Beyond Description: The Predictive Role of Affect, Memory, and Context in the Decision to Donate or Not Donate Blood

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\textbf{Keywords}
Donor recruitment and retention · Theory of planned behavior · Affect · Memory

\textbf{Abstract}
\textbf{Background:} Research on the recruitment and retention of blood donors has typically drawn on a homogeneous set of descriptive theories, viewing the decision to become and remain a donor as the outcome of affectively cold, planned, and rational decision-making by the individual. While this approach provides insight into how our donors think about blood donation, it is limited and has not translated into a suite of effective interventions. In this review, we set out to explore how a broader consideration of the influences on donor decision-making, in terms of affect, memory, and the context in which donation takes place, may yield benefit in the way we approach donor recruitment and retention.

\textbf{Summary:} Drawing on emerging research, we argue for the importance of considering the implications of both the positive and the negative emotions that donors experience and we argue for the importance of directly targeting affect in interventions to recruit nondonors. Next, we focus on the reconstructed nature of memory and the factors that influence what we remember about an event. We discuss how these processes may impact the retention of donors and the potential to intervene to enhance donors’ recollections of their experiences. Finally, we discuss how our focus on the individual has led us to neglect the influence of the context in which donation takes place on donor behavior. We argue that the amassing of comprehensive large data sets detailing both the characteristics of the individuals and the context of their giving will ultimately allow for the more effective deployment of resources to improve recruitment and retention.

\textbf{Key Messages:} In suggesting these directions for future research, our want is to move beyond the ways in which we have traditionally described blood donation behavior with the aim of improving our theorizing about donors while improving the translational value of our research.

\textbf{Introduction}

In this paper, we set out the case for blood donor researchers to broaden their focus and engage in a greater consideration of the affective, cognitive (e.g., memory), and contextual (i.e., anything external to the individual) processes (would-be) donors experience that impact donor recruitment and retention. Human decision-making is driven by 2 inter-related systems: system 1 comprises cold cognitions and invokes rational, slow, and more deliberative processing, and system 2 comprises hot cognitions, prompting intuitive, fast, and reactive decision-making [1]. We argue that research on donor behavior has primarily focused on system 1 processes (Table 1), with the theory of planned behavior (TPB) [2] as the dominant theoretical framework. In this review, we show...
why this imbalance is problematic for understanding blood donor behavior and developing interventions. We set out an agenda of how a broader consideration of both system 1 and system 2 processes could be incorporated into blood donor research.

Existing Approaches to Donor Motivation

While research on the recruitment and retention of blood product donors is still in its infancy, researchers have typically drawn on a homogeneous set of theories (Table 1) to understand what motivates someone to initially donate blood and then make a subsequent donation. Dominant in this area is the TPB [2], a cognitive descriptive model of conscious decision-making that conceives of the decision-maker as a rational agent, thinking in a decontextualized manner. The TPB proposes that the decision to donate blood is determined by a person’s intention to donate, which in turn is predicted by their attitudes toward donating, their beliefs as to whether significant others think they should donate, and their perceived ability to donate [2].

In the specific context of blood donation, many researchers have suggested that the TPB provides an insufficient account of donor behavior. To address this, researchers have added moral norms [3–5], anticipated regret [3, 6], anticipated anxiety [7], anticipated affect [8], self/role identity [9], and differentiated cognitive and affective attitudes [8] to account for more variance in a (would-be) donor’s behavior.

While the TPB dominates blood donor research, some researchers have attempted to consider alternative accounts of donor behavior. For example, Burditt et al. [10], following Ferguson and Chandler [11], drew on the transtheoretical model [12, 13] to devise interventions to increase blood donations among African Americans. More recently, France et al. [15] have drawn on self-determination theory [14] to identify and change donors’ motivations for donating [15, 16].

Blood donation, positioned within a TPB framework (as well as in a transtheoretical model and to a degree in social deterministic frameworks) is most often considered as an affectively cold, planned behavior that occurs largely independently of the broader social context in which it is located [17, 18] (Table 1, Fig. 1). The assumption of the most commonly used theoretical framework in this area – the TPB – is that broader experiences can be “cognitivized” to influence behavior through intention [2]. However, the failure to convert the many TPB analyses into a suite of effective interventions for donor recruitment and retention [19] suggests that it is time to look beyond cold cognition.

We acknowledge that blood donation is a planned behavior in the sense that donors have to make appointments, organize getting to the donor center, and so on. However, there is increasing recognition that affective states play a key role in translating this “planning” into action [20–22]. Indeed, there is a growing realization that prosocial emotions (e.g., gratitude, shame, guilt, warm glow, and awe) are also important [21]. Behaviorally, blood donation is an archetypal prosocial behavior [23, 24], and there is growing evidence that prosocial acts are determined by intuitive, fast, and reactive (i.e., system 2) processes that are context dependent [25, 26].

Cold Decision Makers in Affectively Hot Situations

Anxiety, Fear, and the (Neglected) Nondonor

Donating blood is an affectively provocative behavior. Among donors waiting to donate in center, anxiety or fear results in an increased risk of vasovagal sensations, which in turn promotes lapse [27–41] and heightens the risk that other donors will also have vasovagal reactions [38, 39]. This risk of adverse events has resulted in a range of interventions [42–48]. However, little attention has been paid to how anxiety, fear, or other emotions experienced outside of the donation context may influence decisions closer to and within that context.

Coupled with this limitation is our neglect of current nondonors. Approximately 95% of the age-eligible population are not active or current donors, free-riding on the generosity of the minority [49, 50]. A number of emotional processes linked to free-riding – guilt at not donating blood or shame at receiving it – may thus be exploitable as potential interventions with this group. However, analyses of nondonors [51–53] have largely failed to consider their heterogeneity, instead treating them as a homogeneous group [10, 11]. There are (at least) 4 nondonor phenotypes (Table 2) that need to be considered with...
Affect, Memory, and Context Impact

Decisions to Donate

Transfus Med Hemother
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Table 1. Reasoned and reactive approaches, theories, and/or constructs predicting blood donor/nondonor intentions and behavior

<table>
<thead>
<tr>
<th>Framework</th>
<th>Construct(s)</th>
<th>Source* 5</th>
<th>Published studies identified* 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System 1: reasoned approaches to blood donor decision-making</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theory of reasoned action</td>
<td>Attitude, subjective norm, intention, behavior</td>
<td>Google Scholar “theory of reasoned action” AND “blood donation” AND “blood donors” (n = 165 records)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Web of Science TS = (“theory of reasoned” OR “reasoned action”) AND (“donating blood” OR “blood donation” OR “blood donor®”) (n = 12 records)</td>
<td></td>
</tr>
<tr>
<td>Theory of planned behavior</td>
<td>Attitude, subjective norm, perceived behavioral control/efficacy, intention, behavior</td>
<td>Google Scholar “theory of planned” AND “blood donation” AND “blood donors” (n = 532 records)</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Web of Science TS = (“theory of planned”) AND (“donating blood” OR “blood donation” OR “blood donor®”) (n = 60 records)</td>
<td></td>
</tr>
<tr>
<td>Extended TPB</td>
<td>Standard TPB constructs + additional constructs</td>
<td>As above</td>
<td>45</td>
</tr>
<tr>
<td>Self-determination theory</td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Transtheoretical model</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Identity theory (if not already included as part of an extended TPB)</td>
<td>Self-identity, role identity</td>
<td>Web of Science TS = (“role identity” OR “role-identity” OR “self-identity” OR “identity theory” OR “donor identity” OR “role theory”) AND (“donating blood” OR “blood donation” OR “blood donor®”) (n = 31 records)</td>
<td>4</td>
</tr>
<tr>
<td>Perceived moral obligation (if not already part of an extended TPB)</td>
<td>Moral values, moral norms, doing the “right” thing</td>
<td>Web of Science TS = (“moral norm” OR “perceived moral obligation” OR “moral obligation” OR “right thing to do” OR “moral value”) AND (“donating blood” OR “blood donation” OR “blood donor®”) (n = 27 records)</td>
<td>7</td>
</tr>
<tr>
<td>Affect (if not already part of an extended TPB)</td>
<td>Affective component of attitude</td>
<td>Web of Science TS = (“affective attitude” OR [affect AND attitude*]) AND (“donating blood” OR “blood donation” OR “blood donor®”) (n = 48 records)</td>
<td>6</td>
</tr>
<tr>
<td>Anticipated response to a future event (if not already included as part of an extended TPB)</td>
<td>Anticipated affect, anticipated regret</td>
<td>Web of Science TS = (“anticipated regret” OR “anticipatory regret”) AND (“donating blood” OR “blood donation” OR “blood donor®”) (n = 18 records)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Web of Science TS = (“anticipated affect” OR “anticipatory affect”) AND (“donating blood” OR “blood donation” OR “blood donor®”) (n = 1 record)</td>
<td></td>
</tr>
<tr>
<td>Self-efficacy (if not already part of an extended TPB)</td>
<td>Blood donor self-efficacy, interventions designed to enhance self-efficacy</td>
<td>Google Scholar “blood donor self-efficacy” (n = 6 records)</td>
<td>9</td>
</tr>
<tr>
<td>Memory</td>
<td>Memory about blood donation or the blood donation experience</td>
<td>PubMed (“donating blood” OR “blood donation” OR “blood donor” OR “blood donors”) AND memory (n = 111 records)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Web of Science (TS = “donating blood” OR “blood donation” OR “blood donor®”) AND memory (n = 110 records)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Google Scholar cited reference search of Breckler (n = 47 records)</td>
<td></td>
</tr>
</tbody>
</table>

**Total number of published studies taking a reasoned or deliberative approach to donor decision-making**: 107

**System 2: reactive approaches to blood donor decision-making**

| Emotions related to donation/nondonation | | | 24 |
| Warm glow, gratitude, awe, shame, guilt, disgust, reluctant altruism, impure altruism | Google Scholar search “warm glow” AND “blood donation” AND “blood donors” (n = 284 records) | |
| | Search “impure altruism” AND “blood donation” AND “blood donors” (n = 155 records) | |
| | Google Scholar search “reluctant altruism” AND “blood donation” AND “blood donors” (n = 55 records) | |
| | PubMed search (emotions OR emotion OR feelings) AND (“blood donation” OR “blood donor” OR “blood donors”) (all in title/abstract) (n = 211 records) | |
| | Web of Science search TS = (“donating blood” OR “blood donation” OR “blood donor®”) AND (emotion OR emotions OR feelings) (n = 67 records) | |
| Fear, anxiety, distress | Web of Science TS = (“anxiety OR anxious” OR “fear” OR “distress”) AND (“donating blood” OR “blood donation” OR “blood donor®”) (n = 248 records) | 30 |
| State-based reactions | Reactions to contextual features of the blood donation collection facility | As per the searches above | 6 |
| Blood donor/donation reaction inventory (if not already captured in fear/ anxiety studies) | Blood donation/donor reaction inventory used to measure reactive responses | Web of Science TS = (“blood donation reactions inventory”) (n = 6 records) | 7 |
| | Google Scholar “blood donor reactions inventory” (n = 3 records) | |

**Total number of published studies taking a reactive approach to donor decision-making**: 67

* Searches were conducted on June 5–10, 2019. 1 The reference lists of the review papers by Bednall et al. [112], Piersma et al. [18], and Thijsen and Masser [71] were also checked to ensure that all relevant articles were included. 2 Excludes review articles.
No respect to understanding why people do not donate and how to motivate them to donate, i.e., (1) pure free-riders, (2) anticipatory nondonors, (3) lapsed nondonors, and (4) legitimate nondonors. We define these in Table 2, detailing the specific emotional architecture and the interventions that might be successful for each.

Many interventions derived from the TPB have focused on the positively disposed nondonor. In these studies, attempts are made to bolster nondonors’ cognitions, such as perceived behavioral control or its subcomponent of self-efficacy [2], both of which have emerged as strong determinants of individuals’ intentions to donate [22, 54, 55]. Despite primarily targeting cognition, many interventions in fact impact affective processes. In line with this, the Blood Donor Self Efficacy Scale [54] assesses participants’ perceptions of their competence in controlling, preventing, or overcoming anxiety and adverse reactions to blood donation.

Bolstering self-efficacy to compensate for the negative impact of anxiety also influences nondonor behavior. In a study designed to improve the presentation rates of first-time donors who had made an appointment, those who received an electronic version of a brochure designed to assist them in coping with their first donation in conjunction with a call scripted around the same principles attended to donate at a significantly higher rate than those who received only business-as-usual contact [22].

While these interventions show promise, they focus only on anxiety in positively disposed nondonors [22]. How to engage other members of the nondonor population is less well known (see Table 2 for some suggestions). Further, the potential benefit of directly targeting affect, rather than bolstering cognitions, with nondonors has not been fully explored.

### The Prosocial Emotions

The focus of researchers with donors and nondonors alike has primarily been on fear or anxiety. Less frequently explored with these groups are other negative (e.g., guilt and sadness) and positive prosocial emotions (e.g., pride, joy, happiness, and gratitude) [21]. This exploration may be important, as prosocial emotions that motivate donors to present may impact their experience once they are in center. For example, those primarily motivat-

<table>
<thead>
<tr>
<th>Nondonor phenotypes</th>
<th>Description</th>
<th>Cognitive and affective architecture influences on behavior</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonlegitimate free-riders (have no legitimate reason not to donate blood)</td>
<td>The amotivated [113] and precontemplative [12] Unaware of the need for, or do not place value in, blood donation Classic unconditional noncooperators or free-riders in terms of game theory and economic analyses on prosocial behavior directed at providing a public good [114–116]</td>
<td>Have minimal cognitive or affective response to the behavior</td>
<td>Awareness raising</td>
</tr>
<tr>
<td>Pure free-riders  (committed nondonors)</td>
<td>The contemplative [113] Have concluded that blood donation is a good, and perhaps the right, thing to do</td>
<td>Motivated by a variety of affective (e.g., guilt, gratitude, empathy) and cognitive influences to take action [12]; the translation of this positive orientation to actual donation may be derailed by having underestimated the extent to which their visceral drives will in reality impact their behavior (a cold-hot empathy gap [22, 117]); that is underestimated anxiety may derail them</td>
<td>Myth busting, prospective modeling of emotions, emotional coping [22, 54, 55, 118] Voluntary reciprocal altruism</td>
</tr>
<tr>
<td>Anticipatory nondonors</td>
<td>Those with some prior experience of blood donation who have either actively or passively lapsed [119]</td>
<td>Reconstructed memory of their donation experience is likely key, with affect again playing an important role [21] At either a conscious or subconscious level the recall of the blood donation experience for these donors was simply not positive enough to motivate them to return</td>
<td>Voluntary reciprocal altruism</td>
</tr>
<tr>
<td>Lapsed nondonors</td>
<td>Have physical reasons that underpin their decision to stop or with greater anxiety before donating [120, 121]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active deferral</td>
<td>Have a physical, medical, religious or cultural reason not to be able to donate [120, 121]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent deferral, never donated</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Legitimate free-riders (have a legitimate reason not to donate blood)</th>
<th>Description</th>
<th>Cognitive and affective architecture influences on behavior</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure free-riders (committed nondonors)</td>
<td>The amotivated [113] and precontemplative [12] Unaware of the need for, or do not place value in, blood donation Classic unconditional noncooperators or free-riders in terms of game theory and economic analyses on prosocial behavior directed at providing a public good [114–116]</td>
<td>Have minimal cognitive or affective response to the behavior</td>
<td>Awareness raising</td>
</tr>
<tr>
<td>Anticipatory nondonors</td>
<td>Those with some prior experience of blood donation who have either actively or passively lapsed [119]</td>
<td>Reconstructed memory of their donation experience is likely key, with affect again playing an important role [21] At either a conscious or subconscious level the recall of the blood donation experience for these donors was simply not positive enough to motivate them to return</td>
<td>Voluntary reciprocal altruism</td>
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<td>Lapsed nondonors</td>
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<td>Permanent deferral, never donated</td>
<td></td>
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</tbody>
</table>
ed to donate out of gratitude to other donors for helping a loved one may be more willing to endure some degree of discomfort to “pay back” a debt [26]. In contrast, given the positive association between guilt and perceived pain [56] it is reasonable to assume that those who are primarily motivated to donate to reduce guilt may be less willing to cope with pain [57].

Further, the “broaden and build” approach to positive emotions [58] suggests that the presence of positive as well as negative emotions that the donor experiences while waiting to donate in center may also be important. A recent analysis by Masser et al. [59] showed that both first-time and novice whole blood donors report experiencing both positive (e.g., pride and joy) and negative (e.g., sadness, fear, and stress) emotions while waiting to give, with positive emotions more frequently reported. This dominance of positive emotions over negative emotions may be adaptive, resulting in attention being distributed more broadly across the environment. Therefore, those approaching their first donation with (mainly) positive emotions are potentially less attuned to the minute detail of their experience than those who are not [60]. While research exploring the role of in-center emotions is now being conducted [59], the motivational role of affect experienced by the donor prior to attending the donation venue has not been explored.

Developing the idea of prosociality, Ferguson et al. [61] identified that first-time and novice donors can be motivated by reluctant altruism, i.e., the want that results from moral anger and a lack of trust that others will donate. As such, pairing moral anger with a lack of trust in others (to donate) could be harnessed to improve nondonor recruitment [21]. One way to achieve this is through the voluntary reciprocal altruism technique [21], which has recently shown promise in the context of organ donation [62, 63]. Voluntary reciprocal altruism aligns norms of fairness and reciprocity with self-interest by essentially asking if the potential donor would want a blood transfusion to save their life [64]. Answering “yes” highlights a personal potential future need as well as emphasizing that having sufficient blood is contingent on all who can contributing, and if others contribute it is only fair that the person asked the question does as well. Pilot work by Ferguson [65] showed that voluntary reciprocal altruism manipulation resulted in a stronger propensity to make a one-off or repeat donation in both nondonors and donors.

Our Donors Do Not Suffer from Amnesia

In the same way that researchers have not paid sufficient attention to the variability that exists in nondonor populations and the role of prosocial affect, they have also largely failed to consider what within the donor’s experience predicts retention. Most analyses of past experiences have focused on the number of prior donations, or donor identity potentially emerging from a past experience, as having a strong positive association with retention [9, 66, 67]. While we know that past behavior predicts future behavior [68, 69], we do not know the mechanism. Precisely what in the donor’s experience or, perhaps more critically, in their memory of their experience promotes return?

Please Come Back a Second Time

The largest point of attrition for donors is between their first and second donations, with up to 50% of donors failing to return [70]. One consistent predictor of donor attrition is the experience of vasovagal sensations during the first donation [41]. However, even among those who have recorded vasovagal reactions [71], the relationship between reaction and lack of return is not perfect. Some donors who experience reactions return to donate again, while others do not. While the first-time or repeat status of the donor influences the rate of return of these donors [41, 72], other factors that may influence the donor’s perception of their experience and their subsequent impact on return behavior have not been thoroughly investigated.

Emotions and Context

There are likely a multitude of factors that can influence the donor’s in-center experience, or at least their recollection of it as they move away from an initial donation and potentially towards their next. While the impact of some of these in-center factors have been considered on their own, the interplay between them has not. For example, research has established the key role that collection center staff play in the donor experience [73–75]. What has not been considered, however, is how the interpretation of staff interactions varies as a function of the donor’s affective state. The donor who presents out of gratitude may be more willing to tolerate variations in customer service than the one who presents out of guilt. The anxious donor may interpret variations in customer service in a relatively more negative fashion [58, 76]. For other donors, their affective reaction to donating may be further impacted by other contextually salient concerns, such as fear of discrimination on the basis of their ethnicity [77]. While excellence in customer experience should always be the goal, considering both the donor and the context in which they are suggests that the relationship of the in-center experience and donor return may be notably complex [67].

I Think That Was How I Felt Back Then

A key challenge in retaining donors is the fallibility of memory. Regardless of how positive their initial donation experience is, all donors have to wait before they can return to repeat the behavior again. For those not deferred,
this may range from a few days (for plasmapheresis in some countries) up to 16 weeks (for female whole-blood donors in the UK). During this period, the donor is likely to recall their blood donation experience, even if this only occurs when prompted by communication from the blood collection agency to consider donating again when eligible. Some donors will have already committed to returning by rebooking during or just after their initial donation, and this commitment may be sufficient to retain them. Other donors will think back to their initial donation to anticipate their future experience as a blood donor and to ultimately decide whether this is a behavior that they wish to repeat and whether it is a priority given competing demands in their lives [21, 78].

The problem is that memory does not operate like a recording, accurately replaying what occurred in the past. Rather, memories are actively reconstructed at the point of recall and can evolve over time [79]. These reconstructions comprise the actual events that occurred and how donors felt about them at the time, along with current opinions about the behavior, positive or negative experiences associated with donating, and elements of how the donor believes they would have thought or felt about engaging in the behavior (e.g., “I would have felt proud, because donating blood is a good thing to do” [80]). Central to reconstructions are the social aspects of memory. The extensive literature on eyewitness memory provides insight into how easily memory for particular events can be altered through interactions with others [81, 82].

At present the relationship between an actual donation experience, the donor’s memory of this, and subsequent donation behavior is not well understood. While the actual donation experience plays a role, early research by Breckler [83] illustrates the imperfect relationship between experience and memory. Specifically, Breckler [83] assessed the association between emotional states indicated prior to a donation and subsequent recollection of those states. While the relationship between actual and recalled affect was positive and strong, donors tended to recall experiencing more anxiety than they actually indicated prior to their donation. Further, donors’ memories of their emotional experience in the center were influenced by their broader cognitions about blood donation, such that there was a stronger relationship between recalled emotions and donors’ attitudes than between experienced emotions and attitudes. This pattern of responses is consistent with a broader valence effect that is observed in the gap between memory and experience. Miron-Shatz et al. [84] found that, for experiences that contain both positive and negative elements, the magnitude of the memory-experience gap is more pronounced for unpleasant emotions than for pleasant ones. After an event, people report being generally angrier, sadder, or more anxious at the time of the event than they actually indicated in relation to the event as it occurred. Further, positive and negative elements are not weighed equally in an overall evaluation, with negative elements having a stronger impact than positive ones [84, 85]. Thus, interventions should especially target positive emotional experiences relative to negative ones.

**Well, You Said You Had a Bad Time**

Another layer of complexity arises when factors external to the donation experience are considered. For example, media reports concerning blood donors [86], momentary annoyance or delight at unsolicited communication from the blood collection agency [87], and unrelated good or bad events (e.g., the weather) may psychologically get linked to donating and change how the donor recalls their donation experience [88]). Further, interactions with others influence our memories. For example, our subjective experience of an event (e.g., feeling a bit lightheaded) can be altered through how others verbally (“that’s really awful!”) and/or behaviorally (“sit down before you faint and crack your head”) react [81]. These interactions will change how we recall our own experience of donating (“I nearly fainted!”) and they may influence how we subsequently talk about our experience and who we communicate it to [86]. For those donors who have uneventful donations, positive reinforcement of the behavior may encourage an internal attribution for the behavior and help initiate or cement a role identity as a blood donor [9, 86, 89].

**Yes, We Are Guilty of Naval Gazing or the Overly Reductionist Approach to Understanding Our Donors: Where Is the Context?**

With a few exceptions [17, 18, 67], the focus of recent work has been on the donor and the processes or perceptions internal to that individual. Adopting this focus neglects the opportunity that a broader consideration of the social context affords in terms of understanding and, perhaps more critically, influencing donor behavior. Consistent with the cognitivised approach that has dominated donor recruitment and retention [90], our working assumption has been that if we can “fix” how the (would-be) donor thinks about donating then they will be recruited or retained. While it is true that the impact of any change to the context in which a person donates will be mediated through the individual, the cognitive flexibility of, and reframing by, donors can only go so far. As Ajzen [2] noted for the TPB, when perceptions of control (e.g., “I cannot donate”) match reality (“there is no donation center”) then intentions become redundant. Indeed, many TPB questions are formulated in a decontextualised fashion (e.g., “I feel capable of giving blood,” “how much control...
In blood donation the social context can broadly be defined as anything other than the donor themselves and it can be experienced at a number of interlinked levels (Fig. 1). At the widest level, adopting approaches based on the principles embodied in “psychological geography” offers avenues to understanding the donor in a much wider context [91, 92]. Psychological geography applies geographical mapping principles to psychosocial characteristics to explore how they vary within (e.g., region, state, county, electoral ward, and principality) or between countries [93]. Thus, geographical variation in blood donor behavior can be explored and mapped onto psychological, socioeconomic, political, cultural, and health indices across regions [94–96]. At the next level down, cultural beliefs [108] or perceptions (e.g., prejudice [77] and safety [97]) and local community influences such as the social capital present (differentially operationalized as prosocial norms, participation in the local community, connections of friends and family, feelings of trust and safety, and levels of tolerance of diversity [94, 98]) impact decision-making about blood donation.

The next 2 levels include institutional level factors such as trust and pride in the institution responsible for blood collection [99, 100] and the behavior and expectations of those close to the potential donor (e.g., friends and family [86]). Such factors may be particularly important in determining engagement with blood donation relative to other prosocial behaviors.

Finally, specific contextual factors in-center can impact a donor’s experience, ranging from interactions with the other people present (e.g., in-center staff [101] and other donors [102]) to characteristics of the donation venue (e.g., fixed or mobile [67], presence of music [103], televisions [104], and waiting times [40, 105]). While many of these have been shown to be important to the blood donor experience and as often related to donor behavior, how these factors interact with one another, with factors at the other identified levels of analysis and with the (psychological state of the) donor, has not been extensively explored [18].

One exception to this is a recent study by Merz et al. [67], who conducted an innovative analysis using multi-level modeling to take into account both individual level predictors and collection site features in estimating the likelihood that donors would report presenting to donate after an invitation. As expected, presentation rates were predicted by many individual level characteristics (e.g., gender, age, donation history, history of a deferral, a warm glow, self-efficacy, donor identity, and social trust). Importantly, however, collection site features also, and to a much greater extent, influenced behavior – with higher presentation rates associated with greater satisfaction with the collection site and enrolment at a fixed rather than a mobile site. Critically, Merz et al. [67] explored whether differences in presentation rates as a function of individual differences between donors could be explained by features of the collection sites. This analysis showed that the often reported positive association between the number of previous donations and the return to donate only occurred when donors were comparatively dissatisfied with the collection site. For those who were more satisfied, the prior donation history did not influence the subsequent presentation to donate. Thus, working to improve donors’ satisfaction with their site, which in turn may be a function of the donors’ starting affective state [26, 58, 76], may make first-time donors as likely to return as more experienced ones.

The “Promise” of Big Data

Much has been written about the promise of “big data” and the insights it will provide about donors and the longer-term impact of donating on their health [100, 106]. However, the utility of big data approaches in understanding how individual and contextual factors interact to compel someone to become and remain a donor is decidedly less clear. For example, although big data on people’s social networks is freely available through platforms such as Twitter, how social media networks shape blood donation in nonemergency situations remains largely unknown [107]. Recent analyses indicate that social media is likely to be important, especially among young female donors [108].

In blood donor research we are reliant on the establishment of large comprehensive data sets, such as that from the Donor InSight study [109]. These data sets capture a broad range of donor characteristics and the features of the context in which they donate, an integral resource in mapping out the singular and mutual factors that influence the decision to donate.

Where Do We Go from Here?

Building on the analysis presented, below we detail a number of ways forward.

The Potential Role of Affect in Donor Behavior

It is worth revisiting the core assumptions of the models and theories we deploy. Specifically, and consistent with the broader health decision-making literature, we have only recently begun to consider how affect impacts donors’ behavior and whether affect may provide a frame through which donation-related experiences are interpreted [21, 59]. This is despite the noted role of emotions and hot cognitions in prosociality in general [25, 26] and a call more than 10 years ago to integrate the social and behavioral science donor behavior research agendas [110].
The Dynamics of Experience within and outside the Donor Center for Our Donors

While neglecting affect, we have also failed to carefully consider the dynamic process of donor retention and what occurs in the period between one donation and (potentially) the next. Many donors with uneventful donations do not return, and yet some who experience severe adverse events do. We do not yet have a good account of the many and varied factors beside the donor’s actual experience that influence the decision to donate again and this precludes the design of effective interventions to encourage donor retention. As John Lennon sang in Beautiful Boy: “life is what happens to you while you’re busy making other plans” and many events can neutralize even the best donor’s intentions to give again. A recent study by Piersma et al. [111] shows how life events such as childbirth, the death of a family member, or losing a job influences a donor’s decision to stop donating. Donors who recently lost their job perceived themselves to be less healthy, knew fewer other blood donors, and had an increased risk of stopping. Donors who had lost a loved one or had a family member receive a blood transfusion were less likely to stop donating. While we cannot change what goes on in our donors’ lives, we can within reason use our understanding of human memory and the influences on it to intervene to enhance donors’ recollections of their experiences with the aim of reestablishing continued donation as a priority.

The Impact of the Wider Social Context

Our focus on the decision-making processes of the individual donor has led us to neglect the influence of the context in which the donor gives and how this may influence donor behavior. Comprehensive data sets that capture the characteristics of the donors and the contexts in which they give have already provided insights into how traditional individual predictors of donor retention (i.e., number of prior donations) are less important in some contexts [67, 96]. The amassing and analysis of comprehensive big data sets that allow us to systematically examine the interplay between characteristics of nondonors and donors alike and the context in which they (could) give will advance our understanding of when and where resources can be deployed for maximum impact.

Will This Broader Perspective Add Value?

In suggesting these directions for future research, one obvious question is whether considering the role of affect, memory, and context on blood donors’ decision-making will result in anything different from what we already have. As we have acknowledged, it could be argued that the impact of affect, memory, and context on an individual’s behavior is adequately captured through assessing the TPB constructs. For example, intense happiness may translate into a stronger positive attitude to donating mediated through the belief that “donating blood will make me feel good.” Whether the TPB adequately captures all impacts on (would-be) donors’ decision making remains an empirical question. Our assertion is that identifying the elements or processes that feed into these beliefs or evaluations will give us a broader range of targets for intervention. If the affective state at the beginning of donation frames the donation experience and subsequent donation behavior, then we can design emotion regulation interventions to promote the affective state that is most likely to lead to a return [78]. If the memory of the first donation can be altered by the language that is used to talk about that donation [81] then we can script and message using language to promote a positive recollection. Moving beyond our current ways of conceptualizing blood donation behavior will allow us to improve our theorizing about blood donors and potentially about other donors of substances of human origin (e.g., living organ donors and stem cell donors) while improving the translational value of our research.

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Statement of Ethics

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