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CONGRESS REVIEW

Strategies and theories to attract and retain blood donors: fairness, reciprocity, equity and warm-glow

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Background and Objectives This paper sets out the case that fairness and reciprocity are critical to donor recruitment and warm glow is central to donor retention.

Materials and Methods Narrative review.

Results I show that blood donors, compared to non-donors, are more sensitive to violations of fairness. I argue that interventions that tap into reciprocity and fairness (e.g. voluntary reciprocal altruism) and the inequality in health between donors and recipients are likely to be effective in recruiting new donors. Once recruited, donors with greater experienced warm glow will remain as donors and those with weaker warm glow will relapse: a self-selection mechanism. I argue that warm glow messages can, therefore, be used to enhance retention rates in new donors with lower levels of warm glow. I also show how research on emotions (prosocial emotions and emotional trajectories), sexual selection and trust offers new and exciting avenues for donor recruitment.

Conclusion Warm glow is central to retaining blood donors and fairness and reciprocity to recruiting them.

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Key words: blood donation, fairness, trust reciprocity, warm-glow.

Overview

In this paper, I argue that fairness, reciprocity and inequality aversion are key for donor recruitment and that warm glow is critical for blood donor retention and describe interventions that tap into these constructs. I will conclude with a brief examination of new avenues for research extending blood donor research into uncharted territories (e.g. sexual selection).

Behaviourally blood donation is an archetypal act of cooperation or altruism. The donor pays a *cost* (e.g. time to donate, potential pain) as well as gains benefits (e.g. warm-glow), to *benefit* a *stranger* (the recipient). The donor–recipient link is *anonymous, with* blood donation also characterized by a high rate of *free-riding* (3–4% of the eligible population donate blood at any one time) [1]. Thus, Ferguson [2] has argued that the theories of cooperation and altruism, developed across a wide range of academic disciplines (e.g. biology, economics, psychology), should be applied to understand both one-off and repeat donations. Therefore, I focus on theories of human cooperation to understand donor behaviour and inform interventions. I will initially describe work and interventions on donor recruitment, followed by retention, and finish by looking at new and developing areas.

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Recruitment of blood donors: fairness and reciprocity

Background

Here, I explore the roles of fairness, reciprocity and inequality aversion and the types of interventions they suggest for recruitment.

Fairness and inequality aversion

Blood donors, compared to non-donors, are more likely to punish (at a personal cost) people who have treated them unfairly [3]. However, when a blood donor is an *uninvolved* witness to someone else being treated unfairly, they choose to pay a cost to help the victim rather than pay a cost to punish the perpetrator [4–6]. Thus, donors, compared to non-donors, are more sensitive to violations of norms of fairness and have a strong preference to re-establish fairness. This is achieved via a general societal route [5] by punishing the perpetrator of unfairness when punishment is the only option [3], but by a victim-focused approach when the options to help and punish are both available [6]. Such a drive to re-establish fairness is theoretically driven by a desire to reduce inequality between self and others: *inequality aversion* [7]. Inequality aversion comes in two forms: (1) advantageous inequality aversion [AIA] when one person is relatively better-off than another and (2) disadvantageous inequality aversion [DIA] when one person is relatively worse off than another. The mechanism to reduce the advantageous inequality is *guilt* and disadvantageous inequality is *envy* [7].

Reciprocity

By way of background, reciprocity comes in two main forms (direct and indirect). Direct reciprocity refers to the expectation that by helping someone, who the helper expects to see again, increase the probability that the helpee will repay the favour ('A' helps 'B' and 'B' later repays 'A': sequence A-B, B-A). Indirect reciprocity has two types (downstream and upstream) [8]. *Downstream indirect reciprocity* (also known as 'pay-it-back' reciprocity) works as the cooperator gains a *positive reputation* (either via direct observation or gossip) from helping, which increases the likelihood they will be helped in the future (A' helps 'B' and 'C' knows of 'A's' good reputation', 'C' then helps 'A': sequence A-B, C-A) [9]. *Upstream indirect reciprocity* (also known as 'pay-it-forward' reciprocity) refers to a person ('B') going on to help another person ('C) because they have been previously helped by someone else 'A' (sequence A-B, B-C).

As recipients of blood neither know who donated the blood for their transfusion *nor* can they donate, reciprocity, especially direct reciprocity, has traditionally been considered not possible within the context of blood donation [2]. However, Ferguson *et al.* [10] identified forms of direct and indirect reciprocity that are possible.

The form of direct reciprocity that Ferguson *et al.* [10] describe is based on the assumption that 'A' in the above sequences refers to the 'transfusion service' and not an individual. This is a reasonable assumption as reciprocity towards organizations and groups has been reported [11]. The specific direct reciprocity that was reported by Ferguson *et al.* [10] was termed *'direct reciprocity – promised'*, as it focuses on a very particular group who were told that they would need a transfusion but never received one. This intended transfusion motivated them to become a donor [10]. Indeed, intentions to help can be as strong a motivation for direct reciprocity as actual helping [12]. Ferguson *et al.* [10] also showed how downstream indirect reciprocity is possible. That is, someone (C) donates blood to repay the transfusion service (A) for helping someone they know (B). This was supported by qualitative quotes such as 'To repay the gift of blood given to my partner'. Reputation is the mechanism believed to support downstream indirect reciprocity [8] and as such, it is critical that blood services maintain a good reputation.

Interventions for reciprocity, inequality aversion and fairness

How can fairness and reciprocity be translated into interventions to recruit mew donors?

Inequality aversion

Inequality aversion can be harnessed to recruit donors by focusing on the inequality in health between healthier donors and less healthy recipients. Blood is then the currency that can be used to reduce this inequality. An AIA appeal based on this idea would be: 'As a healthy person, you can give blood and help those less healthy than you.' [6, 10]. A recent study has shown that potential campaigns based on AIA messages of this type are likely to increase the propensity of non-donors to become blood donors [6]. As such, an AIA approach is worthy of future consideration for recruiting non-donors.

Reciprocity

Voluntary reciprocal altruism (VRA) is an intervention that focuses on fairness and reciprocity and is a simple 2-question intervention that could enhance donor recruitment [13]. The first question (the *acceptance/want* question) asks potential donors if they would be willing to accept a blood transfusion: 'I would accept a blood transfusion to save *my* life: Yes or No'. By agreeing to this question, potential donors must consider (1) that they may potentially require blood in the future and (2) that to meet this need for blood *everyone* must contribute. Thus, *self-benefits* and *fairness* are highlighted to potential donors. The second question (the *willingness* question) asks about a potential donor's willingness to donate blood: 'I would be willing to donate blood: Yes or No'. If a potential donor is willing to accept a transfusion, by answering 'Yes' to question 1, it is only *fair* that they should *reciprocate* with those who have already given blood and agree to donate blood themselves through answering Yes to question 2. We

have shown that a VRA intervention, and in particular the use of the 'acceptance/want' question, is a powerful motivator for enhance non-donors expressed willingness to make an initial donation, and via this their propensity to seek out further information on registering as a donor [14]. As such, a VRA approach should be a powerful tool to recruit new donors.

Conclusions

Fairness, inequality aversion and reciprocity are all important motivators for first-time donors. These can be translated into interventions such as VRA or ones based on AIA.

Retention: warm glow and the donor experience

Background

In this section, I describe the concept of warm glow, why it is central to blood donor retention, and how this can be harnessed for interventions.

Andreoni [15] distinguished preference for giving based on 'pure altruism', 'warm glow' and 'impure altruism'. The 'pure altruist' is motivated to give to achieve the public good. For example, a pure altruist will stop giving once a charity appeal has reached its target. For blood donation, those who are motivated by pure altruism would stop donating once there is sufficient blood to meet the demand. As blood shortages occur extremely rarely, pure altruism is unlikely to be a motivation for blood donation. The warm glow giver gives because the act of giving itself makes the donor feel good – they receive the warm glow of giving. Thus, warm-glow givers continue to give even when the public good is met [16–17]. As there are rarely shortages of blood, warm-glow giving is likely to be a good candidate motivation for continued donation. The basic warm glow model is supported by a large number of laboratory and field-based studies [16–21]. The 'impure altruist' gives because they care about the pubic good being met and also gain warm-glow from giving. Thus, blood donors may also be impure altruists. However, cumulative evidence from economic games [22], experiments [23] and psychometric studies [24–26] shows that blood donors, especially repeat donors, are motivated by warm glow. This effect is potentially attributable to warm-glow acting as a reinforcer that shapes future donor behaviour [27]. In support of this claim, warm-glow activates the brain's reward centres [18], does not habituate [20], and acts as a future expected reward [17]. Thus, a reinforced association is formed between the act of donation and warm glow. This suggests that the stronger the initial warm glow, the more likely blood donation is to be repeated. Thus, a self-selecting phenomenon may occur whereby donors with higher levels of warm glow are more likely to return, and those with lower experienced warm glow less likely to return. Therefore, re-igniting or boosting feelings of warm-glow nearer to the time of the next donation may be helpful to encourage those with lower initial warm-glow to attend to make a subsequent donation.

Interventions to boost warm glow for repeat donations

To test the above hypothesis, we ran a large-scale RCT in conjunction with LifeBlood in Australia and the University of Queensland. The RCT examined whether warm-glow could be boosted for 1st-time donors to enhance the 1st to 2nd donation conversion rate. As warm glow is the most effective for experienced donors [25], we supplemented the warm glow message with a donor identity prime to catalyse the effect of warm glow for new donors. We compared a warm-glow-plus-identity message against a business as usual (BAU) control and 3 other messages (warm-glow with no identity prime, and two messages that targeted impure altruism either with or without a donor identity prime). We compared the effectiveness of these messages on those who either rebooked in centre after their 1st donation (high warm glow) and those who did not (low warm glow). The results showed that those who had rebooked in centre were more likely to return 3 months later to donate, as were those who received the warm-glow-plus-donor-identity message with this effect for the warm-glow-plus-donor-identity message stronger in those who had not rebooked in the centre. Thus, this simple warm-glow-plus-donor-identity message enhanced the return rates overall and especially in those who are generally less likely to return (a low warm glow group) [28].

Conclusions

Warm glow is an important motivation for repeat donation, and this can be easily and effectively translated into a simple message to enhance return rates for 1st- to 2nd-time donors.

New developments

In this final section, I will highlight some of the cutting-edge research being conducted now and its implications for interventions.

Moral and prosocial emotions

As a prosocial cooperative act, it is reasonable to conjecture that blood donation should be motivated by prosocial emotions (e.g. gratitude, guilt, shame, empathy) [29–30].

Haidt [31] defines several families of moral emotions, two of which relate to pro-sociality within blood donation. The first is the 'other-praising emotions' of gratitude, awe and moral elevation tendency (GAM family). From the GAM family, generalized gratitude (gratitude directed at the positive aspects of life in general) and 'moral elevation and awe' have recently been identified as potential motivators for blood donation [10, 14]. Moral elevation occurs when a person witnesses another uphold the highest moral virtues and leads to prosocial behaviour [32]. This can be engendered by elevating blood donors or donor services (see 10 for more details).

The second is the 'self-conscious emotions' of shame, embarrassment and guilt (SEG family). From the SEG family, guilt has been identified as a motivator for blood donation [33]. However, if guilt appeals are seen as manipulative, this can lead to anger and reactance and be counter-productive [34]. Messages based on AIA as described above may be beneficial here as they increase feelings of guilt but this acts to energize donation [6].

Emotional trajectories

It is not only the one-off experience of emotions that is now being examined but also how emotions change over time. Studies are now starting to explore how the natural history of emotions, both across a single donation and between donations, influences who returns and if it is possible to identify donors with different patterns of emotional change? This work has shown that across a single donation donors experienced different trajectories of emotions and those with a trajectory of medium-high/increasing joy, high calm and low/decreasing stress across a donation had a greater probability of return [35]. Thus, a greater understanding of emotional processes is important for developing more targeted interventions (in terms of timings and focus on specific emotions).

Exploring how emotions change over the longer time scale between donations informs us about how donors reconstruct their emotional experiences of their donation: Do donors over-estimate positive emotions or do negative emotions at the time of donation get recalled as being worse than they were? This involves understating the complex dynamic interactions between the encoding and recall of emotions and context. Ferguson and Masser [30] have taken some initial steps in this direction by developing a theoretical model to try and understand this dynamic process.

Sexual selection and costly signals

Sexual selection describes the process of competition for access to mates that can lead to several long-term fitness advantages including increased: (1) generic quality of offspring and (2) parental care/resources [36–37]. Sexual selection is a complex phenomenon encompassing female choice [37], male choice [36–37], mutual choice [38], cooperation between males to attract females [39], competition between females [40–41] and moderation by genetic architecture [42] [see 36 for a review]. But ultimately mate choice is based on displays of costly signals which are used to attract a mate by signalling the organism's fitness to sustain a cost, without detriment, relative to others who cannot [43].

Blood donation fulfils the characteristics to be a costly signal [43]. It is *costly* to the donor in terms of pain, time and blood loss, with these costs *reliably* acknowledged by others [44] and the donor *benefits* from signalling desirable qualities (e.g. good health and virtue –a willingness to help strangers they will never meet). Furthermore, displays of altruism are regarded as a potentially costly signal [45]. Thus, blood donors are healthy, fit, generous and kind. All of these are qualities that are looked for in a mate [46]. Consistent with this, there is evidence that blood donation is a signal to attract a mate, with people stating that they would be more likely to tell someone they were a blood donor when trying the establish romantic relationships rather than platonic friendships [47].

However, to act as a costly signal the behaviour needs to be observable. As blood donation is generally a private act, the observability criteria become crucial if it is to act as a costly signal. One solution to this is *honest communication* [48]. Zollman *et al.* [48] suggest that a costly signal may be honestly communicated if the cost to the person's reputation, of being caught lying about the signal, is greater than the cost of not communicating it. That is, getting caught lying about blood donation is worse for the individual's reputation, than not claiming to be a blood donor. One way to do this is to legitimize the communication and this can be achieved by blood agencies providing external observable tokens that a person has donated blood. Recent work shows that one such external token, a bandage with the blood transfusion agency insignia on it, signals that a male blood donor is seen as generous and moral by a female observer [49]. Such simple steps may encourage more males to donate but requires further investigation. Also, sexual selection models should equally be applied to female donors [37–38].

Trust

While trust is a key mechanism supporting cooperation and reciprocity [50–51], there is a relatively small amount of work examining trust and blood donation and the majority has examined trust in the transfusion services [52–54]. With the general finding that a lack of trust in

transfusion services is associated with a reduced probability of donating blood [52–53]. However, trust covers many domains including not only transfusion services but also healthcare providers in general, political processes, 'out-groups' (people of other faiths and nationalities) and 'others' (other people/stranger in general) [51]. All of these domains of trust could influence decisions to donate blood [55] and work is needed that explore the wider domains of trust if targeted interventions are developed.

Trust and distrust are seen as distinct constructs [56–57]. They both function to reduce social complexity but are considered separate constructs, as they achieve this reduction in different ways [56–57]. That is, trust simplifies the social world by creating positive expectations, simplifying decision-making and allowing desirable acts to be perceived with certainty [56–57]. Distrust is more complex and is often conditional on other's actions, and motivating protective actions linked to feelings that others will actively cause harm [56–57]. Work examining trust in the context of blood donation needs to be careful to ensure trust and distrust are clearly delineated.

Clinical trials approach

When considering developing, progressing and scaling new interventions to recruit and/or retain blood donors, it is necessary to ensure that these are effective and have no unforeseen negative consequences. As such, a *clinical trials* model should be applied [58–59]. That is, a behavioural intervention, like a pharmaceutical intervention, contains active ingredients; otherwise, no effect of the intervention would be expected. As with all active ingredients, positive outcomes, as well as negative unforeseen consequences, can occur [56]. Thus, early-stage phase-1 and phase-2 laboratory studies, to examine initial effectiveness and test for any unforeseen consequence, are needed initially. The VRA and AIA studies reported here and the early studies of warm glow are examples of this. These can then be scaled up to feasibility trials, RCTs, and once implemented implementation analyses conducted [59].

General conclusions

Fairness and reciprocity are the main motivations to focus on when considering recruiting new donors. It is recommended that interventions such as VRA and AIA are potentially likely to be fruitful avenues to pursue here. Warm glow is the central motivation for repeat donations. The prosocial moral emotions and emotional trajectories are constructs to be considered for future research on motivation and interventions. However, considering the clinical trials approach both VRA and AIA require further testing in RCTs before any rollout. Furthermore, while I focused here on motivations linked to theories of altruism and cooperation, there are other theoretical frameworks such as the theory of planned behaviour (TPB), social determination theory (SDT) and health belief models (HBM) that have been successfully applied to blood donor behaviour [60]. However, many of the predictive constructs from TPB (e.g. affective attitudes) and SDT (e.g. intrinsic motivation) are equivalent to warm glow and others overlap with other mechanisms of altruism [61–62]. I have also not considered specific intervention techniques such as reminders, targeted campaigns for specific groups and the use of incentives. These can all work in conjunction with the motivation described here as the message described (VRA, AIA, warm- glow) can be part of the initial communications and reminders but sit separately to incentives.

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Conflict of Interests

The authors declare no conflict of interests.

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