

The Psychology of Blood Donation: Current Research and Future Directions

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With an ever-increasing demand on blood supplies world-wide, there is an immense need to ensure a safe and sufficient supply of blood products. However, recruiting and retaining blood donors remain key challenges for blood agencies. In an attempt to address these problems, researchers have identified a range of sociodemographic, organizational, physiological, and psychological factors that influence people's willingness to donate blood. Although past research has largely focused on donor recruitment, in particular, demographic variables associated with blood donation behavior, the issue of donor retention has become increasingly important. A growing number of studies have also highlighted the role of

psychological factors in explaining, predicting, and promoting blood donation behavior. In line with recent trends in blood donation research, the present article reviews the contributions of, and current directions in, psychological research on blood donation attitudes and behavior, with special emphasis on donor return and repeat blood donation behavior. Although there is overlap between factors that predict the initiation and the maintenance of blood donation behavior, it is suggested that changes in motivation and the development of self-identity as a blood donor are crucial for understanding the processes whereby first-time donors become repeat donors.

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AFTER TITMUSS,¹ whole blood donation has historically been marketed as “perhaps the purest example”² (p 46) of altruistic or prosocial behavior.³ The debate as to whether whole blood donation should be characterized as a wholly altruistic act or merely a prosocial act is beyond the scope of this article; however, it is noteworthy that whole blood donation (and apheresis donation in Australia) is a behavior that people undertake voluntarily with few obvious or immediate rewards. As Healy⁴ noted in his recent analysis of blood and organ donation, blood is “an odd kind of gift” (p 84). The method of giving and the personal nature of what is given make it different to other altruistic or prosocial acts such as donating money to charity (cf Lee et al⁵). In an age of increasing stringent exclusion criteria stemming from fears about blood safety (eg, variant Creutzfeldt-Jakob disease [vCJD]), it is a rare type of gift in that it is one that may routinely be refused. As Healy⁴ notes, the “call for all,” evident historically in much blood donor marketing (cf ARCBS Winter 2007 campaign), contrasts sharply with the selectivity that blood collection agencies around the world now have to exercise.⁶ As a result of such selectivity, blood collection agencies around the world struggle with how to recruit and retain “life’s best gift givers,” those eligible to donate blood.

In recent decades, a number of excellent reviews have been undertaken to consider both structural (eg, organizational level factors^{4,7,8}) and individual^{7,9-11} level factors that may impact on the decision to donate blood. Reflecting the general body of literature in the area, these reviews have

typically considered influences across the donation life span while noting that there are likely to be differences in the type and strength of the key motivators of new, early career, and well-established donors.^{7,10,12} An emphasis of recent research has been on the role of structural factors in facilitating blood donation.^{4,7,8,13-16} In contrast to this emphasis, the current review primarily focuses on the role of psychological factors in explaining, predicting, and promoting blood donation behavior. Although we agree with Healy⁴ that structural features should be configured to maximize the opportunity for donation, we contend that, ultimately, the resolution to (repeatedly) donate blood remains an inherently personal decision.¹⁷ For the individual who is considering donating blood, it is the perception and relative weighting of many factors that will ultimately determine his or her behavior.^{18,19}

In addition to a specific focus on the role of psychological factors in blood donation, this review explicitly focuses on the psychology of repeat blood donation and considers how donors move from being novice donors to early career status and then to established repeat donors. In considering the

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operational context, one of the key challenges for blood collection agencies across the world is donor retention. Comparable with other westernized countries, in Australia, although 43% of Australian adults donate blood at least once in their lifetime, at any one time, the proportion of active age-eligible donors in the population is only 3.5%.^{20,21} Of those who donate whole blood, only around 60% of new donors return within 2 years to make a further donation, with the retention percentage lower for new plasma donors.²¹ As Chamla et al¹³ noted, from a blood collection agency perspective, repeat donors provide 2 key advantages over first-time or once-only donors. First, repeat donors provide a relatively stable and comparatively safe supply of blood.^{22,23} Second, a body of repeat donors provides the long-term opportunity for blood collection agencies to save on costs associated with continual recruitment of new donors. As such, an understanding of the psychology of repeat blood donation and, specifically, how donors move from being novice donors to early career status and then to established repeat donors is likely to be of particular use and benefit to blood collection agencies.

THEORETICAL FOCUS

Although the need for a better understanding of blood donor behavior has been noted to be of key importance for blood collection agencies internationally,²⁴ much of the previous applied research on donor behavior has failed to draw clearly or systematically on contemporary theories of behavioral decision making.²⁰ Theories in applied

contexts are necessary tools: they integrate and order existing empirical findings as well as serve to guide research by generating new predictions.²⁵ To that end, a number of sociological, psychological, and organizational theories have been applied to the behavior of blood donation.^{7,11} Of those theories, Ferguson et al^{7,9,12} noted that the Theory of Planned Behavior (TPB) (an extension of the Theory of Reasoned Action¹⁸ [TRA]) has been one of the most enduring theories in predicting blood donation intentions and behavior.²⁶

THE THEORY OF PLANNED BEHAVIOR

Building on the TRA of Fishbein and Ajzen,²⁷ the TPB¹⁸ (Fig 1) is a well-known behavioral decision-making model designed to account for behaviors that are not under an individual's complete volitional control. The TPB is based on the premise that intention is the most proximal determinant of behavior. Intention, in turn, is proposed to be influenced by attitude (positive or negative evaluations of performing the behavior), subjective norm (perceptions of social pressure for performance of the behavior), and perceived behavioral control (perceptions of control over performing the behavior). In addition to the indirect influence on behavior via intention, perceived behavioral control is proposed to have a direct effect on behavior for behaviors that cannot be performed at will. It should be noted that some TPB researchers distinguish clearly between the control constructs of perceived behavioral control and self-efficacy (the perception of the ease or difficulty of performing a behavior²⁸), whereas some do not (for

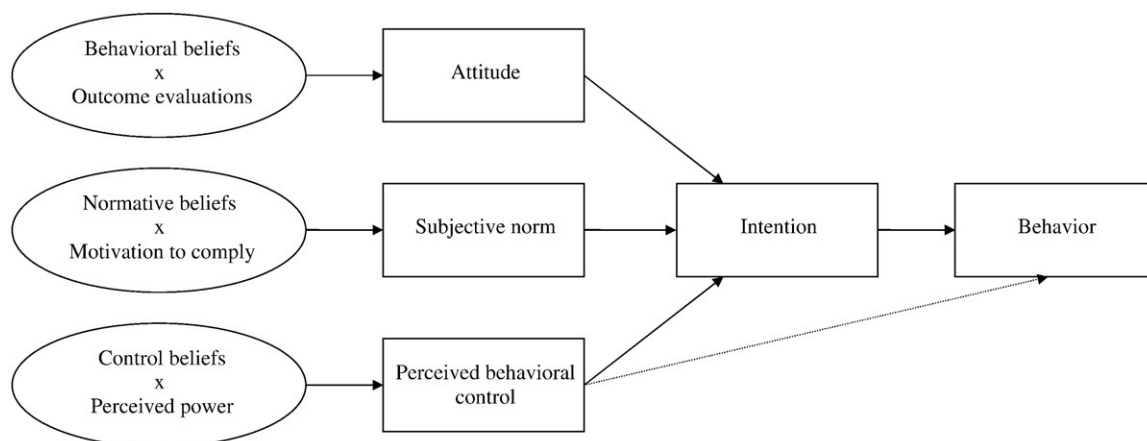


Fig 1. The Theory of Planned Behavior.¹⁸

an overview, see Ref. [29]). For the purposes of the current review, these constructs will be termed as either *control factors* or *perceived behavioral control* (unless a specific reference is made to self-efficacy).

According to Fishbein and Ajzen,²⁷ attitude and norms have additive effects on intentions, the relative strength of which will vary across behaviors and populations. On the basis of an expectancy-value attitude model, people's attitudes are seen as being influenced by their beliefs concerning the consequences of the behavior, weighted by the importance or value placed on these consequences. Subjective norm is determined by the perceived expectations of specific individuals and groups weighted by people's motivation to comply with these referents. Similar to attitude and subjective norm, judgments of perceived behavioral control are proposed to be belief based. Specifically, perceived behavioral control is conceptualized as a function of people's beliefs concerning the likelihood that different factors (control beliefs) may interfere with performance of the behavior weighted by the perceived power of the control factor. According to Ajzen and Fishbein,¹⁹ the underlying beliefs that distinguish behavioral performers from nonperformers (or intenders from nonintenders) should be targeted in any campaigns or efforts designed to increase performance of the focal behavior.

The utility of the TPB approach has been demonstrated in meta-analyses where the TPB model accounts for on average between 39% and 50% of the variance in intention and 27% and 36% of the variance in behavior.²⁸⁻³⁰ Intention is the most consistent predictor of behavior, with control factors often demonstrating a direct role in behavioral prediction, dependent upon the behavior under investigation.^{29,30} An assessment of sample weighted mean correlations suggests that attitude and perceived behavioral control or self-efficacy are generally better predictors of intention than subjective norm.²⁹ Consistent with this observation, Ajzen¹⁸ found that the subjective norm-intention link was nonsignificant for more than half of the 19 extant tests of the TPB. In line with the broader literature that maintains the importance of social influence in determining individuals' behavior, the subjective norm component of the TPB has subsequently been reconceptualized from a variety of different perspectives. These have

included individual differences approaches,³¹ differentiation between norm types,³² and modifications in line with the social identity and self-categorization theory model of group influence.³³

In addition to the weak subjective norm-intention link, other researchers^{34,35} have questioned the sufficiency of the standard TPB model. Indeed, Ajzen¹⁸ himself stated that the TPB is, in principle, open to the inclusion of additional predictors as long as there is a strong theoretical justification for their inclusion and the additions capture a significant portion of unique variance in intentions or behavior. This often cited statement has led many researchers to suggest the incorporation of other constructs to improve the predictive use of the TPB model.³⁶ In relation to blood donation, and specifically with regard to examining how donors move from being novice donors to becoming established repeat donors, a number of additional constructs have been incorporated to increase the predictive ability of the model.⁹ These extensions to the TPB include the addition of moral norm, anticipated regret, past behavior or habit, and self-identity or role identity.

In considering our current knowledge of the psychology of repeat blood donation, this review first considers the contribution of studies adopting a basic TPB framework in predicting blood donation intentions and behavior. Next, consistent with our focus on the psychology of repeat blood donation, we draw on the recent TPB literature and donor behavior literature to consider the evidence for the inclusion of a number of additional constructs in the TPB in attempting to account for the factors that influence blood donors' intentions and behavior over their life span as donors. Further, using an augmented TPB framework, we document specifically how the influences on blood donors' intention and behavior might evolve over the career path of the donor. Finally, we draw on the TPB and the broader donor behavior literature to understand and reflect on the critical role that perceptions of control have on blood donors' early career intentions and behavior.

The TPB and Blood Donation

As one of the most commonly used models of attitude-behavior relations, the TPB and its components have been used successfully by many researchers to predict blood donation intentions

and behavior.⁹ Studies adopting a TPB framework typically use combined samples comprising both blood donors and nondonors.³⁷ More recently, studies have narrowed their focus to the prediction of blood donation decisions according to stage in the donation career (eg, “never” and “ever” donors³⁸), a focus that is crucial as a first step in understanding how first-time blood donors become regular blood donors.²² As noted by Callero and Piliavin²² (see also Ref. [39]), the specific type of factors and relative weighting of the factors that influence the decision to donate blood may well be expected to vary according to the number of times an individual has donated blood in the past. As Ferguson et al⁹ recently noted, however, there is little consensus in the TPB or broader blood donor behavior literature as to how donors at different stages of their blood donation career should be distinguished and defined. For the purposes of this discussion, we have adopted the terminology of “mixed sample” to refer to those studies combining donors and nondonors or where donation history of the sample was not reported, “nondonor” to refer to those who had never donated or where studies identified their sample as nondonors, “first-time donors” to refer to those identified by the authors to have only donated blood a single time, and “donor” to refer to participants who had donated blood in the past. For this latter group, where more fine-grained delineation of donor samples is provided by the authors, this is noted.

A review of studies using the TPB to predict the blood donation intentions and behavior of mixed samples found that the TPB model accounted for between 31% and 72% of the variance in blood donation intentions^{37,40-43} and between 54% and 56% in blood donation behavior.^{37,41} In 3 studies illustrative of standard TPB research in the area,^{37,40,41} the influence of attitudes toward blood donation, subjective norms, and perceived behavioral control on current donor and nondonor students’ blood donation intentions were assessed. In these studies and in line with the TPB, attitude, subjective norm, and perceived behavioral control all significantly predicted intention to donate blood.

Other studies assessing the TPB variables in mixed samples and samples differentiated by donation history have shown a less consistent pattern of findings in predicting blood donation intentions. Specifically, attitude and control factors consistently emerge as predictors of blood donation

intentions in samples that are mixed^{38,41,42} and differentiated by donor history,^{26,38,43,44} with the control component consistently demonstrating the largest β weight of the predictors. The influence of subjective norm on intentions, however, is less consistent (Table 1). For instance, several studies have found subjective norm to contribute significantly to the prediction of blood donation intentions among both donors and nondonors^{5,43,44,46,47} and

Table 1. Augmented TPB Predictors of Intention and Behavior According to Donor Sample

Donor sample	Predictors of intention	Predictors of behavior
Mixed sample*	Attitude ^{37,38,40-42} Subjective norm ^{37,40,45} PBC ^{37,38,40-42,45} Self-identity ^{41,42} Moral norm ^{38,41} Anticipated regret ³⁸ Past behavior or habit ³⁸	Intention ^{37,41,42} PBC ^{42,45} Past behavior or habit ³⁹
First-time donors†	PBC ²⁶ Anticipated regret ²⁶	Intention ²⁶
Donors‡	Attitude ^{44,46} Subjective norm ^{5,44,46} PBC ^{26,38,44} Self-identity ^{5,46} Moral norm ^{26,38}	Intention ^{26,46} PBC ²⁶ Moral norm ²⁶ Anticipated regret ²⁶ Past behavior or habit ⁴⁶
Nondonors§	Anticipated regret ^{26,38} Past behavior or habit ⁵ Attitude ^{38,43} Subjective norm ^{43,47} PBC ^{38,43,47} Moral norm ⁴³ Anticipated regret ³⁸	

Abbreviations: PBC, perceived behavioral control. For the purposes of this table, PBC incorporates perceived behavioral control, perceived control, and self-efficacy.

NOTE. Predictors included in the table are those predictors reported as significant at the final step in the model.

* Mixed samples represent those studies comprising both donors and nondonors or where the composition of the sample has not been identified.

† First-time donor samples represent those studies comprising those who donate for the first time.

‡ Donor samples represent those studies comprising donors who have donated more than once.

§ Nondonor samples represent those studies comprising nondonors or where the sample is identified as such.

in mixed samples⁴⁵; yet, in other studies, subjective norms had no significant effect.^{26,38,41,42}

Although much of the TPB blood donation research assesses influences on blood donation intentions, comparatively few TPB studies provide an assessment of blood donation behavior. Of those studies assessing behavior, intention is the only consistent predictor of behavior.⁷ Despite its consistent influence, however, the relative strength of intention is impacted on by the number of times a behavior, in this case, blood donation, has been performed in the past.^{39,48} Specifically, as behavioral performance increases, the predictive strength of intention decreases. Such a relationship is evident in the recent findings of Godin et al²⁶ reporting a reduction in the predictive strength of intention for experienced donors when compared with new donors.

The influence of control on behavior also appears to be a function of blood donation experience. For instance, in 2 studies using mixed samples,^{37,41} only intention to donate blood (but not control) predicted reported blood donation behavior. In contrast, in the single study that has considered predictors of behavior at different points in the career of the blood donor, Godin et al²⁶ found that perceptions of control over donating were important in the prediction of behavior for donors, but not for those who had only donated a single time (first-time donors).

Across all of these studies, 3 consistent findings are noteworthy. First, in line with the predictions of the TPB model, intention is the only consistent predictor of behavior.⁷ Second, control factors consistently demonstrate the largest β weight and emerge as significant predictors of intention to donate blood regardless of blood donation experience. The important and consistent influence of control on intention, regardless of donation career stage, suggests that a focus on perceptions of control for both nondonors and donors may be particularly effective in increasing intention to donate blood, a point we return to later in this review (see also Ref. [9]). Third, subjective norm emerged as the weakest predictor of intention for nondonors and donors alike. Although this finding is consistent with the application of the TPB in a variety of contexts,¹⁸ it is contrary to the emphasis in the wider blood donation literature on the importance of others' expectations and external normative pressure for the initiation of blood

donation.^{22,46} Although this inconsistency may be due to differences in measurement of the constructs or sampling strategies, it seems more likely that a difference in the conceptualization of social influences on blood donation across studies is the relevant factor.

Modifications of the TPB for Repeated Blood Donation Behavior

In considering the sufficiency of the TPB, questions have been raised as to whether the basic TPB model accounts adequately for moral beliefs or for affective outcomes (either positive or negative) associated with the performance of some behaviors.^{28,49} In the specific context of blood donation, accounting for moral values and affective outcomes may be particularly important because the decision to donate blood is likely to involve a consideration of moral beliefs and the potentially negative outcomes associated with blood donation (eg, anxiety or fear) for some people.^{38,41,49} In attempting to account for factors that influence blood donors' intentions and behavior over their life span as donors, additional constructs have been suggested to augment the standard TPB model. Thus, first, we turn our attention to 2 constructs that have been highlighted as particularly relevant to blood donation behavior, namely, moral norm and anticipated regret, followed by a discussion of 2 factors important to the development of a blood donation career, namely, past behavior or habit and self-identity or role identity.

Moral norm. A number of recent studies^{4,17,50} have noted the rhetoric of morality that surrounds blood donation. Early career donors report feelings of moral satisfaction at donating, whereby donors and nondonors alike equate the act of donating blood with moral superiority.^{17,50} In line with the associations between morality and blood donation documented in the broader literature, research undertaken from an extended TPB perspective has found support for the inclusion of a moral component in relation to blood donation.^{26,38,41,44} Within the TPB, the concept of moral norm (or personal norm) refers to feelings of personal responsibility or duty to perform a behavior.^{18,51} Moral norms have repeatedly been demonstrated to be a significant direct predictor of intention to donate blood^{38,41,43} as well as an indirect predictor of intentions to donate blood via attitude.⁴⁴ Although some

research has focused exclusively on nondonors⁴³ or has used a mixed sample of nondonors and donors in their analyses,⁴¹ other research has sought to investigate explicitly the (relative) importance of an extended TPB model incorporating moral norms (as well as other additional variables) with donor and nondonor samples.³⁸

Godin et al³⁸ used an extended TPB model to predict 1113 Quebec residents' intentions to donate blood within the next 6 months. Respondents were noted to be either nondonors (those who had never given blood) or donors (if they had given blood at some point in the past). For both nondonors and donors, intention was predicted by perceived behavioral control, control beliefs (the belief component of perceived behavioral control), and anticipated regret. However, moral norm only emerged as a significant predictor of intention for donors (not nondonors), with attitude as a non-significant predictor for this donor group. In a sample of first-time and established donors, Godin et al²⁶ replicated this relationship between moral norm and intention for established donors only and, in addition, demonstrated the significant independent impact of moral norm on the repeat donation registration behavior of established donors, the latter finding being consistent with Piliavin and Libby's⁵² study demonstrating a direct effect for personal norm on blood donation behavior.

The integral role of moral norms in determining blood donation intentions for those with a history of blood donation has also been demonstrated in a path analysis.⁴⁴ Using data from 237 undergraduate donors who had an average of 2.9 previous donations at the time of survey, France et al⁴⁴ demonstrated that the model providing the best fit to the data represented the relationship between moral norms (along with the relationship between subjective ratings of physiological reactions to blood donation and satisfaction with the most recent blood donation experience) and intention mediated through attitude. In contrast to the nonsignificance of moral norm for nondonors in the work of Godin et al,^{26,38} Lemmens et al⁴³ used regression analysis to demonstrate a direct effect of moral norm (along with attitude, self-efficacy, and subjective norm, but not anticipated affective consequences) on student nondonors' intentions to register and/or donate blood.

At present, it remains unclear precisely whether moral norms exert a direct or indirect (mediated

through attitude) influence on intentions and/or behavior. Considering the results of Godin et al^{26,38} and France et al,⁴⁴ however, it is evident that the internalization of personal values toward giving blood is a consistent important determinant of the intention to donate blood^{38,44} and actual blood donation behavior²⁶ in at least the early stages of the donor's career. In accordance with this idea, Piliavin and colleagues^{22,53} noted that having internal reasons for donation, such as a perceived moral obligation, is important in the early stages of the donor career for subsequent future donations and the development of a donor career (see also Ref. [5]). In line with this, Misje et al⁵⁴ noted the key importance of a perception of moral obligation for the development of a commitment to the role of blood donor, whereas Fernandez-Montoya et al⁵⁵ reported an increase in attitudes of duty toward giving blood across a 7-year period. As the level of intrinsic motivation increases (eg, feelings of duty or moral obligation), the influence of external social pressure is expected to decrease.²² In short, having intrinsic motivations, operationalized in this context as a personal or moral norm, appears of key importance in maintaining blood donation behavior. However, at present, the precise mechanism by which personal or moral norms operates to maintain behavior over time remains largely untested.

Anticipated regret. In addition to a consideration of moral values, the decision to donate blood may encompass a range of emotionally laden beliefs and consequences, which are not accounted for by the standard TPB model.⁴⁹ Specifically, according to Ajzen and Fishbein,⁵⁶ the TPB is based on the assumption that people make decisions in a rational and systematic way on the basis of the information readily available to them. Such an assumption, however, does not consider that decisions may also be influenced by emotional reactions that impede the rational decision-making process.⁵⁷ In light of this deficiency, the inclusion of anticipated affective reactions within the TPB model has been suggested particularly for those behaviors (such as blood donation) where a discrepancy exists between overall cognitive evaluations of the behavior and emotional or affective reactions.⁵⁸ Evidence for the importance of affective reactions in the blood donation context has been widely demonstrated.^{49,59} Breckler and Wiggins's⁵⁹ analyses, for instance, suggested that, although both donors and

nondonors held favorable cognitions toward blood donation, nondonor's affective evaluation of blood donation was unfavorable compared with the affective evaluations of donors. Furthermore, affective evaluations demonstrated a stronger correlation with the number of previous blood donations than cognitive evaluations.

While overall affective evaluations toward blood donation have been shown to predict blood donation intentions,^{43,58} it is the negative affective evaluations that are most influential on future blood donation return.^{60,61} The experience of anxiety and negative events is particularly important in the early stages of a donor's career, with more inexperienced donors shown to express higher levels of anxiety and negative affect than more experienced donors.¹⁵ Within the TPB model, such negative anticipated affective outcomes have been conceptualized as anticipated regret: the cognitively based emotional experience of regret due to action or inaction in a real or imagined situation.^{29,62}

Although not widely studied in the context of blood donation, anticipated regret may be particularly influential because of its potential use in reflecting a range of negative affective states. The anxiety of new donors and its negative effects on the individual (in terms of vasovagal reactions), their intentions, and their future behavior have been documented extensively.^{60,63} The perception of this anxiety may be operationalized as perceived anticipated regret at donating blood.⁶² Conversely, for those without such anxiety, such as more experienced donors, the negative feelings encompassing regret may result from a failure to donate blood.^{26,58,62} The expectation of experiencing high levels of anticipated regret is suggested to strengthen intention to perform a behavior so the individual may avoid the aversive consequences associated with failing to engage in behavioral performance.⁶⁴

In the first study to consider this construct in the blood donation context, Godin et al³⁸ found anticipated regret at not donating blood in the future to be a significant direct predictor of intentions to donate blood for a mixed sample of donors and nondonors. Furthermore, the significant influence of anticipated regret on blood donation intentions remained stable when the sample was separated into donors and nondonors for analyses. The positive relationship between anticipated regret at not donating blood and intention for current

nondonors documented in this study appears inconsistent with previous research considering the relationship between affective reactions and intentions to donate blood.^{15,43} Although these findings highlight the need for further research with anticipated regret on nondonor populations, it may suggest also that, in the specific context of blood donation, the construct may require revision to incorporate anxiety-related affect.¹⁵ More recently, Godin et al²⁶ replicated the donor sample findings of Godin et al³⁸ with 2070 experienced donors and 160 first-time donors. Within these analyses, anticipated regret at not donating blood in the future was a significantly stronger predictor of intention for those donors at the very beginning of their donor careers than for the more experienced donor group.

In their replication study, Godin et al²⁶ also included an assessment of blood donation behavior, which revealed anticipated regret to have a significant direct influence on blood donation behavior for experienced donors only. Although the role of anticipated regret in moderating the intention-behavior relationship has been demonstrated in studies unrelated to blood donation,⁶² the direct effect of anticipated regret on behavior has not been previously reported in the blood donation literature or elsewhere.²⁶ Because the effect of anticipated regret on behavior was demonstrated for more experienced donors only, it is reasonable to assume that blood donation for this group may result from the desire to avoid the negative affective reactions (ie, regret) associated with failure to donate blood.²⁶ However, absent in the study of Godin et al²⁶ were assessments of other variables documented to impact on repeat blood donation behavior (eg, self-identity as a blood donor⁴⁶). As such, further research is required to clarify the role of anticipated regret as a direct determinant of behavior when self-identity is included as part of an augmented TPB model for repeat blood donors.

While moral norm and anticipated regret have been demonstrated empirically to be useful additions to the basic TPB model in predicting individuals' blood donation intentions and behavior, the addition of 2 further constructs—past behavior/habit and self-identity—may be warranted, particularly for repeat donors. Given that the majority of the blood supply comes from repeat donors, it is crucial to understand the predictors associated with continued donation over time. To

that end, we turn our attention to the 2 constructs of habit/past behavior and self-identity, which have been examined within an extended TPB model for the prediction of repeated blood donation. Although the notion of past behavior is inherent in the formation of an identity and may be difficult to separate the effects of these 2 influences,³⁶ we will consider these 2 constructs separately because independent effects for past behavior and self-identity have been demonstrated in previous research.⁶⁵⁻⁶⁷

Past behavior. One criticism that has been levied against the use of the TRA and TPB in the prediction of blood donation behavior is the fact that these theories tend to focus on single discrete acts rather than on repeated acts. In this respect, a number of blood donation researchers^{46,68,69} have suggested that, for blood donors who are established in their blood donor career, past behavior or habit may be a better predictor of behavior than the standard TRA/TPB constructs. In the context of blood donation, habit has been defined as “the semiautomatic performance of a well-learned behavior.”⁴⁶(p 305) In other words, for some, donating blood may be just something that they do, or intend to do, rather than being based on a deliberate reasoned decision to donate blood.

In an early exploration of the role of habit in blood donation behavior, Bagozzi⁶⁸ found that a consideration of past behavior explained an additional 19% variance in blood donation behavior. More recently, Godin et al³⁸ demonstrated a predictive role for past behavior on intentions for those participants who had donated blood at some point in the past. In an analysis of donors segmented by donation history, Charng et al⁴⁶ found that habit, operationalized as the number of times a donor had given blood in the past, significantly contributed to the explained variance in behavior but only for those donors who had donated 5 times or more. Charng et al⁴⁶ also found that when blood had been donated more than once, but fewer than 5 times, intention was the only significant predictor of behavior. Similarly, Ferguson and Bibby³⁹ found past behavior to be a significant predictor of blood donation behavior for those who had donated 5 or more times, with the behavior of those with 4 or fewer donations determined by intention. Consistent with these findings,^{39,46} Piliavin and Callero¹¹ reported that there were more errors of omission (ie, when strong

intentions to donate were not followed by donation behavior) among early career donors, whereas errors of commission (ie, when only weak intentions were reported, but blood was donated) were more frequent among late-career donors. These data suggest that for those who have donated blood a number of times in the past, behavior appears more under habitual, rather than intentional, control.

Although past behavior has been demonstrated to be a key predictor of blood donation behavior for those who have donated a number of times previously, other research into habit and its influence on behavior suggests that habit may be a context-bound motivator. Aarts et al⁷⁰ (see also Ref. [71]) note that habitual behaviors can be automatically activated by contextual features, and that information searches for those who habitually perform a behavior are biased to the behavior of choice (ie, for those with a habit, information searches for options to achieve their desired outcome are not as extensive as for those whose behavior is not habitual). In the context of blood donation, donors' intentions³⁸ or behaviors^{39,46} may be vulnerable to changes in the context of donation (such as moving a donor mobile site). In addition, habitual blood donors may seek behavior-confirming information (eg, when will I be able to donate blood at the old site again?) rather than engage in a full consideration of all available information.

Self-identity. To the degree that habit may be a context-dependent and, thus, external motivator of future behavior, self-identity or role identity as an internal motivator may be a useful additional construct to the TPB in predicting repeated blood donation. The construct of self-identity can be defined as the extent to which a person perceives him or herself as performing a particular role within society.²⁸ In the case of blood donation, this concept translates to the extent to which a person sees him or herself as a blood donor. Theoretically, the link between self-identity and behavioral intentions is predicated on the basis of identity theory,^{72,73} which conceives of the self as a collection of identities that reflect the roles that a person occupies in the broader social structure. Central to identity theory is the view that, to understand action, it is necessary to conceive of the self and the wider social structure as being inextricably linked. As noted by Callero,⁷⁴ “Role identities, by definition, imply action” (p 205).

In more specific terms, a role can be defined as a set of expectations as to what constitutes role-appropriate behavior.⁷⁵ To engage in role-congruent behavior serves to validate a person's status as a role member.⁷⁴

Piliavin⁵³ proposed that, as a function of repeated performance, individuals come to perceive themselves as the type of person who donates blood, thus, internalizing the identity of blood donor. In a preliminary test of this hypothesis with adult donors from the United States, Piliavin and Callero¹¹ demonstrated that increases in role merger in the context of blood donation were predicted by both expectations of others and the number of donations between the first and second data collection point of their study. As a consequence, the expression of an intention to donate blood became determined primarily by self-identity as a blood donor.

In line with this idea, Charng et al⁴⁶ reasoned that, if a behavior has been performed repeatedly in the past, decisions to engage in it in the future should depend more on the importance of the behavior for the person's self-identity than on judgments and feelings about the behavior (attitude and perceived control) or the perceived expectations of others (conceptualized as subjective norm in the TPB). In other words, when the behavior becomes a relatively automatic response, the role of cognitive determinants of both intention and actual behavior should diminish.⁷⁶ The effect of self-identity, then, should strengthen because repeated performance of the behavior increases both the likelihood that the behavior is an important component of the self-identity and the person's motivation to validate his or her status as a role member.⁷⁴

Charng et al⁴⁶ found that, consistent with their reasoning, donors were more likely to intend to give blood if donating blood was an important part of their self-identity (role-person merger), with intention and habit directly predicting behavior (see also Refs. [41 and 42], which demonstrated direct predictive effects of self-identity on blood donation intention). Furthermore, when Charng et al⁴⁶ considered predictors by number of prior donations, self-identity emerged as and remained a significant predictor of intent for those who had donated blood 2 times or more, with intention being a direct predictor of behavior for all donors. In contrast, the contribution of attitudes toward blood donation to donors' intentions diminished with an increased

number of previous blood donations. For those who had given 5 times or more in the past, past behavior also emerged as a significant direct predictor of blood donation behavior.

Although the data of Charng et al⁴⁶ are limited by their cross-sectional nature and skewed distribution, they are suggestive of a developmental change in the determinants of blood donation intentions and behavior, with self-identity and past behavior implicated as key determinants of repeat blood donation behavior. Furthermore, as noted by Conner and Armitage,³⁶ because past behavior is likely to be formative in an identity, it is probable that the relationship between past behavior and future behavior will be mediated both through self-identity and intention.⁶⁵ In the context of Charng et al,⁴⁶ the combination of the intercorrelation between past behavior and self-identity (see also Ref. [65]) and the method of analysis results in the possibility that the presence of habit in predicting future behavior masks a direct effect of self-identity on behavior in these analyses.¹¹ However, it should be noted that the precise relationship between past behavior and self-identity is not empirically well understood either in the context of blood donation¹¹ (cf Ref. [46]) or for other types of behavior.^{65,66}

Taken together, previous tests of the TRA and TPB provide convincing support linking self-identity to intentions and subsequent behavior. Despite this support, it is somewhat surprising that, to date, self-identity has only been examined in an extended TPB model in 2 studies of mixed samples of donors and nondonors.^{41,42} Furthermore, within full tests of (augmented) TPB models, it remains unclear the extent to which the effects of self-identity vary as a function of repeated experience of blood donation behavior.

STATIC PSYCHOLOGY AND THE CHALLENGE OF THE PSYCHOLOGY OF REPEAT BLOOD DONATION

As Ferguson et al^{7,9,12} have noted, the TPB¹⁸ has been one of the most enduring theories in predicting blood donation intentions and behavior. To that end, it is perhaps surprising that we still know very little about how the transitions from first-time donor to early career donor and then to established donor take place. As Callero and Piliavin²² (p 3) observed 25 years ago, "there has been no effort to study commitment as a gradual developmental process

whereby first-time donors *become* regular donors,” a situation that is unchanged, despite the plethora of research that now exists on donor behavior (but cf Refs. [11 and 12]). Partly, this reflects a sampling or reporting issue with many studies combining nondonor and donors in their analyses (eg, Giles and Cairns³⁷ and Giles et al⁴²), or with donors, regardless of donation history, being treated as a homogenous group. Compounding this problem is the methodological issue that most studies either rely on cross-sectional⁴⁶ or, at best, prospective^{26,38} designs. Typically, within the prospective studies, the aim is to provide a static representation rather than an account of process by which commitment to being a blood donor develops. In recognition of this limitation, to conclude our review, we outline 2 key issues for future research into the careers of donors. First, we consider how an augmented TPB approach may contribute to the understanding of initiation and maintenance of blood donation intentions and behavior across the career path. Second, we draw on this TPB framework and the broader donor behavior literature to understand and reflect on the critical role that perceptions of control appear to have on blood donors’ early career intentions and behavior.

From Initiation to Maintenance

As noted previously, retention of blood donors is of critical importance to blood collection agencies around the world.⁴ The limited longitudinal studies that exist considering the donor throughout their career have noted the importance of the shift in broad motivation from external to internal sources,^{11,12} although the importance of external sources for early career donors has not been consistently supported in TPB research.^{38,46} This proposed shift in the locus of motivation to an internal one, however, concurs with the results of recent research that has highlighted the importance of moral norms in predicting the intentions³⁸ and behavior²⁶ of experienced donors.

When considering precisely how this shift in motivation occurs, the broader donor motivation literature has noted consistently that the successful long-term retention of a donor can be predicted from their behavior in the very early stages of their donor career (Fig 2). Building on the seminal work of James and Matthews,^{77,78} a number of analysts⁷⁹⁻⁸¹ have used survival and logistic regression techniques and cluster analysis to predict donor return behavior. The implication of this body of research is that encouraging first-time donors to

NOVICE DONORS		→	EARLY CAREER DONORS		→	ESTABLISHED DONORS	
INTENT			HABIT			IDENTITY/SELF SCHEMA	
<ul style="list-style-type: none"> Intention determined by attitudes, normative influences and perceived behavioral control, which, in turn, are derived from the weight and positivity or negativity of beliefs underpinning these constructs Other factors also likely to be influential in intention and behavior – specifically anticipated regret at not donating and, later in this phase, moral norms Beliefs likely to be influenced by strategic marketing and donor experience Essential aim – to retain donor for multiple donations in a short-time frame 			<ul style="list-style-type: none"> Repetition of behavior will result in blood donation becoming a habit Habit maintenance (especially during early phase) reliant on regular repetition of attending a clinic with the intention of donating blood and stability of external stimuli (e.g., mobile clinic returning to a specific location at regular intervals) Key challenge is to shift habit into identity. To do this requires: <ul style="list-style-type: none"> Repetition of behavior, Provision to donors of a clear idea of what it means to be a repeat blood donor (e.g. as someone who saves lives and helps others). Emphasis here may also be on moral norms Creation of an awareness that their acts are consistent with those of life's best gift givers – that is an established blood donor. Provision of role cues or signs (e.g., badges, car stickers) 			<ul style="list-style-type: none"> Role identity or schema will act as a lens through which blood donation experience is viewed Blood donors will view blood donation as easy to do, and report 'enjoyment' from carrying out the behavior Critically, these donors will be internally motivated to persist in that behavior even if abandoning this role may be personally advantageous (e.g., would free up time for other activities) Identity or self schemata is, however, dependent on self verification. If self-verification fails (through deferral) then depending on the length of this deferral, these donors may be lost. 	
Self & Structural	Structural		Structural – may be reformulated			Few perceived	Key Control Beliefs
2	3	4	5	→			Number of Donations

Fig 2. Key determinants of donor behavior at stages of the donor career path.

return as soon as possible after their initial donation may be an important way to facilitate the development of the donor career.³⁸

In this very early career or novice donor phase, the literature suggests that blood donation behavior should be largely under intentional control.¹¹ At this phase, the donor's attitudes, perceptions of norms (perhaps emanating from groups important to them³³), and control, along with the weighted beliefs underpinning these constructs, should be key in determining intention to donate blood. In addition, novice donors' intention should be determined by anticipated regret at not donating, or broader anticipated anxiety-related affect,⁸² along with, after further donations, moral norms in support of blood donation.^{38,44} For blood collection agencies, then, the challenge is how to strategically market to and treat these novice donors to encourage them to return as soon as possible after their initial donation³⁸ and to keep returning within that period.^{80,81}

The TPB and broader blood donation literature (Table 1) suggest that special care should be taken with novice donors to retain their positive orientation to donating blood. This special care of early career donors may include, but not be limited to, incorporating techniques to decrease predonation anxiety^{60,61,82} and/or the likelihood of vasovagal reactions to donating^{82,83} and ensuring a positive¹⁴⁻¹⁶ or personalized approach to these donors.¹³ Such interventions will allow the novice donor to retain their positive orientation to donation, as well as to strengthen their belief that blood donation is something they can do (ie, self-efficacy).

From a psychological perspective, the frequent repetition of blood donation behavior,^{39,46} ideally within a relatively constrained time frame, should result in associations in memory between the action (blood donation in this context) and stable features of the context in which the behavior is performed.⁸⁴ Once associations are formed, then stable cues will trigger what is now habitual or routine action. Although Wood et al⁸⁴ propose that habit is separate to and supersedes intention to achieve particular outcomes, for blood donation, habit has been found to both predict intention^{5,38} as well as blood donation behavior.^{39,46,68} In the context of blood donation, frequent repetition of the key behavior should shift the motivation to perform that behavior away from specific outcomes to

triggering stimuli. The implication of this shift in motivation is that "getting the habit" may be an important transition step in the early career of the donor and mark the beginning of the shift away from reasoned decision making to more automatic behavior.⁴⁶ As such, for the blood donor who has given repeatedly, walking past the blood donation center or mobile unit may be enough to trigger either the intention or the critical behavior of donating blood (see also Ref. [9]).

Is Habit Sufficient?

Although habit may represent the first transition in the career of the blood donor, it may be insufficient on its own to retain blood donors over the longer term. As noted, a behavior based on habit, such as blood donation, remains externally, rather than internally, motivated because it is reliant on the stability of context in which the behavior is performed.⁸⁴ Any disturbance in the critical stimuli of this context—the "times, places, and people that are typically present during performance"⁸⁴ (p 919)—may disrupt a habit. Once habitual performance is disrupted, behavior returns to being under intentional control, with intentions being either reformed or retrieved.⁸⁴

In the context of blood donation, habits may be particularly vulnerable. As frequently noted in the literature,⁶ blood donation is not a behavior that can be performed by everyone at all times. For many and varied reasons, donors may routinely be prevented from donating blood; even committed donors may need to self-defer or be deferred from donating for a time.⁸⁵ These donors are, thus, unable to engage in the behavior that maintains the strength of association between the context and behavior.⁷⁰ In addition, donors are vulnerable to changes in the critical stimuli related to the context of the behavior (eg, changes in work or study locations or patterns, mode of transport, workplace schemes, friends' schedules, donor mobile schedules, donor center location, or opening hours), which could potentially result in the blood donation habit of these early career donors reverting to intentional control. Such a reversion may not be disastrous: those who have donated blood even once typically have stronger intentions to donate than those who have never donated.³⁸ However, the long-term retention of those in the habit phase who lapse may be dependent on a reinitiation of strategic marketing targeting the key determinants of inten-

tion to try to reestablish the habit of donation in this early career group.

From Habit to Identity

Although habit may be vulnerable, it may provide an essential transition step for the novice donor in their progress to becoming an established donor.⁴⁶ The more often an early career donor donates blood, the more they will come to develop a self-in-role cognitive schema and perceive themselves as performing this particular role as a blood donor in society.^{41,86} In the context of blood donation, the shift from habit to identity may be a critical one. Although untested in the domain of blood donation, those who hold the identity of a blood donor should be comparatively self-efficacious about the behavior and, critically, internally motivated to persist in that behavior.⁸⁶ At this stage of a donor's career, external motivators to donate should have little impact, although the transition to this stage may be augmented by blood collection agency role cues or role signs,⁸⁷ such as badges or car stickers that disclose their role identity. As Turner⁸⁸ noted, "individuals tend to merge into their person those roles by which significant others identify them" (p 13). Associated with this, however, is the frequently documented strong rejection by established donors of palpable "incentives" to donate, such as money or gift vouchers.⁸⁹ For self-identified donors, such incentives may constitute an identity threat⁹⁰ or call into question their intrinsic and valued motivation for the behavior.⁹¹ As a lens through which the world is viewed, theoretically an identity as a blood donor should act as a buffer to many factors known to influence the intentions and behavior of novice and early career donors (eg, vasovagal reactions⁶³). As Turner⁸⁸ and Stryker and Burke⁹² have noted, those with role-person merger, or a self-identity, resist abandoning the role even when it may be advantageous to do so.

For the blood collection agency, a critical challenge is how to encourage the acquisition of an identity or self-schemata in a blood donor. Role identity theory emphasizes the importance of the repetition of the key behavior as an important step in the process by providing individuals with opportunities to engage in multiple acts of the key role or behavior.^{86,93} In terms of solidifying the role identity merger, Collier and Callero⁸⁶ note that provided that those in the habit of blood donation already have a clear idea of what it means to

repeatedly donate blood and be a blood donor, then the next critical step is creating an awareness among those who continually donate that their acts are consistent with those of established blood donors. This information and emphasis in strategic marketing to those who appear in the habit of blood donation, along with strategic use of role cues or signs, should assist in the final transition of the donor with the habit to the donor with the identity.

The Downside of an Identity-Based Motivation

Although an identity-based motivation has many potential benefits for blood collection agencies, theoretically, it may, under certain circumstances, prove problematic. As noted previously, engaging in role-congruent behavior serves to validate a person's status as a role member.⁷⁴ Consistent with the concept of role-congruent behavior, self-verification, or simply when the meaning of the behavior (donating blood) matches the meaning of the identity (blood donor⁹²), is a fundamental part of identity theory. As such, when an individual is unable to verify an identity, then negative emotions result, and there is a reduced commitment to that identity.⁹⁴ In the blood donation context, self-verification failures are likely to be comparatively common, evidenced by the increasing deferrals from blood donating experienced by both first-time and repeat donors.⁹⁵ For the established blood donor with an identity-based motivation for donating, deferral may result in a reduced commitment to that identity. Although role identities are likely to be able to sustain motivation over short-term deferrals,⁹⁶ longer absences from self-verification are likely to do more harm. For instance, Custer et al⁸⁵ found that only 70% of repeat donors deferred for up to 1 year returned to donate, a figure that contrasts with the return rates of 84% for repeat donors deferred for 1 day and 86% for the repeat donors who were not deferred. In short, the retention of the deferred repeat donors worsened the longer that they were deferred.

For blood collection agencies, the answer to this particular problem is not immediately apparent. Once commitment to a role identity is eroded, the mechanisms for regaining that identity are not clear. Whether a reiteration of the processes involved for the transformation of novice donors into early career donors will be successful, or whether the lens of these repeat blood donors will be jaded forever, remains to be established by empirical research. Theoretically,

the optimal solution would be to allow these identity-motivated donors to remain self-verifying (ie, donating blood). From the perspective of the health of the donor and given operational constraints, that solution may not be possible.⁹⁷ Indeed, even if it were, with the blood of these deferred donors being used for nontransfusion purposes (eg, research), care would need to be taken in ensuring the specific behavior now being engaged in (eg, donating blood for research) accords with the specifics of their identity as a blood donor.⁹⁸

THE ISSUE OF CONTROL

Implicit in the discussion of the shift from initiation to maintenance of blood donation has been the notion of perceived control and the influence that this, and its underpinning constructs, have on the behavior of blood donation. Within the recent blood donor research literature, there has been an increasingly explicit recognition of the significant and prohibitive influence that control factors appear to exert on (would-be) blood donors' intentions and behavior.^{26,43} This recognition has led Schreiber et al¹⁶ to note one such control factor ("convenience") as the bane of our existence. Consistent with this recognition, Harrington et al⁹⁹ (see also Ref. [16]) noted that there remains a clear need for research into the reasons for, and barriers that prevent, donating blood, in addition to research to overcome these perceived barriers. As the final section of this review article, we will consider control factors as a direction for future research; specifically, we examine what we know and what we need to know about the role of control in the psychology of the repeat blood donor.

Within the TPB literature, although conceptually similar,¹⁸ perceptions of control have often been operationalized as either perceived behavioral control (perceptions of the degree to which a performing a behavior is within one's control) or self-efficacy (perceptions of the perceived ease or difficulty of performing a behavior²⁹), with some researchers incorporating both constructs under the label of perceived behavioral control. These perceptions of control are underpinned by beliefs centering on perceived barriers (and facilitators) to the performance of the behavior. From a TPB approach, in the context of blood donation, 2 key aspects of control are commonly noted. Specifically, those aspects of control that focus on the donor and their own fears about the process (eg, fear of needles) or

outcome (fear of fainting, feeling sick, feeling weak, catching an infection) are distinguished from those aspects of control that focus on more structural elements or implications of the act of donating blood (eg, losing time from study or work, being too busy, inconvenience, receiving a payment or incentive).^{37,42} Both aspects of control have been reflected in the wider literature surrounding blood donation behavior. As noted, anxiety and the fear/reality of vasovagal reactions have been frequently documented to act as powerful barriers or deterrents to both forming the intention to donate blood⁸³ and returning to donate blood again.⁶⁰ Similarly, structural elements, in the form of providing ease of access to donation sites, such as more frequent clinics/sessions and more flexible opening hours⁹⁹ and convenience,¹⁶ have been explicitly noted as facilitators of blood donation intentions for both nondonors and lapsed donors. Arguably though, it is the perception of these structural factors, rather than the reality of them, that will impact most on nondonors and lapsed donors' intentions.

For control factors centering on the self, the perceptions to be overcome appear to focus on physiological reactions such as fainting or feeling sick. In line with this focus on physiological reactions, a number of effective intervention strategies have been devised to assist with the reality and perception of such barriers (eg, applied muscle tension^{82,83}).

For those barriers centering on structural elements or implications of the act of donating blood, the ability of researchers and blood collection agencies to deal effectively with those factors appears, at present, to be less certain. In comparison with barriers centering on the self, the key perceptions to be overcome are less tangible (eg, inconvenience) and, thus, potentially more challenging. As Kolins and Herron¹⁰⁰ noted, "inconvenience" is a factor that appears to deter disproportionately younger potential donors (those belonging to Generation X onward). As such, control factors and how to overcome their impact on would-be donors' intentions and behaviors represent an ongoing and increasing challenge to blood collection agencies. On the basis of research to date, straightforward solutions, such as more donation sites and longer clinic hours, have been proposed by some.^{16,99} For the control factor of inconvenience, where perceptions equate to the reality of inconvenience, such solutions may be effective.⁷ However, for some people, the perception of these control

factors, such as inconvenience, will have little or no relationship to the reality of those factors. For those would-be donors, it seems that such control factors will remain insurmountable barriers to blood donation until their perceptions ("it is convenient for me to donate blood now") accord with reality ("and here is a blood collection center").

Is Control Consistent Across the Donor Career?

A further challenge in blood donor behavior research is considering how perceptions of control may have a differential impact over the career path of a donor. The influence of varying types of control factors across the differing stages of a donor's career has not yet been examined systematically within the literature; however, some predictions can be made on the basis of theory and existing research. Although not the focus of this review, the decisions of nondonors to donate may well be determined by their self-efficacy (ie, at this stage, an untested belief within themselves that they can donate blood). In part, their perception of self-efficacy may be influenced by their general beliefs about the process (such as a fear of needles), outcome (whether they will feel sick or faint), and structural elements (is it convenient for me to give blood). Consistent with this assertion, both Armitage and Conner⁴¹ and Giles et al⁴² note the contribution of self-efficacy in predicting the intention of their participants to donate blood. (Although the participant sample was not differentiated by past blood donation behavior.) Within these studies, the control beliefs found to be related to self-efficacy⁴¹ or to differentiate between those who donated (in the context of their study) and those who did not⁴² were beliefs centering on respondents' fear of the process (eg, fear of needles^{41,42}) or outcome (eg, fear of fainting, feeling sick, and/or catching an infection⁴²), as well as those centering on structural elements (eg, "amount of time taken to donate blood"⁴¹).

For those who have donated once, their transition into novice donors who return to donate again may well be determined largely by their initial experience as a blood donor.^{22,60,82,83} For the novice donors, their beliefs are now based on actual experience. It is likely that most of those people who return to give a second time will have a personal sense of self-efficacy (ie, they have given once and so are likely to believe themselves able to give again). However, some people who return will not be self-efficacious and may have had their

negative beliefs about donating realized (through experiencing a fear of needles or vasovagal reaction). For these novice donors, whose actions remain under intentional control, their return is best explained by considering the TPB model in its entirety. For these donors, the perceived power of these barriers may not be great, or may be outweighed by the power of the facilitators of the behavior. Alternatively, other contributors to these novice donors' intentions (such as attitude or norms) may outweigh the control factors in determining their intention to donate blood.

For the novice donor who successfully donates for a second and third time, self-efficacy in their personal ability to carry out the behavior may remain high and plateau. For example, these donors may not experience vasovagal reactions or may not perceive them as powerful deterrents to donating.⁴² However, it is likely that, for the novice donor, the intention to donate blood will still be impacted upon by structural elements or implications of the act of donating blood (eg, perceived inconvenience, being too busy, blood donation taking too long, receiving a payment or incentive). Callero and Piliavin²² noted in their analysis of donors who returned for a third donation that the structural factor of a short waiting time became a stronger determinant of behavior at this point of the donor's career than it had previously. Similarly, Giles et al⁴² found that only a structural belief regarding the efficiency of the blood collection operation differentiated between current donors who demonstrated a high and low intention to donate again. For the novice donor, these structural control factors will be compared with, and weighted against, other determinants of intention. If this reasoning allows for the repetition of the key behavior, then the novice donor will move to early career status where blood donation becomes a habit.

For some people, however, this reasoning will not, without intervention, allow for the critical early-stage repetition of blood donation. Although their general orientation (eg, attitudes and perceived norms) to donating blood may be positive, structural elements may prove prohibitive to the behavior. For the "time poor" donor, notification that the end of their compulsory deferral period is about to occur may lead to a perception of inconvenience of donating when the behavior is weighted against or compared with all the other competing demands in their diary. For these donors, whose behavior is still

largely under intentional control, intervention by the blood collection agencies on the key determinants of intention may be required to encourage repeat blood donation. These interventions may aim to bolster the relative weight of the other key determinants of these donors' intentions through strategic marketing and treatment by the blood collection agency, as well as to attempt to diminish the relative weight of the control element that works to deter donation. As Ferguson et al⁹ noted, a number of structural barriers to donation may be overcome by making blood donation a truly planned behavior, akin to attending the dentist or doctor. Providing the donor's orientation to the key behavior is generally positive³⁸; addressing the key barrier to intention may be critical. To that extent, donors who do not return should be contacted by the blood collection agency and key (common) structural barriers to donating challenged (eg, inconvenience). This strategy may involve bringing the donors' attention to alternative times at some point further in the future or notifying them of alternative sites. At this point, the donors should be encouraged to book in and commit to a time, blocking out an appropriate period in their schedule.¹⁰¹

Once behavior moves from being determined by intention to being determined by habit, it becomes reliant on a stability of context for the behavior to be performed.⁸⁴ At this stage, for donors whose context remains stable, blood donation may come to be seen as a relatively easy act to perform; these donors will have high levels of control. However, for those who donate blood out of habit, whose contextual cues to donation change, then the habit of donation may be broken, the behavior of blood donation may revert to intentional control, and the beliefs underpinning perceived behavior control may be reformulated or reweighted.⁸⁴ As such, perceived inconvenience (as caused by the context change) may come to be a key determinant of intention to and/or the behavior of donating blood.⁹⁹ For blood collection agencies, the challenge with this group of early career donors who lapse will be to allow them to reconceive of blood donation as a behavior that is convenient for them to perform. Akin to the needs of the novice donors, the lapsed early career donors will need to be encouraged to actively construct ways in which the behavior of blood donation may again become convenient or easy for them to perform.

For control factors, once again, the shift from habit to identity may be a critical one. Theoretically,

external motivators or deterrents to blood donation should have little impact on role identity, as long as they do not threaten the identity of the donor.⁹⁰ The donor's identity should act to protect them against internal and external barriers to donation that may impact earlier in their careers; in short, their perception of control should increase.^{46,88} As such, these donors are the ones who are likely to persist in donating even in the face of internal (eg, vasovagal reactions²³) or external (eg, inconvenience¹⁵) barriers known to deter novice and early career donors. Self-verification for this group, by donating blood, is the key. As Fernandez-Montoya et al⁵⁵ noted in their 7-year longitudinal study of repeat blood donation, the most loyal and regular donors were the ones who accepted minor inconveniences associated with the act of donating. These donors are resigned to some inconveniences (eg, long waiting times) and become willing or are motivated to work around them.¹⁵

THE PSYCHOLOGY OF THE REPEAT BLOOD DONOR—SOME CONCLUDING REMARKS

In this review, we have explicitly sought to examine the psychology of repeat blood donation, that is, to consider the myriad of influences that act on some people to make them "life's best gift givers." Noting the dominance of Ajzen's¹⁸ TPB in this field,^{7,8,12,26} we have systematically examined the efficacy of the basic model and proposed revisions to that model, in terms of moral norm, anticipated regret, past behavior/habit, and self-identity or role identity, in accounting for the repeat blood donor's behavior. In attempting to consider the psychology of the repeat donor and how influences on their intention and behavior may vary in strength and influence over the donor career path, our analysis has been hampered by the lack of consistency in definitions that exist in the blood donor behavior research body.⁹ Samples in many studies are either undifferentiated by history (eg, donors and nondonors are treated as one⁴¹) or are broadly categorized into nondonor and donor groups,⁴² with little recognition that the key determinants of intention and behavior may vary the more often a donor donates.¹⁵ As Ferguson et al⁹ noted, where distinctions are made, there is little consistency across authors as to what constitutes an early career or established donor. For practical reasons, studies into donor behavior are typically short term, considering either the intention or behavior of donation over a

short time frame.⁴¹ Although this gives an insight into the key influences on behavior of nondonors,⁴³ novice donors, or more established donors,^{26,44} there is not an established body of literature that demonstrates how the transformation from novice to early career to established donors takes place. In short, the donor behavior literature tells a rich story of the static psychology of the blood donor, but leaves us relatively uninformed as to how the influences on the intention and behavior of blood donors evolve over the donor's career path.

When considering future directions for the psychology of blood donation, we have drawn on the modified TPB framework and existing research to suggest how the psychology of blood donation may evolve over the life span of the donor. In doing so, we are obviously indebted to others, most notably Piliavin and Callero¹¹ and Ferguson and Chandler,¹² who have proposed and tested models of the life cycle of the donor from alternative theoretical perspectives. In framing our proposal in terms of TPB constructs and drawing on the existing broad body of research on donor behavior, we aimed to integrate what we know about donor behavior into a well-established theoretical framework that is easy to comprehend, consistent with current research findings, and suggests some strategies, although largely untested, that focus on retaining return donors at various points in the donor career path.¹⁰ By highlighting the key determinants of intention and behavior at the various stages of the donor's career, we hope to have demonstrated how each phase of a donor's career path requires careful management by blood collection agencies. Even for the most robust of blood donors (ie, those who self-identify or who have a self-schema as a blood donor) pitfalls, such as deferral, may routinely be encountered.

Within this analysis, we have also highlighted the critical role that control factors, be they perceived behavioral control, self-efficacy, or control beliefs, play in the psychology of the (repeat) blood donor.¹⁶ Central in the consideration of control factors is the

influence that perception of control (rather than actual control in reality) has on intention and behavior. Again, we have argued that the specific nature of the key control factors may vary over the life cycle of the donor. Although novice donors may be deterred by factors perceived to be both internal and external to themselves, structural factors may become critically important for donors in the early career phase. The perceived structure of the behavior is critical for the habit of blood donation to be maintained, and any changes to that structure may have damaging consequences in terms of habit maintenance and intention to donate blood. Those blood donors who progress to the established career phase may be less affected or impacted on by control factors. For these donors, self-verification is the key, and the behavior of blood donation will be maintained even in the presence of quite significant barriers to that behavior.

In conclusion, we reiterate the call of Gillespie and Hillyer¹⁰ for the increasing use of optimal methodologies and approaches to the challenge of understanding the psychology of repeat blood donation. Understanding donor behavior has been highlighted as a critical area for research around the world,²⁴ and understanding the behavior of repeat blood donors is perhaps the most important, but difficult, challenge of them all. As proclaimed by blood collection agencies, blood donors have a precious gift to share that often leads to the saving of other's lives. For researchers, the ongoing challenge is to provide an understanding of the psychology of blood donors and document empirically the key factors that combine to determine the long-term retention of blood donors.

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