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RESEARCH ARTICLE

JUST GIVE ME A REASON: HOW GOAL SETTING INCREASES THE NUMBER OF BLOOD DONATIONS

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ABSTRACT

In general, there is a positive attitude towards blood donation but only a very small percentage of the population that are eligible to donate blood actually does. Based on ability-opportunity-motivation theory and goal-setting theory, we espouse that asking potential donors to commit to a donation goal in the form of a specific reason for donating blood increases donation frequency.

In an online experiment with a sample of 168 respondents conducted in Austria, different donation goals were developed based on medical data and tested. As a result, we were able to show that asking people to "just" donate, which is currently the standard communication approach of many blood donation organizations, if applied to 100 potential donors would result in 98 blood donations. However, motivating blood donors to reach a goal that requires multiple blood donations more than doubles the number of blood donations over the course of a year. If we think one step further and have potential blood donors select the most appropriate donation goal for them based on the effectiveness, this will triple the amount of blood donated compared to "just donate blood again".

The goal of blood donor organizations should therefore be to use appropriate communication measures to encourage potential blood donors to commit to a blood donation goal that suits them best. This could then motivate them to donate blood more frequently, which would increase the amount of blood donated and secure a continuous supply of much-needed blood.

KEYWORDS

blood donation, goal setting, donor retention, commitment, motivation, communication

INTRODUCTION & BACKGROUND

Demand for blood donations is constant and many countries face an ongoing challenge of collecting enough blood from safe donors to cover national demand [1]. In particular, due to the COVID-19 pandemic, the worst blood shortage in more than a decade has emerged across the globe [2]. Motivating potential blood donors is thus essential for ensuring a steady blood supply [3]. In many countries, voluntary and unpaid blood donors are critical to the proper functioning of health systems [4]. Although generally, people have a positive attitude toward donating blood [5], figures worldwide show only a very small percentage (about 3 to 4%) of eligible blood donors actually donate [6, 7]. The pool of people willing to donate

blood is already small (e.g., 37% in the US); and if people then donate only once or are no longer eligible or willing to donate regularly, there may be shortages in the blood supply. Although first-time donors are important to replace donors who leave the system either voluntarily or who maybe forced to [8], they often donate only once and not regularly [9–12]. Assuming that people who have donated blood before generally have a positive attitude towards blood donation, further encouragement (e.g. communication measures) can enhance their motivation to donate blood again given that they are still eligible to donate. Therefore, blood donor organizations are constantly striving to implement measures to attract new donors or to encourage existing blood donors to donate again.

Above all, communication strategy plays a decisive role in increasing blood donation [13]. Blood donor organizations should use appropriate communication strategies at an early stage to (re)motivate potential donors to give blood and thus ensure a sustainable supply of blood.[11]. In their communications, blood donation organizations often use the generic slogan "save lives" to encourage people to donate blood, despite experimental findings questioning the effectiveness of communication campaigns that rely on this message [14]. Consequently, questions regarding alternative communication approaches and messages to motive blood donors arise. Hence, we propose that setting a specific donation goal, such as donating enough blood needed for a specific medical treatment, would motivate blood donors to donate more frequently and therefore increase the amount of blood donations within a given period of time. Based on ability-opportunity-motivation theory and goal-setting theory, we show how asking former blood donors to commit to a specific donation goal increases donor performance in the form of donation frequency, thus potentially increasing the volume of blood donations per donor.

The ability-opportunity-motivation (AOM) theory is an established conceptualization for classifying the determinants of individual performance [15]. AOM states that a combination of an individual's ability, motivation, and their opportunities can give a measure of an individual's performance, with all three factors needing to be present for performance to occur [16, 17]. Ability is the amount of cognitive, emotional, financial, physical, or social resources that a person can use to perform a particular behavior including variables such as age, health, knowledge, educational level, and energy level [16]. Opportunity refers to relevant constraints that enable a behavior and is the factor that describes the environment in which individuals use their motivation. Motivation describes the process of activating individuals to achieve a goal [18]. Motivation includes variables such as attitude, personality, values, involvement, engagement, and expectations.

In the context of blood donation, performance can be defined as the number of donations in a given period of time. Volunteers' physiological abilities are variables such as ageand health status. The requirements for donating blood are not the same throughout the world. In Austria, people between 18 and 70 who meet certain health and legal criteria may donate blood. First-time donors must not have reached the age of 60 at the time of their first donation. Body weight must be at least 50 kg. However, these variables cannot be influenced either by the volunteer or the blood donation organization. Knowledge (e.g., about the benefits of donating blood or the blood donation process) can be actively obtained by the potential blood donor. Blood donor organizations can support this knowledge acquisition by providing comprehensive information.

The opportunity to donate refers to all environmental factors that affect the individual donor. Blood donor organizations can influence these factors. For instance, blood donation organizations need to create donation-environments that allow volunteers to donate blood without much effort. This includes offering blood donation appointments at locations and times that are convenient for volunteers and providing information about these appointments as part of communication efforts. The on-site collection environment must also be designed so that volunteers feel comfortable during donating blood and leave being satisfied with the experience. Satisfaction with the process of blood donation is essential for blood donors to come back to donate again [10].

Finally, volunteers must be willing and motivated to participate. There are a large number of studies in the literature that look at the different forms of motivation for donating blood (e.g. altruism, reciprocity, social closeness, fairness, donor identity) [19–21]. In this paper we focus on how communication efforts by blood donation organizations, such as in asking the potential donor to set a specific donation goal, can increase motivation to donate blood. For this purpose, we draw on goal-setting theory. Goal-setting is essentially related to task performance [22].

A specific goal, along with appropriate feedback, indicates what needs to be done and how much effort needs to be put in, contributes to higher motivation and ultimately better task performance. Since conscious human behavior is purposeful and is regulated by the individual's goals [23], setting a goal gives individuals a broader vision behind what they are doing. As people better understand the big picture and the result they are trying to achieve, they will be more motivated to work towards the goal. Against this background we claim that asking potential donors to set a specific donation goal, rather than simply asking them to donate (again), increases motivation to donate and thus also leads to better performance in terms of a higher number of blood donations.

METHODS

STUDY DESIGN

A scenario analysis was carried out based on the theoretical findings of the AOM theory and the goal-setting theory. As the study is exploratory and not structure-testing, it aims to analyze possible future developments and present them coherently. Alternative future situations are described. As a first step, we developed various donation goals. We then collected data and finally developed scenarios to predict blood donation volumes based on this data. To obtain realistic blood donation goals, we designed donation goals based on a literature review and discussed in a second step with a group of experts consisting of employees of the Austrian Red Cross and physicians. After these consultations, we developed three treatments that differ in relation to the reason to donate and the frequency of donation. The donation goals to be achieved within a time frame of one year were: donating blood once again, donating two times for cancer treatment, and donating four times for heart surgery (see Table 1).

TABLE 1. OVERVIEW ON TREATMENTS

	Donation Goals		
	Goal 1: **Donating once again**	Goal 2: **Donating two times for cancer treatment**	Goal 3: **Donating four times for heart surgery**
Basic information for participants	Every 80 seconds, a unit of blood is needed in Austria—that's up to 400,000 units per year. Whether in accidents, operations, serious illnesses such as cancer, or even during births, human blood is one of the most important "medicines" in an emergency and cannot be replaced by anything else. The need for blood reserves during operations depends, of course, on the "severity" of an intervention. On average, however, heart operations, for example, require the processed blood of four blood donations to supply the patient. Organ transplants or the treatment of accident victims with severe injuries may require 20 or more blood donations. The Austrian Red Cross is faced with the task of ensuring an ongoing supply of blood. Please indicate to what extend you can contribute to the following donation goal.		
Treatment (Donation Goal)	I am willing to donate blood again to support the blood supply in Austria in general.*	I am willing to donate blood 2 times within a year, thereby enabling the treatment of a cancer patient. As a service, the Austrian Red Cross would then take the liberty of reminding you of the appointments offered in your area. If you donated	I am willing to donate blood 4 times within a year to make one heart surgery possible. As a service, the Austrian Red Cross would then take the liberty of reminding you of the appointments offered in your area. If you donated blood 4 times within a

	*Assumption: donation will be in a timely manner (within a year)	blood 2 times within a year, you would receive a small thank you gift from the Austrian Red Cross.	year, you would receive a small thank you gift from the Austrian Red Cross.
Willingness to donate	Measured as single item on a 5-point-Likert Scale 1 =strongly agree to 5 = strongly disagree		

SAMPLE

The research team has been working closely with the Red Cross in Austria for some time with the aim of finding out more about the behavior of blood donors. In the past, the focus has been on studies of both current blood donors and potential blood donors. In addition to attracting new blood donors, the Austrian Red Cross aims to reach out to people who have already donated and encourage them to donate again. It can be assumed that this group of people has a positive attitude towards donating blood and a certain willingness to donate blood. Therefore, this study is aimed at blood donors who have already donated, i.e. for whom contact details are already available. In order to find out more about their behavior and to analyze potential reasons for not donating and subsequently to jointly develop future measures to increase the volume of blood donations, in cooperation with the Austrian Red Cross, those people were selected from the blood donation database who live in a certain area, have donated blood at least once but have not donated blood in the last three years, and who could be reached via e-mail. 4,000 former blood donors received an invitation from the Austrian Red Cross to participate in an online survey. It was ensured that the data could not be traced back to individual donors.

This approach is also in line with the Ethics Commission of the University of Graz. According to its guidelines, research projects involving human subjects that may impair the physical or psychological integrity of the subject or the right to privacy or other important rights and interests of the subject or their relatives must be examined for their ethical justifiability. The survey in connection with this study did not require separate approval.

MEASUREMENT

The questionnaire was developed on the basis of previous studies using validated scales. The questionnaire included questions about satisfaction with previous blood donations, intention to donate blood again and attitude towards donating blood. Satisfaction was measured with one item on a five-point scale from 1 = very satisfied to 5 = not satisfied. Intention to donate again within the next six month was measured by asking "That I donate blood in the next 6 months is ..." with answers using a 5-point scale with 1 = certain to 5 = out of the question [24]. Attitudes towards donating blood were assessed by the average of six semantic differentials; "Donating blood is … not challenging–challenging, pleasant–not pleasant, useful–useless, worthwhile–not worthwhile, not extraordinary–extraordinary, desirable–not desirable." [25] The items were scored between 1 and 5. The questionnaire was pre-tested with a sample of students – all previous donors.

Since each of the blood donors was randomly assigned to one of the three treatments, these constructs were used alongside demographic variables for checking if the treatments differ from one another. After reading the treatments the respondents answered on a five-point Likert scale their willingness to donate for the specific donation goal (see Table 1). After a two-week data collection period in spring 2018, the final sample for the three treatments included 168 respondents—56 to donate blood again, 57 to donate twice to treat a cancer patient, and 55 to donate four times for heart surgery.

To see if the groups that resulted from random assignment of donation goals differed on demographic variables such as age, number of previous donations, satisfaction with previous donations, attitude towards donating blood, and intention to donate again an ANOVA was conducted that revealed no differences (see Table 2). About 60 % of the respondents were female. The average age of the sample was 39 years. The average number of blood donations before subjects discontinued donating was 12.4.

TABLE 2. DESCRIPTION OF THE SAMPLE

	Mean Values				
	Overall sample (n = 168)	Goal 1: Donating once again (n = 56)	Goal 2: Donating two times for cancer treatment (n = 57)	Goal 3: Donating four times for heart surgery (n = 55)	Sig.
Age	38.9	39.7	35.4	39.5	n.s.
Number of donations before discontinuation of donation	12.4	13.4	11.7	11.4	n.s.
General satisfaction with blood donation [a]	1.29	1.21	1.35	1.27	n.s.
Attitude towards blood donation [b]	1.82	1.70	1.83	1.94	n.s.
General intention to donate blood again in the near future [c]	2.21	2.23	2.16	2.07	n.s.

Note: n.s. p < .10; *p < .05; **p < .01; ***p < .001.
a: Item measured on a 5-point Likert-Scale: 1 = "very satisfied" to 5 = "not satisfied"
b: Items measured on a 5-point Likert-Scale: 1 = "strongly agree" 5 = "strongly disagree"
c: Item measured on a 5-point Likert-Scale: 1 = "certain" to 5 = "out of question"

RESULTS

Firstly, we analyzed the differences in the frequencies of willingness to donate for the three donation goals. Aggregating the first two categories (strongly agree and agree) of the five-point Likert scale measuring "willingness to donate", we find that 98.2% of respondents who read the "donate again" treatment are willing to donate. When considering the group of respondents who read the donation goal "donate twice for heart surgery", 73.3% of respondents are willing to donate. In the case of the third group who have read the treatment "donate four times for heart surgery", 58.2% are willing to donate. (see Table 3).
The results of an ANOVA statistical test show, that there are significant differences ($p<0.001$) in the willingness to donate for each of the three donation goals. The mean value of the willingness to donate measured on a 5-point scale from 1 = strongly agree to 5 = strongly disagree for Goal 1 ("donating once again") is 1.21, the mean value for Goal 2 ("donating two times for cancer treatment") is 1.86, and the mean value for Goal 3 ("donating four times for heart surgery") is 2.24. This indicates the lower the effort required, the higher the willingness to donate.

More importantly, our study shows that setting specific donation goals that motivate blood donors could increase the frequency of blood donations and thus the amount of blood donated within a given period of time. If we assume that, for the three donation goals, the willingness to donate can be equated with the probability of donating blood, then this can lead to the following number of blood donations in the course of a year—based on 100 potential donors—(Figure 1): In the case of the donation goal "donate blood one more time," 98 people would donate blood once within a year and 2 would not, resulting in a total of 98 blood donations. In the case of the donation goal "two donations for the treatment of a cancer patient," 73 people would donate blood; but, more importantly, they would donate blood two times a year. This would result in 146 blood donations. And finally, in the case of "four donations for a heart operation," 58 people would donate blood, but in this case, they would donate blood four times a year. Consequently, this would lead to 232 blood donations per year.

In essence the result of this analysis is that it makes sense for an organization not only to ask potential donors to donate, but to ask them to set a donation goal. The more ambitious the goal is, the lower is the willingness to choose the goal. However, since the more ambitious goals result in a higher number of donations, this makes up for the lower willingness to choose them. So, finally, although the probability for the goal "four donations for a heart operation" is the lowest, Goal 3 turns out as the most effective option for the organization.

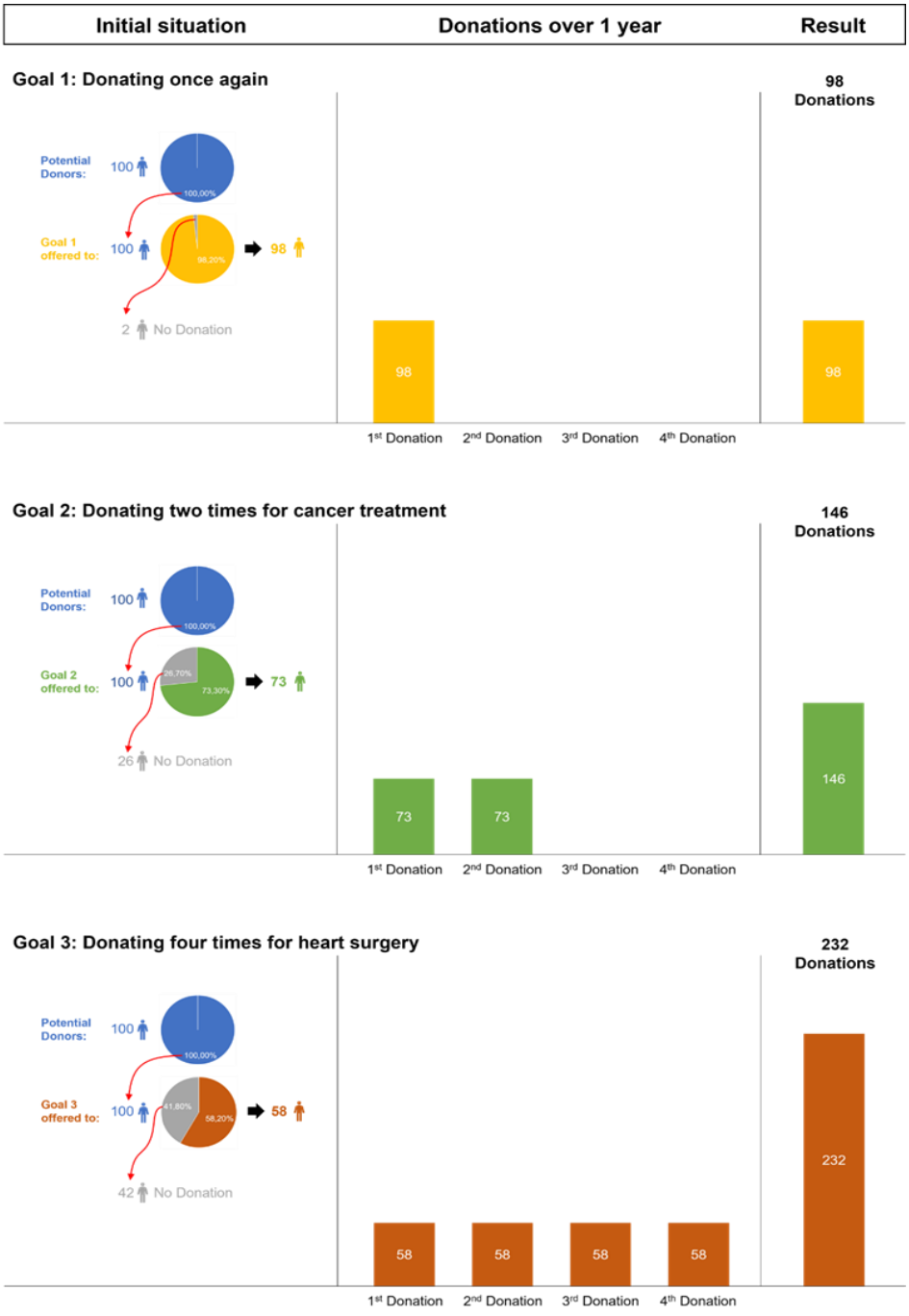
TABLE 3. RESULTS OF THE DONATION GOALS REGARDING WILLINGNESS TO DONATE AND EFFECTIVENESS

	Goal 1: Donating once again	Goal 2: Donating two times for cancer treatment	Goal 3: Donating four times for heart surgery
Aggregated* frequency of willingness to donate[a]	98.2	73.3	58.2
Mean value of willingness to donate [a]	1.21	1.86	2.24
Effectiveness	3	2	1

[a]: Item measured on a 5-point Likert-Scale: 1 = "strongly agree" 5 = "strongly disagree"

*Note: Responses to "1 = strongly agree" and responses to "2 = agree" on the 5-point Likert-Scale were aggregated.

FIGURE 1. NUMBER OF POSSIBLE DONATIONS DEPENDING ON THE DONATION GOAL

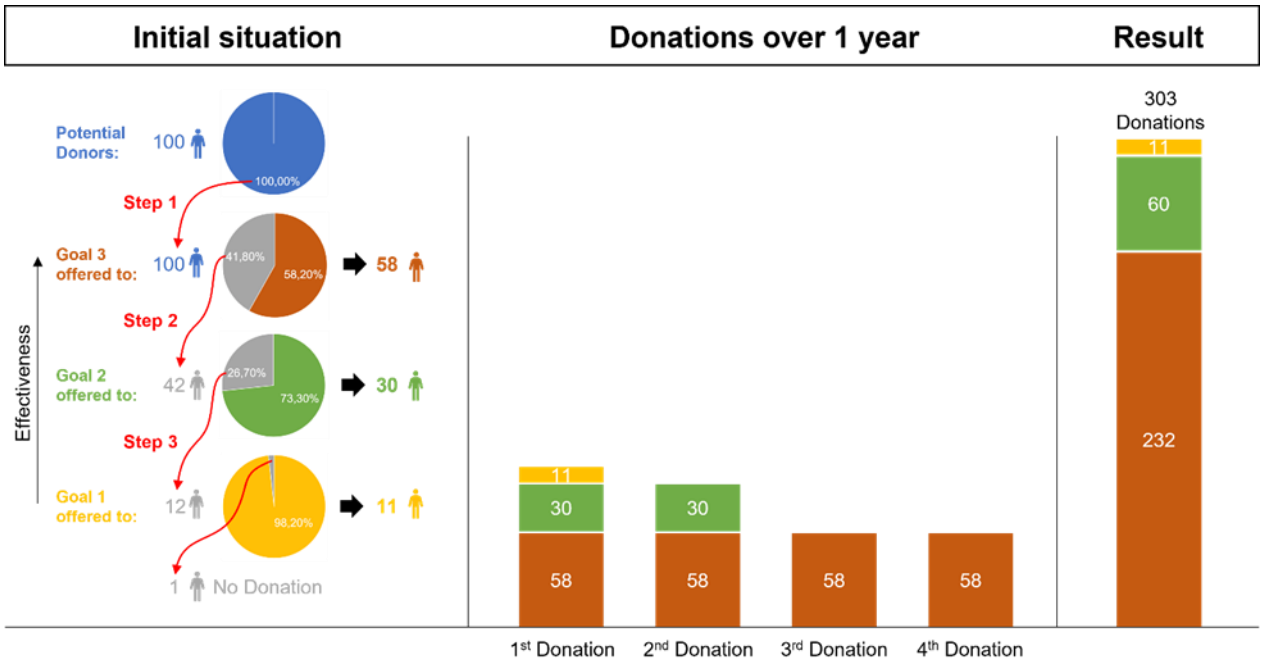


DISCUSSION

The results from our study show that setting a donation goal can increase the potential number of blood donations. For blood donor organizations, this is significant in that by optimizing their communication strategy and asking the potential donors to set a donation goal instead of asking them to donate "once again," they can generate more blood donations in a given time period and better secure the blood supply. As a result, we were able to show that asking people to "just" donate, which is currently the standard communication approach of many blood donation organizations, applied to 100 potential donors would result in 98 blood donations. However, motivating blood donors to reach a goal that requires multiple blood donations more than doubles the number of blood donations over the course of a year compared to the "just donate once again"-goal.

The analysis also shows that there is a difference in willingness to donate depending on the donation goal. For the most ambitious goal ("four donations for a heart operation") the willingness is the lowest; but it turns out to be the most effective goal since the total number of donations over one year is the highest. In particular, 58% of potential donors would be willing to follow this goal, which means that 42% would not donate at all. Why should these potential donors not be addressed with the second effective goal for the organization? Or in other words, it seems to be goal-oriented to offer potential donors the goal with the highest effectiveness; if they are not willing to accept, the goal with the second-best effectiveness would be offered and so on. By applying this idea, which follows the principle of skimming the different levels of willingness to donate and is ultimately an optimization idea, the following result could be achieved (Figure 2): Assuming the starting point is 100 potential donors, in a first step they would be addressed with the donation goal with the highest effectiveness, donation Goal 3 ("four donations for a heart operation"). As it was shown in the analysis, this would lead to 232 donations per year. Since in this case 42 people did not agree to accept the goal, they could now in a second step be addressed with the second-best goal in terms of effectiveness, Goal 2 ("two donations for the treatment of a cancer patient"). The probability to accept Goal 2 is 73.3 percent, which would lead to 30 people who are willing to donate two times a year. This would add another 60 donations to the 232 gained with Goal 3. At the end of the second step, there would still be 12 people left, who could not accept Goal 2. So in step 3, the third-best Goal 3 ("donating once again") could be offered to them. The probability of accepting Goal 3 is 98.2 percent, which would lead to 11 donors. Since these people are willing to donate once in a year, this offer would add another 11 donations. One person who does not want to donate would remain. Consequently, finally by offering the goals in a sequence according to their effectiveness, a total number of 303 donations could be achieved, if all the donors would fulfill their donation goal.

FIGURE 2. MAXIMIZING NUMBER OF DONATIONS BY OFFERING GOALS IN A SEQUENCE ACCORDING TO THEIR EFFECTIVENESS



The goal of blood donor organizations should therefore be to use appropriate communication measures to encourage potential blood donors to commit to a blood donation goal that suits them best. This could then motivate them to donate blood more frequently, which would increase the amount of blood donated. For the blood donation organization, however, this then also means that communication measures must be precisely tailored to the individual blood donor and also reward the achievement of the goal. Furthermore, once the goal has been reached, the communication must be adapted in such a way that the blood donor continues to be motivated to donate. In addition to the managerial implication for blood donor organizations, our contribution to the blood donation literature is that this study, to our best knowledge, is the first to apply AOM theory and goals setting theory in the context of blood donation, explaining another possible motivation to donate.

CONCLUSION

The assumption of this study was that goal setting increases the number of blood donations by giving individuals a specific goal to work towards, which increases their motivation and commitment to donate. Setting a donation goal, namely to donate blood for a specific medical treatment, is intended to increase donor performance in terms of donation frequency. This approach is in line with the concept of goal-setting theory, according to which setting specific goals leads to higher motivation and performance. The use of specific donation targets proved to be more effective in motivating blood donors than general appeals to "just donate again". Selecting donation goals that align with individual motivation can maximize donation volume. The results of the study demonstrate the importance of implementing goal-setting strategies to increase the number of blood donations and ensure a continuous supply of blood. The results of the study underline the importance of communication strategies that focus on donation targets in order to increase the number of blood donations. In order to apply these findings more broadly, blood donation organizations need to adapt their communication approaches and incorporate goal-oriented elements into their donation campaigns. Putting these research findings into practice would mean tailoring communication messages to encourage donors to commit to specific donation goals that match their ability and motivation. By scaling up this approach and integrating it into donation campaigns, organizations can potentially increase donor numbers and ensure a sustainable supply of blood. Although the study was conducted in Austria, the principles of goal setting and motivation in blood donation can be applied worldwide. The Austrian Red Cross or any other blood donation organization could potentially benefit from using similar goal setting strategies to increase blood donations. The Austrian Red Cross has already made initial attempts on social media to implement the idea of donation goals through stories about the personal fate of blood donation recipients. In the future, concrete measures will be considered as part of the communication strategy, taking into account the results of this study.

LIMITATIONS AND FUTURE RESEARCH

This study is intended to be exploratory and therefore has some limitations. In the context of the AOM theory, setting a goal was assumed to be the motivation for donating blood. Other motivations for blood donation, such as a generally existing intrinsic motivation, altruism, or hedonism as motivation or social pressure or closeness, fairness or donor identity were not considered in this study. The sample size per treatment is small, between 55 and 57 respondents. Each respondent also evaluated only one randomly assigned donation goal and could not choose the donation goal that was most attractive to them. Therefore, a competitive setting could lead to different results. We also assumed that the blood donors would like to complete the goal that they are willing to achieve and did not examine the actual behavior of the participants. It was also assumed that the blood donation organization supports the blood donors in achieving the donation goal by regularly reminding them about blood donation events. In order to inform the blood donor about the achievement of the set goal, it would be ideal if the donor received the information for which specific medical case the blood was used. In Austria, however, this is not possible due to legal regulations. In addition, it is not possible to ensure that the donated blood is used at all for the intended donation goal. Furthermore, for the formulation of donation goals, only average values can be given for the amount of blood that is actually needed for medical treatment.

In a further study the intention to donate blood and achieving a set donation goal and then the actual blood donation behavior should be investigated. For this purpose, however, the donation goal should not be selected

randomly, but selected in such a way that blood donors can freely choose a donation goal or possibly rank their preferences.

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