, approximately 3–4 weeks after their most recent donation. The interviewer followed a standardized script that encouraged donors to explore intrinsic and extrinsic motivations for giving blood, identify concerns or barriers to future donation, and engage in individualized problem-solving to address any perceived concerns or barriers. Results of this study demonstrated that, compared to a no-contact control group, participants in the motivational interview group had a significantly higher rate of repeat donation attempts within a 12-month follow-up period (67% vs 44%). More recently, the psychological effects of a motivational interview call were compared against a control phone call among participants who completed their first donation with New York Blood Center or Hoxworth Blood Center.^{4, 5} Comparison of psychological measures administered approximately three weeks before and one week after the calls revealed that participation in the motivational interview was associated with significantly larger decreases in anxiety and significantly larger increases in confidence, intention, and internal motivation to donate blood relative to controls.

The results of the aforementioned studies are consistent with self-determination theory (SDT), which postulates that people are more likely to persist with behaviors that are internally versus externally motivated.⁶ Specifically, as illustrated in Figure 1, SDT conceptualizes motivation on a continuum of self-determination that includes 1) amotivation, in which the person has no intention of engaging in the behavior, 2) controlled (external) motivation, in which the person is motivated largely by outside forces, and 3) autonomous (internal) motivation, in which the person is increasingly motivated by internal forces. In line with this model, the present study examined the influence of a motivational interview on changes in amotivation, external motivation, and internal motivation. In addition, to learn more about the effect of the interview on donor retention, future donation attempts were examined as a function of initial motivation levels. We examined initial motivation as a potential moderator of the interview effect because blood centers can assess motivation at the time of donation and use this information to select the best candidates for this retention strategy.

Materials and Methods

Full details regarding the study design are provided in prior reports,^{4, 5} hence the following text briefly outlines the study design and provides novel information regarding the assessment of follow-up donation attempts.

Participants

Participants (N= 484) were recruited from New York Blood Center (New York, NY) and Hoxworth Blood Center (Cincinnati, OH) based on eligibility requirements that included group O, whole blood or automated red blood cell donors who were identified as being first-time donors with the blood center, at least 18 years of age, and eligible to donate again. The sample was 62.4% female, had a mean age of 30.2 years (SD = 11.8), and was racially and ethnically diverse based on participant self-reports (65.1% White, 12.2% Asian or Asian American, 12.0% Black or African American, 0.2% American Indian or Alaskan Native; 0.2% Hawaiian or other Pacific Islander, 8.1% Other, and 2.1% more than one race; 16.3% Hispanic/Latino[a]). Participants were primarily whole blood donors (90.3%), while 9.7% were double red cell donors.

Procedure

Two to four weeks after donating, donors were recruited via email invitation to participate in a telephone intervention study. The recruitment email noted that they would receive US\$50 if they completed two online surveys and a brief telephone interview. Interested donors were directed to a website where they could provide informed consent and then complete a baseline survey. The baseline survey requested demographic and contact information (e.g., age, sex, race, ethnicity, telephone number, email address) as well as responses to the Blood Donor Identity Survey (BDIS). The BDIS⁷ is an 18-item questionnaire, based on SDT, which is used to compute total scores for three different types of motivation: amotivation (non-regulation), external motivation (external regulation + introjected regulation), and internal motivation (identified regulation + integrated regulation + intrinsic regulation). In the present study the motivation subscales demonstrated acceptable to excellent levels of internal consistency at pre-call administration (amotivation $\alpha = 0.70$; external motivation $\alpha = 0.68$; internal motivation $\alpha = 0.88$) and post-call administration (amotivation $\alpha = 0.70$; external motivation $\alpha = 0.72$; internal motivation $\alpha = 0.91$).

Approximately six weeks after donating, participants were contacted via telephone by one of four trained interviewers (2 female and 2 male) who was blind to participant responses on the baseline survey. There was no attempt to match interviewee and interviewer in terms of gender. Individuals who were randomly assigned to the Interview Group completed a telephone call that followed a script informed by the principles of motivational interviewing and lasted approximately 13 minutes. Components of the call included a discussion of initial motivations for giving, future donation intentions, perceived donation barriers, perceived importance of donation and donation confidence, and personal goals and values relating to donation. When appropriate, action plans for when and where to donate and individualized how-to coping plans for identified donation barriers were also discussed. Individuals who were randomly assigned to the Control Group completed a telephone call that followed a script that thanked them for their previous donation, reminded them of their next date of eligibility, and offered telephone and online contact information for scheduling a future donation.

One week after the telephone call, participants in both groups received an email with a link to the study website where they could repeat the online surveys, including the BDIS. If they

failed to complete the post-call survey within a week, reminder emails and texts were sent. Participants who completed all elements of the study received a check for \$50.

To examine repeat donation attempts, blood center records were used to determine if participants attempted to provide another donation within 60 weeks of their initial donation. This timeframe represents a one year (i.e., 52 week) follow-up from the next date of eligibility to donate (i.e., 8 weeks post-donation) for whole blood donors in the sample. Repeat donation attempts, rather than completions, was the primary outcome variable as the primary focus of the interview is on motivation to donate.

The procedures used in this study were approved by the Institutional Review Boards of Ohio University, New York Blood Center, and the University of Cincinnati. The study protocol was registered with ClinicalTrials.gov (NCT02274064).

Statistical Analysis

A series of t-tests examined pre-call baseline to post-call changes in the dependent measures of amotivation, external motivation, and internal motivation calculated from the BDIS. Binomial logistic regression analyses were then conducted to examine the prediction of repeat donation attempts (yes, no) in the follow-up period as a function of group membership (control, interview), baseline motivation (as defined by either amotivation, external motivation, and internal motivation), and the interaction between group and baseline motivation. In the case of significant group by baseline motivation interactions, the SAS PROCESS macro was used to compute regions of significance according to the Johnson-Neyman technique.⁸ Finally, comparison of percentage of repeat donation attempts in the interview versus control group was conducted using Fisher's exact tests. All analyses were conducted using computer software (IBM SPSS Statistics 23.0, IBM Corp., Armonk, NY).

Results

Effect of Interview on Motivation

As shown in Figure 2, relative to the control call, the motivational interview call was associated with significantly larger decreases in amotivation, $t(482) = 2.42$, $p = 0.016$, and significantly larger increases in external motivation, $t(482) = 2.62$, $p = 0.009$, and internal motivation, $t(482) = 3.13$, $p = 0.002$. These effects suggest an overall move toward more self-determined, or internal, motivation for donating blood among participants who engaged in the motivational interview relative to the control call.

Effect of Interview on Repeat Donation Attempts

To examine the effect of the motivational interview on donation behavior, a series of binomial logistic regressions was conducted. In each model we included group, baseline motivation score (i.e., amotivation, external motivation, or internal motivation), and the interaction between group and baseline motivation score.

As shown in Table 1, the model that included baseline amotivation was significant, $\chi^2(3) = 11.54$, $p = 0.009$, and included both group ($B = 1.244$, $p = 0.009$) and group $\times$ amotivation ($B = -0.341$, $p = 0.015$) as significant predictors of donation attempts. Follow-up analysis of the

group by amotivation interaction using a Johnson-Neyman procedure revealed regions of significance of -2.45 and 6.92 for baseline amotivation scores. As shown in Figure 3A, relative to the control group, participants in the interview group with baseline amotivation scores -2.45 were more likely to return whereas those with scores 6.92 were less likely to return.

With respect to the model that included baseline external motivation score, the overall model was not significant, $\chi^2(3) = 3.07$, $p = 0.381$, and there were no significant individual predictors.

Finally, the model that included baseline internal motivation score was significant, $\chi^2(3) = 12.80$, $p = 0.005$, and included group ($B = -1.990$, $p = 0.020$) and group $\times$ internal motivation ($B = 0.415$, $p = 0.009$) as significant predictors of donation attempts. Follow-up analysis of the group by internal motivation interaction revealed regions of significance of -2.70 and 5.77 for baseline internal motivation scores. As shown in Figure 3B, relative to the control group, participants in the interview group with baseline internal motivation scores -2.70 were less likely to return whereas those with scores 5.77 were more likely to return.

Combined effect of amotivation and internal motivation on interview response

To examine the combined effect of baseline motivations on subsequent donation attempts, similar to previous studies,^{5, 9} we calculated a single autonomy index score by subtracting baseline amotivation from baseline internal motivation for each participant. Consistent with the analyses reported above for the individual scales, a binomial logistic regression was then conducted using group, autonomy index, and the interaction between group and autonomy index. This resulting model was significant, $\chi^2(3) = 15.33$, $p = 0.002$, with group $\times$ autonomy ($B = 0.243$, $p = 0.005$) as a significant predictor of donation attempts. Follow-up analysis of the group by autonomy interaction revealed regions of significance for autonomy scores of -1.70 and 2.99 . As shown in Figure 4, relative to the control condition, participants in the interview group with baseline autonomy scores -1.70 were less likely to return whereas those with scores 2.99 were more likely to return. As shown in Table 2, only 3.7% of the sample fell into the “less likely to return” category whereas 40.7% of the sample fell into the “more likely to return” category. Comparisons of the proportion of participants in each group who attempted a repeat donation as a function of group membership (control versus interview) and cut-points category (less likely, no more or less likely, and more likely) revealed a significant difference within the “more likely to return” category. Specifically, donors with baseline autonomy scores -2.9904 returned at a significantly higher rate of 71.1% in the interview group versus 55.1 % in the control group, Fisher’s exact test, $p = 0.03$, two-tailed.

Discussion

The results of the present study extend our prior findings regarding the psychological and behavioral effects of a brief motivational interview. In prior studies, participation in the interview has been shown to be related to increases in donation intention,^{3, 5, 10} internal motivation for giving blood,^{5, 10} and donation behavior³ relative to a variety of control conditions. Consistent with this prior research, the reductions in amotivation and increases in

internal motivation observed in the present study confirm the ability of a motivational interview to promote self-determined motivation. The current findings also provide novel information regarding the importance of initial motivation levels in moderating the effect of the interview on subsequent donation behavior. Specifically, baseline levels of amotivation and internal motivation interacted with group assignment to predict repeat donation attempts. Follow-up analyses indicated that retention was maximized when the interview was conducted with the 40.7% of donors who reported the highest baseline levels of autonomous motivation. Indeed, these donors had an absolute difference of 16% more donation attempts relative to controls, indicating that the most efficient application of the motivational interview may be among those who already intend to give blood for internal reasons (e.g., enjoyment or consistency with larger personal goals).

In contrast to the significant increase in donation behavior that was observed among the most autonomous donors, exposure to the motivational interview was associated with an absolute difference of 12.5% fewer donations relative to controls among the least autonomous donors. Although this difference was not statistically significant, in part because this subgroup of donors was very small (i.e., only 3.7% of the sample), it is in the direction that would be predicted based on the philosophy of individual autonomy support that is shared by motivational interviewing and self-determination theory.¹¹ The goal of our motivational interview is not to convince blood donors to keep on giving; rather, we endeavor to listen to each donor's unique motivators and barriers, provide them with information as needed, and ultimately help them make their own decisions regardless of which path they choose. Hence, we would expect the interview process to reduce the likelihood of future donations among those who are initially very low in self-determined motivation. This is because donation behavior conflicts with their current motivations and therefore the interview is more likely to solidify their tendency toward non-action. Whereas this may seem like a missed opportunity from a blood collections' perspective, it is an acknowledgment of and respect for each donor's freedom to choose. Interestingly, there is data to suggest that it may also promote a better donation experience and greater overall satisfaction among those who do choose to donate again. For example, Dew and colleagues¹² demonstrated that a pre-donation motivational interview resulted in better adjustment among living organ donors who reported some ambivalence about their prospective kidney or liver donation. Whereas this interview resulted in a few prospective donors changing their mind, 93% of interviewees did follow through with an organ donation and as a group they reported less anxiety, fewer somatic symptoms (e.g., fatigue, pain), and fewer unexpected family-related problems at 3 months post-donation when compared to controls who did not complete a motivational interview.

A little more than half of the present sample (55.6%) had an initial autonomy score that was associated with neither greater nor lesser likelihood of return. Further, among these donors the interview had no significant effect on repeat donation attempts. Although these data suggest that the interview may be of benefit only among donors with higher initial levels of autonomous motivation, consistent with the stages of change described by the transtheoretical model,¹³ the interview may promote psychological change that does not immediately translate into donation behavior. That is, for some donors a motivational interview may not lead to immediate action (e.g., registration to give) but instead may

encourage continued contemplation that ultimately results in future donation behavior when the appropriate circumstances arise. Another possibility is that the success of the interview may depend upon the extent to which it fosters an increase in internal motivation, perhaps by some combination of addressing perceived barriers, clarifying the connection between donation and their personal goals and values, and developing effective action and coping plans. Future research is needed to examine this possibility by examining the types of barriers reported and interviewee assessment of the potential efficacy of proposed solutions to these barriers.

Although the present report focuses largely on the effects of the motivational interview on the promotion on self-determined motivation, it is important to note that interview also incorporates action plans for when and where to donate and individualized how-to coping plans for identified barriers. These action and coping plans may influence subsequent donation behavior through key constructs of the Theory of Planned Behavior.^{14–19} Indeed, as described in our prior report,⁵ in addition to showing significantly greater increases in motivational autonomy, individuals in the motivational interview group also showed significantly larger increases in affective attitude, self-efficacy, and intention as compared to the control group. Additional studies are needed to examine how these different psychological constructs may interact to help motivate repeat donation behavior, and we hope to address this important issue with data from a large ongoing clinical trial.²⁰

As with all research, the present study is not without limitations. One salient limitation is the relatively small sample of donors tested, particularly in the analyses that examined subgroups based on initial motivation level. Another potential limitation is the fact that recruitment was restricted to donors with Group O blood; hence, the findings may or may not generalize to donors with other blood types. Finally, generalizability might also be affected by the offer of a monetary incentive during participant recruitment. Although this may have introduced a bias in terms of who was willing to participate, because the same incentive was available to all we do not believe that it can account for the observed group differences in survey responses or donation behavior. Despite these limitations, the results of the present study support the notion that motivational interviewing can increase internal motivation for giving and promote retention among those with high levels of autonomous motivation. Further research is needed to examine cost-effectiveness and potential long-term effects of a motivational interview for different types of donors with varying levels of donation experience.

Acknowledgments

Research reported in this publication was supported by the National Heart, Lung, and Blood Institute of the National Institutes of Health under Award Number R56HL119180. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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Nonself determined ←————→ Self-determined

Type of Motivation	Amotivation	Controlled (External) Motivation		Autonomous (Internal) Motivation		
Type of Behavior Regulation	Non-regulation	External regulation	Introjected regulation	Identified regulation	Integrated regulation	Intrinsic regulation
Reason for Acting	NA (No intent to act)	To gain rewards or avoid punishments	To gain others' approval or avoid guilt	Because it is important and has value	Because it is consistent with <u>my</u> goals and values	Because it is inherently enjoyable and satisfying
Blood Donor Identity Survey (sample items)	"I really do not think about donating blood."	"I donate blood for thank-you gifts, such as T-shirts or water bottles."	"I would feel bad about myself if I did not donate blood."	"Donating blood is very important for the health of others."	"Donating blood is consistent with my life goals."	"I enjoy donating blood."

Figure 1.

Illustration of different levels of self-determined motivation as described by self-determination theory,^{6, 21–23} with a depiction of how scores on the six regulatory style subscales of the Blood Donor Identity Survey are combined to create measures of amotivation (non-regulation), external motivation (external regulation + introjected regulation), and internal motivation (identified regulation + integrated regulation + intrinsic regulation).

Figure 2. Mean ($\pm$ SEM) from pre- to post-call changes in amotivation, external motivation, and internal motivation for donors randomly assigned to the Control and Interview groups.

A

B

Figure 3.

Plots of the predicted probability of donor return as a function of baseline amotivation (A) and baseline internal motivation (B) for participants in the control and interview groups.

Figure 4.

Plot of the predicted probability of donor return as a function of baseline autonomous index scores for participants in the control and interview groups.

Table 1

Multivariate binomial regression models predict repeat donation attempts (yes/no) as a function of group (Control = 0, Interview = 1), baseline motivation score (amotivation, external motivation, or internal motivation), and their interaction.

Model	Predictor	B	SE	Wald	p
Group × amotivation	Group	1.244	0.476	6.836	0.009
	amotivation	0.009	0.094	0.008	0.928
	Group × amotivation	−0.341	0.141	5.860	0.015
Group × external motivation	Group	−0.121	0.495	0.060	0.806
	external motivation	0.055	0.132	0.173	0.678
	Group × external motivation	0.123	0.183	0.450	0.502
Group × internal motivation	Group	−1.990	0.852	5.454	0.020
	internal motivation	−0.019	0.106	0.032	0.859
	Group × internal motivation	0.415	0.159	6.832	0.009

Table 2

Proportion of sample who attempted a repeat donation as a function of group membership (control, interview) and region of significance of baseline autonomy scores.

	Less likely to return	No more or less likely to return	More likely to return
	n = 18/484 (3.7%)	n = 269/484 (55.6%)	n = 197/484 (40.7%)
Baseline autonomy score	−1.70	−1.70 to 2.99	2.99
Attempted donation			
Control	50.0%	56.8%	55.1%
Interview	37.5%	54.0%	71.1%
Fisher's Exact <i>p</i> , 2-tailed	0.66	0.71	0.03